APPENDIX K SCOPING REPORT

This page intentionally left blank.

Scoping Report

Hazardous Fire Risk Reduction Environmental Impact Statement

East Bay Hills, California

November 2010

Federal Emergency Management Agency
Department of Homeland Security
Region IX
1111 Broadway, Suite 1200
Oakland, California 94607-4052

This document was prepared by

URS Group, Inc.
1333 Broadway, Suite 800
Oakland, California 94612

Contract No. HSFEHQ-09-D-1130
Task Order HSFEHQ-10-J-0012

15702512.120UO

Table of Contents

Acronyms and Abbreviations iii
1 Introduction 1
2 Proposed Action 1
3 Proposed Action: Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment as Submitted to FEMA 1
4 Alternatives 2
5 Cooperating Agencies 2
6 Scoping Process 3
6.1 Notice of Intent 3
6.2 Public Scoping Meetings 3
6.2.1 Meeting Notifications 3
6.2.2 Date and Location of Public Scoping Meetings 4
6.2.3 Informational Materials 4
6.2.4 Meeting Format 4
7 Scoping Comments 5
7.1 Summary of Public Scoping Comments 24
8 Environmental Impact Statement Outline 24
9 Proposed Schedule 24
10 References 24

Appendices

Appendix A Notice of Intent (NOI) and NOI Comment Period Extension
Appendix B Public Meeting Advertisement, Post Card, E-mail Notification, and Press Release
Appendix C Sign-in Sheets for Both Public Meetings
Appendix D Meeting Handouts
Appendix E Public Scoping Meeting Presentation and Oral Comments Transcripts
Appendix F Written Comments Received by E-mail, Websites, Fax, Mail, or Submitted at Scoping Meeting
Appendix G Draft EIS Outline
Appendix H Proposed EIS Schedule

Tables

Table 1 Topics, Subtopics, Number of Commenters and Comments, and Issues in the Comments 6

Table 2 Summary of Comments by Topic 10

Acronyms

Cal EMA	California Emergency Management Agency
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
EBRPD	East Bay Regional Park District
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
HMGP	Hazard Mitigation Grant Program
NEPA	National Environmental Policy Act of 1969
NOI	Notice of Intent
PDM	Pre-Disaster Mitigation Program
UC	University of California
UCB	University of California, Berkeley

1 Introduction

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) is preparing an Environmental Impact Statement (EIS) for Hazardous Fire Risk Reduction in East Bay Hills, California. The EIS is being prepared pursuant to the National Environmental Policy Act of 1969 (NEPA) (42 U.S. Code §§ 4321–4327) and in accordance with the Council on Environmental Quality's (CEQ) Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508), and FEMA's NEPA implementing regulations (44 CFR Part 10), Environmental Considerations.

The scoping process is an integral part of NEPA compliance and is intended to ensure that the full range of environmental issues and alternatives for the proposed action are evaluated in the EIS. The primary purpose of scoping is to evaluate the comments that are received and make decisions about which issues will be studied in detail in the EIS. The scoping process is described in more detail in Section 6 of this report.

The Scoping Report is the tool by which the Federal agency that is preparing the EIS makes the public aware of the decisions that have been made regarding which issues will be studied as part of the EIS process. This Scoping Report provides background on the proposed action, a description of the scoping process to date, a summary of the key issues identified by members of the public during the scoping comment period, the proposed EIS schedule, and a draft outline for the EIS. The Scoping Report provides a summary of the input that FEMA has received regarding the proposed action, alternatives, and scope of the EIS analysis.

2 Proposed Action

FEMA has concluded that a need exists to reduce hazardous fire risk to the built environment in Applicant-identified areas of the East Bay Hills, based on the wildfire hazard characteristics of the East Bay Hills. The purpose of the proposed Federal action is to address the identified need by providing Federal financial assistance to the Applicant through the Pre-Disaster Mitigation (PDM) Program and the Hazard Mitigation Grant Program (HMGP) for long-term, cost-effective actions to reduce or eliminate the risk of damage and loss of life from wildfire, through fuel reduction, to previously identified vulnerable structures.

3 Proposed Action: Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment as Submitted to FEMA

The region informally known as the East Bay Hills is generally defined as the area east of San Francisco Bay that consists of topographic features with elevations ranging from 1,000 feet to 3,000 feet above mean sea level. The geographic names of the topographic features include San Pablo Ridge, Gudde Ridge, Berkeley Hills, and San Leandro Hills. The East Bay Hills comprises portions of Alameda and Contra Costa counties and includes the cities of Berkeley, El Cerrito,

Oakland, and San Leandro, among others. Much of the East Bay Hills is covered by densely built residential neighborhoods of mostly single-family homes, but the region also includes large tracts of open space and wildlands that are operated and managed by the University of California, Berkeley (UCB); East Bay Regional Park District (EBRPD); and East Bay Municipal Utilities District.

UCB, the City of Oakland, and the EBRPD have submitted grant applications to FEMA, through the State of California Emergency Management Agency (Cal EMA), requesting funding under the HMGP and the PDM Program to reduce hazardous fire risk to the built environment in Applicant-identified areas of the East Bay Hills. The proposed action involves a total of approximately 980 acres of wildland-urban interface.

Hazardous fire risk reduction is defined in FEMA's Mitigation Policy MRR-2-08-1, *Wildfire Mitigation Policy for the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) Program* (FEMA, 2008), which describes long-term, cost-effective actions taken to reduce or eliminate damage to vulnerable structures and associated loss of life from future wildfire. However, the specific requirements and eligibility criteria of the mitigation policy apply only to projects for which the application period was open on or after September 8, 2008.

4 Alternatives

There are three alternatives, in addition to the proposed action (see Section 3), which are being studied in detail in the EIS. The alternatives, listed below, are based on the comments that were received during scoping.

- No action, which involves denying the grant applications
- Funding grant applications for hazardous fire risk reduction to the built environment with environmental conditions or methodologies that are different from the proposed action
- Partially funding grant applications for hazardous fire risk reduction to the built environment, including funding some and denying others

5 Cooperating Agencies

FEMA is the lead agency in conducting the NEPA activities associated with the hazardous fire risk reduction (proposed action). Other Federal, State, and local agencies may be involved in the NEPA process because of special expertise with respect to any environmental issue, jurisdiction by law, or need to approve or finance a portion of the proposal. FEMA has invited the U.S. Forest Service, the National Park Service, the U.S. Fish and Wildlife Service, Cal EMA, UCB, EBRPD, and the City of Oakland to be Cooperating Agencies, and all have accepted. FEMA and the Cooperating Agencies have executed a Memorandum of Understanding to govern the working relationship for the preparation of the EIS.

On October 15, 2010, FEMA invited the National Marine Fisheries Service to be a Cooperating Agency for this EIS and is awaiting their acceptance.

6 Scoping Process

The public scoping process is required by NEPA regulations and is an integral part of NEPA compliance. The scoping process is an early and open process for determining the scope of issues to be addressed in the EIS. During the scoping period, also referred to as the public comment period, the lead Federal agency, in this case FEMA, describes the proposed action and possible alternatives and then seeks input from the general public, local businesses, community associations, stakeholders, affected governmental agencies, and other interested parties. The objectives of scoping are to identify the affected public and agency issues of concern; facilitate an efficient EIS preparation process through the assistance of Cooperating Agencies; and define issues and alternatives that will be examined in detail in the EIS.

Comments could be submitted by mail, e-mail, fax, through the project website or the *Federal Register* website, or in person during public scoping meetings.

6.1 Notice of Intent

The scoping process begins with the publication of the Notice of Intent (NOI) to prepare an EIS. The NOI for the Hazardous Fire Risk Reduction EIS was published in the *Federal Register* on June 10, 2010 (75 Fed. Reg. 32,960–32,961). The ending date in the NOI was given as July 12, 2010, but the comment period was later extended to October 1, 2010, and a revision to the NOI was published in the *Federal Register* on July 28, 2010 (75 Fed. Reg. 44,275–44,276). The NOI and its revision are included in Appendix A.

6.2 Public Scoping Meetings

The purpose of the public scoping meeting is to engage the general public, local businesses, community associations, stakeholders, affected governmental agencies, and other interested parties in the NEPA process and to solicit input regarding the scope and the significant issues to be analyzed in the EIS.

6.2.1 Meeting Notifications

A scoping meeting announcement requesting comments regarding the scope of the EIS was advertised in the *Oakland Tribune* on August 12, 2010. Federal, State, and local agencies and groups and individuals listed in the stakeholder database were notified of the meetings by mail (a postcard was mailed on August 12, 2010) and by e-mail (a message with the announcement was e-mailed on August 20, 2010). A media advisory/press release announcing the two scoping meetings was provided to media outlets on August 17, 2010. The advertisement, postcard, e-mail announcement, and press release are included in Appendix B.

The stakeholder database, including mailing addresses and e-mail addresses, was developed from information available from a previous similar study and from the Cooperating Agencies. After the scoping meetings, the database was updated using information provided by meeting participants and will continue to be updated throughout the EIS process.

6.2.2 Date and Location of Public Scoping Meetings

Two public scoping meetings were held on Thursday, August 26, 2010, at the Trudeau Center, 15500 Skyline Drive, Oakland, California.

6.2.3 Informational Materials

At the scoping meeting, attendees were greeted and asked to register. They were given the following informational materials:

- Comment cards
- NOI and revised NOI
- Understanding NEPA Fact Sheet
- FEMA Project Fact Sheet
- EIS Flowchart
- Hazardous Fire Risk Reduction EIS Milestones
- Map showing all proposed projects in study area (cumulative projects)
- Maps showing the locations of the proposed action

The informational materials, except for the comment card, NOI, and revised NOI, were also presented on posters at stations staffed by project team members and representatives of the agencies that have applied for funding. The meeting sign-in sheets are included in Appendix C. All of the informational materials are included in Appendix D, except the NOI and revised NOI, which are in Appendix A.

6.2.4 Meeting Format

The agendas for the meetings were:

Afternoon Meeting	**Evening Meeting**
2:00 – 3:00 p.m. Open House	6:30 – 7:30 p.m. Open House
3:00 – 3:30 p.m. Presentations	7:30 – 8:00 p.m. Presentations
3:30 – 4:30 p.m. Open Forum for Comments	8:00 – 9:00 p.m. Open Forum for Comments

The open house period provided attendees with an opportunity to visit the stations described in Section 6.2.3.

A professional facilitator led the presentation and comment portions of the meetings.

FEMA's Region IX Hazard Mitigation Project Manager presented an overview of FEMA's Hazard Mitigation Assistance Program and the East Bay Hills hazardous fire risk reduction grant applications. FEMA's Region IX Environmental Officer then described the NEPA process.

During the open forum for comment, attendees were given the opportunity to provide oral comments, which were recorded by a certified court reporter. This portion of each meeting continued until no further scoping comments were offered. At the end of the meeting, attendees were reminded that they could submit written comments on the comment cards at any time during the public comment period.

7 Scoping Comments

During the public scoping process, comments were submitted:

- On comment cards during the public scoping meetings
- As oral comments, which were recorded, during the public scoping meetings
- By fax
- By letter
- By e-mail through the project website (http://ebheisforca.ursdcmetro.com)
- By e-mail through the *Federal Register* website (http://www.regulations.gov)

Every submission has been given a number that correlates to the method of submission and the date of receipt.

The comments are summarized in this section. A transcript of the oral comments is provided in Appendix E, and the written comments are provided in Appendix F.

More than 60 people attended the two public scoping meetings, and 28 expressed comments orally. A total of 114 comments, including the 28 oral comments, were received. Eight were duplicates, leaving 106 discrete submissions. All submissions were read and analyzed for substantive comments. Comments are defined as discrete concepts that are conveyed in the submissions. Substantive comments fell into a number of topics that were grouped as regulatory compliance; purpose and need; proposed action, alternatives, and mitigation; affected environment or environmental consequences; and general comments. Table 1 contains the number of comments in each topic category and a summary of the comments.

Pursuant to CEQ regulations and scoping guidance, the issues relevant to the proposed action that are addressed in the comments will be considered in the EIS and are summarized in Table 2. The resource specialists involved with preparing the EIS will review and address the comments to ensure that the EIS benefits from the full import of the comments that were received.

Table 1. Group, Topics, Number of Commenters and Comments, and Issues in the Comments

Group	Topic	Number of Commenters	Number of Comments	Issues in the Comments
Regulatory Compliance	EIS Process	24	28	EIS process, general analysis, and relationship to pending EBRPD litigation
	Scoping Process	13	14	Compliance with the NEPA process for public scoping, including the scoping process, comment period extension, confirmation that e-mails were received, groups or agencies that may want to be involved, requests for coordination, information about previous coordination, and requests to be added to mailing lists
Purpose and Need	Fire Hazard/Behavior	55	144	Fire behavior, fire models, fuels, fire hazards, and relative fire risks (also see “Fire Hazard/Behavior” under “Affected Environment”)
	Program	18	64	Consistency of applications to program or policy requirements, program eligibility, FEMA funding and application process, and funding
Proposed Action, Alternatives, and Mitigation Measures	Alternatives	44	78	Proposed alternatives, other alternatives to consider including alternative treatments and methods, and information that may inform alternative development
	Debris/Chips	10	11	Debris, chip characteristics, chip decomposition, chip placement (also see “Fire Hazard/Behavior” under “Affected Environment” for comments about fire hazard associated with debris/chips)
	Tree removal	13	13	Tree removal (also see “Climate Change” and “Forestry” under “Affected Environment” and “Alternatives” under “Proposed Action”)
	Maintenance, Monitoring, and Management	8	17	Ongoing maintenance activities (both current and under the alternatives), monitoring of results, and post-project vegetation management

Table 1. Group, Topics, Number of Commenters and Comments, and Issues in the Comments

Group	Topic	Number of Commenters	Number of Comments	Issues in the Comments
Affected Environment: Resource or Area of Concern OR Environmental Consequences: Potential Direct, Indirect and Cumulative Impacts	Aesthetics	18	27	Visual resources and general enjoyment of the area
	Air Quality	8	8	Air quality (also see "Climate Change" under "Affected Environment")
	Biology	29	56	Impacts to species, habitat, and wildlife
	Climate Change	18	27	Carbon release, impacts to and impacts of global warming, and large-scale climate change
	Climate Change: Microclimate	16	21	Local changes to wind, humidity, fog drip, and temperature changes
	Cultural Resources	1	1	Cultural resources, including historic landscape
	Fire Hazard/Behavior	55	144	Fire hazard/behavior, relative fire hazard, and information about fire hazards and behavior
	Forestry	17	31	Forestry, vegetation mapping, and vegetation types, characteristics, and successions
	Geology	11	16	Mudslides and landslides (also see "Soil/Erosion" under "Affected Environment")
	Herbicide/Pesticide	37	54	Use, sensitivity to, opposition, and support for use
	Herbicide/Pesticide: Biology	3	8	Impact to wildlife and habitat from use
	Herbicide/Pesticide: Fire Hazard/Behavior	4	4	Alteration of fire hazard/behavior from use and flammability of products
	Herbicide/Pesticide: Forestry	1	2	Vegetation succession and health associated with use
	Herbicide/Pesticide: Human Health and Safety	16	31	Health and safety impacts to humans from use
	Herbicide/Pesticide: Recreation and Open Space	4	4	Impacts to recreation/open space from use

Table 1. Group, Topics, Number of Commenters and Comments, and Issues in the Comments

Group	Topic	Number of Commenters	Number of Comments	Issues in the Comments
Affected Environment: Resource or Area of Concern OR Environmental Consequences: Potential Direct, Indirect and Cumulative Impacts	Herbicide/Pesticide: Soil	6	8	Impact to soil from use
	Herbicide/Pesticide: Water	15	17	Impact to water from use
	Human Health and Safety	3	3	Potential impacts to human health and safety not associated with fire or herbicide (also see “Fire Hazard/Behavior,” “Geology,” and “Herbicide/Pesticide” under “Affected Environment”)
	Invasive Species	19	26	Spread of invasive species (also see “Fire Hazard/Behavior,” “Forestry,” and “Revegetation” under “Affected Environment” and “Maintenance, Monitoring, and Management” under “Proposed Action”)
	Land Use/Induced Growth	9	9	Induced growth, subsequent development (also see “Herbicide/Pesticide: Recreation and Open Space” under “Affected Environment”)
	Noise	2	2	Changes in noise levels
	Recreation/Open Space	7	7	Recreational use and open space
	Revegetation Process	10	12	Revegetation after project implementation (also see “Maintenance, Monitoring, and Management” under “Proposed Action”)
	Sensitive areas	3	3	Identification of sensitive, critical areas
	Soil/Erosion	19	28	Soil, soil nutrients, and erosion (also see “Geology” under “Affected Environment”)
	Water	16	24	Impacts to ground water and surface water
	General Impact Assessment	5	5	Construction impacts and requests to document beneficial impacts
	Cumulative	15	24	Cumulative impact assessment and identification of other projects

Table 1. Group, Topics, Number of Commenters and Comments, and Issues in the Comments

Group	Topic	Number of Commenters	Number of Comments	Issues in the Comments
General	Non-topic-specific Comment	13	13	Submissions without substantive comments, and comments stating general support or opposition to project without providing details
	Duplicate Comment	7	8	Submissions that were submitted by the same comments in multiple formats or methods (e.g., letters submitted via e-mail and by mail), or commenters who referred to or expressed support for other submitters comments
	Reference/Background Information	14	52	Recommended information, references, studies and reports for FEMA to review, consider, and/or be included in the administrative record
	Schedule	5	6	Comments about the process taking too long or that it should not be done too fast

EBRPD = East Bay Regional Park District
FEMA = Federal Emergency Management Agency
NEPA = National Environmental Policy Act

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Regulatory Compliance	EIS Process	28	• Support of the EIS process or FEMA's decision to undertake an EIS (9) • Request that the EIS analysis be based on physical study of the site, verifiable scientific data, substantiated data, verifiable science, or expert opinions (6) • Projects will not survive the EIS process (3) • EIS process should not be undertaken until the EBRPD lawsuit is resolved (2) • Concern about the consultant (2) • Requesting that the EIS analysis be based on the precautionary principal (1) • EIS should address other UC projects (1) • Request UC not be included in the EIS process(1) • Question about the analysis year for the impacts in the EIS (1) • EIS would be redundant to the EBRPD Environmental Impact Review (1) • Inquiry about the status of the EIS (1)
	Scoping Process	14	• Request for confirmation of receipt of comments, inquiry about how to submit comments, or report of problems with document downloads (5) • Identification of agencies or organizations to coordinate with (Golden Gate Audubon Society, Sierra Club, Friends of Sausal Creek, Claremont Canyon Conservancy, Hills Emergency Forum member agencies, National Park Service, California Native Plant Society) (4) • Request to be placed on the mailing list or Draft EIS distribution list (4) • Request to extend the comment period (1)
Purpose and Need	Fire Hazard/Behavior	144	• The proposed action will increase vulnerability of the area to wildfire (28) • Questions or statements regarding whether non-native vegetation species are less fire-prone than native (25) • Concern about removal of the tall vegetation that serves as a wind break (3)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Purpose and Need (cont.)	Fire Hazard/Behavior (cont.)		• Removing the trees will result in the project area becoming dryer (see microclimate issues) and thus more fire-prone (7) • Converting to grasslands is dangerous because most fires begin in grassland (26) • Issue of Sudden Oak Death (7) • Information for comparing non-native species to an Oak/Bay community with regards to fire hazard (26) • Proposed projects will not reduce fire risk (5) • Support for the proposed action as a fire risk reduction (3) • Concern that spreading chips is a fire hazard (13) • Blue-green eucalyptus is fire resistant (1)
	Program	64	• Questioning the eligibility of some or all of the applications based on language from the applications when compared to MRR-2-08-1 (i.e., clear cutting, native plant restoration, prescribed burn, long-term, cost-effective) (48) • Support for the concept of creating defensible space (8) • Problem is a result of the subapplicants; not maintaining their properties following similar prior projects (3) • Allegations of fraud (2) • Program requirements for maintenance and monitoring and required plans (2) • Reference to a flammability study (1)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Proposed Action, Alternatives, and Mitigation Measures	Alternatives	78	• Periodic grass cutting, cutting small diameter trees, clearing brush, maintaining spacing between trees, limbing trees, species neutral selective cutting, and inspections should be used (26) • Defensible space should be the focus (11) • Selective cutting is preferred (13) • Alternate method of controlling sprouts should be used, although many more expressed concern about the use of herbicides; see “Herbicides/Pesticides” below (4) • Building codes should be created and enforced (3) • No one treatment should be forced on all the applicants (4) • Applicants should be able to select their own methods (1) • Suggestion for the use of goats (1) • Do not like goats because they are non-selective (1) • Focus on roadway widening, construction of a second access route and/or evacuation planning (3) • Use chips for biomass to generate electricity (1) • Suggestion to use methods similar to East Bay Municipal Utility District (1) • Request for an herbicide-free area (1) • Put power lines below ground (1) • Solutions/ recommendations should be based on peer reviewed science (2) • Suggestions for more effective strategies for fighting Diablo wind driven wildfires (2) • Use locally specific fire attribute studies and models (1) • EPA suggested that “…the EIS evaluate a range of alternatives, including an alternative that minimizes adverse impacts to water quality, cumulative watershed effects, aquatic resources, and air quality” (1) • EPA also recommends removing only non-native species but leave trees over a certain diameter at breast height (1)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Proposed Action, Alternatives, and Mitigation Measures (cont.)	Debris/Chips	11	• Leaving chipped debris increases fire risk (4) • Eucalyptus chips are slow to decompose, toxic to other plants, and leaving them onsite would be contrary to long-term goals (2) • Chips will decompose quickly (2) • Projects would need to be in compliance with City of Oakland ordinances regarding chips (1) • Request that chipping activities avoid streams and flood-prone areas (1) • General opposition to leaving chips onsite (1)
	Tree Removal	13	• General concern/opposition to tree removal (7) • General opposition about wholesale/extensive tree removal (4) • Opposition to removal of native trees (1) • Request to minimize cutting large trees (1)
	Maintenance, Monitoring, and Management	17	• Applications do not provide adequate maintenance or management plans or requesting such plans (4) • Analysis should evaluate plans for vegetation management or long-term maintenance at each site (4) • Request that FEMA require monitoring requirements including annual reports (available to public) (4) • Request or inquiry about management and/or monitoring (2) • Concern that applications not include follow-up treatment besides herbicides (i.e., revegetation) (1) • Replacement plants should be native (1) • Suggestion that a Technical Advisory Committee be formed and consulted during follow-up monitoring (1)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Affected Environment: Resource or Area of Concern OR Environmental Consequences: Potential Direct, Indirect and Cumulative Impacts	Aesthetics	27	• List of characteristics of the existing conditions or identification of key landscape features (9) • General detrimental impact to visual quality (6) • Preference for trees over grass or shrub land (7) • Concerning about the removal of shade (2) • Trees provide a visual "screen" that would be removed (3) • Discussion of the long-term impact to visual resources (1)
	Air Quality	8	• Comment about how trees improve air quality (3) • Concern about poisoning the air and increasing pollution (3) • Vegetation is an air quality buffer (1) • Concern about impacts to air quality (1)
	Biology	56	• Concern about impacts to wildlife and habitat (15) • Trees provide shelter, shade, food storage, nesting cover, or moisture for wildlife (7) • Concerned that chips/debris would impact ground species (e.g., native bees, snakes) (7) • Trees provide habitat for birds (e.g., great horned owls, red-shouldered hawk, raptors) (7) • Identification of habitat for or presence of specific species (Alameda whipsnake, Pallid Manzanita, Pallid Bat; red-legged frog; raptors, rare plants, native rainbow trout, Presedio clarkia; western pond turtle) (6) • Identification of vegetation types and related biological values or biological concerns (4) • Requests for data to be presented in the EIS (acres of habitat type affected and what would replace it, complete evaluation of species, mitigation including restoration of native habitat, and consideration that entire ecological community focus not only on individual species) (3) • Concern for impacts to monarch butterflies (2) • Native species are dependent on non-native habitat (2)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Affected Environment: Resource or Area of Concern OR Environmental Consequences: Potential Direct, Indirect and Cumulative Impacts	Biology (cont.)		• Dispute of literature that eucalyptus gum is detrimental to short-beaked birds and that the trees create sinks for birds and butterflies (2) • Certain species require fire (Pallid manzanita and Alameda whipsnake) (1)
	Climate Change	27	• Carbon sequestration of trees and the release of carbon as a result of tree removal (14) • Removing trees/vegetation would cause climate change (4) • Identification of climate change as a context in which to evaluate the project (4) • EIS should quantify net carbon release and greenhouse gas emissions from the project (3) • Comments regarding global warming (2)
	Climate Change: Microclimate	21	• Wind (e.g., existing trees provide a windbreak tree removal would change wind patterns and/or wind velocity) (6) • Trees provide moisture and shade, which would be affected by tree removal (5) • Trees precipitate fog or result in “fog drip” (3) • Tree removal would increase temperatures (1) • Comments combining concerns mentioned above (i.e., impacts to wind, moisture, shade, fog, and temperature) (5) • Request that the affected environment analysis measure or otherwise document moisture through data on average daily, weekly, monthly dew, dewfall, and dew point and through use of a hygrometer (1)
	Cultural Resources	1	• Support for retention of a historic tree grove (1)
	Fire Hazard/Behavior	—	• See “Fire Hazard/Behavior” under “Purpose and Need”

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Affected Environment: (cont.)	Forestry	31	• Descriptions and characteristics of vegetation communities within the study area (9) • Lack of management of existing forested areas is contributing to problems and fire risk (6) • Exotic trees are resistant to disease that natives are not (2) • EIS should describe the effects of an increase in wind throw of existing trees from removal of other trees (1) • Young trees rely on downed trees for survival (1) • Removal of non-native trees harms native trees (1) • Claims that eucalyptus are fire-prone and harmful to wildlife are false (1) • Project would destroy characteristics of old sylvan trees (1) • Vegetation should be mapped to the standards of the *Manual of California Vegetation – Second Edition* (1) • Question about whether the EIS will include descriptions of scenarios to existing vegetation communities 1, 5, and 10 years following treatment (1) • Plans to integrate fire science and natural resources science should be conceived (1) • Updated mapping systems that identify plant communities and type and density of vegetation intermixed with home landscapes are needed (1) • Fire codes need stricter enforcement (2) • EIS should not focus on general discussions but instead on site-specific discussions and base recommendations on them (1) • Trees are being saved by thinning groves and tithe forest should be managed in a way that will focus on preventing fires (1) • Removing blue gum trees will create additional problems (1)
	Geology	16	• Tree removal and/or clear cutting would increase the potential for erosion and landslides on hillsides (16)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Affected Environment: (cont.)	Herbicide/Pesticide: General	54	• Herbicides release toxic vapors in the event of fire (1) • Request to find out which herbicides would be used (2) • Support for designating an “herbicide czar” to track and monitor herbicide use (2) • Project would result in the widespread and long-term use of herbicides (5) • Opposition to the use of pesticides/herbicides (4) • Supporting for the use of the *Annual Report of the President’s Cancer Panel* and precautionary principle (2) • Clear hazards of pesticide/herbicide use on people and the environment (8) • Urging the exploration of alternatives and support for reduction and/or elimination of pesticide/herbicide use (6) • Some herbicide use is needed to control regrowth (2) • Experience with Garlon without negative effects (1) • Question about whether UCB is indifferent to the widespread use of herbicides (1) • Money should be spent on workers and not chemicals (1) • Concern about the project because of herbicide involvement and/or urging FEMA not to fund the project because of involvement of pesticides (3) • Inert ingredients of herbicides (2) • “Clear cutting” will leave behind poisoned stumps (2) • Long-term productivity resulting from workers sickened by herbicides is not accounted for (1) • People would likely object to application of herbicides if they knew the details (2) • Translocation of pesticides and effects on other species (2)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Affected Environment: (cont.)	Herbicide/Pesticide: General (cont.)		• Manufacture and purveyor profit to the detriment of ecosystems (1) • Existing spraying by UCB (3) • Request use of a University of Missouri study about herbicides (1) • Questioning whether it has been proven that sprouts need to be sprayed on all trees (1) • General concerns about the use of herbicide and effects on the environment (2)
	Herbicide/Pesticide: Biology	8	• Toxic effect of different herbicides/pesticides on terrestrial and aquatic wildlife species, including their growth, behavior, and food sources (plants) (7) • Effects on oak seedlings (1)
	Herbicide/Pesticide: Fire Hazard/Behavior	4	• Increased risk of fire resulting from plants killed by herbicides and left in place (2) • Above issue as well as the increased risk resulting from the killing of greener and more fire-resistant native plants (2)
	Herbicide/Pesticide: Forestry	2	• Effects of triclopyr on nitrogen cycling and growth of beneficial micorrhizal fungi that aids nutrient uptake and diversity of mosses and lichens (1) • Effects of glyphosate on beneficial micorrhizal fungi, seed quality, and plant health (1)
	Herbicide/Pesticide: Human Health and Safety	31	• Personal health effects of the commenter (2) • Health problem resulting from specific herbicides/ pesticides (Triclopr, glyphosate, Imazapyr, Clopyralid, Dicamba, polyethoxylated tallowamine [POEA]) (8) • No use of herbicides/pesticides is safe (3) • Description of a variety of health risks from herbicides/pesticides (5) • Reactions to pesticides/herbicides can be delayed, and doctors are not equipped to recognize symptoms of pesticide/herbicide poisoning (1) • People who are using plants within the treated areas medicinally may be sickened by herbicide/pesticide treatments (1) • Chemicals can accumulate in our systems and may be passed on to the next generation (1)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Affected Environment: (cont.)	Herbicide/Pesticide: Human Health and Safety (cont.)		• Exposure of people already compromised by chemicals to additional chemicals would create more problems (1) • Since sports fields are used by children and adults and dogs, it is important to avoid use of pesticides in this area (1) • Physical removal should be favored over herbicides to minimize health risks to people (1) • Effects of inert ingredients of herbicides should be looked at as part of studies (1) • Herbicides should be used only if other options are exhausted (2) • Chemicals should be used only if necessary and use should be posted/public informed (1) • Pesticides/ herbicides should not be used, even if there are no other options (2) • Herbicides are not the main risk of the project (1)
	Herbicide/Pesticide: Recreation and Open Space	4	• Obstacles to open space access from the use of herbicides (4)
	Herbicide/Pesticide: Soil	8	• Hazards of Triclopyr and its high mobility in soils (2) • Glyphosate's availability to soils (1) • Imazapyr is very mobile and persistent in soil (1) • Clopyralid is persistent in soil (1) • Characteristics of Dicamba (1) • Characteristics of Garlon 4 Ultra (1) • How herbicides would affect soil (1)
	Herbicide/Pesticide: Water	17	• Known water contamination from different herbicides (Garlon-4 Ultra, Imazapyr, Clopyralid, Dicamba) (5) • Existing impairment of headwater streams (3)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Affected Environment: (cont.)			• Toxic effects of herbicides get worse during rains or with watering (1) • Herbicide will become runoff and contaminate surrounding waterways and groundwater (5) • Request that studies be done to identify existing toxicity of waters and implement measures to ensure herbicides do not enter waterways (2) • Request for studies of watershed contamination for tree removal in riparian areas (1)
	Human Health and Safety	3	• Resulting land conversion from the proposed action would endanger firefighters and the general public (1) • Facilities exist below the ridge of Strawberry Canyon that contain materials that could be hazardous to human health. Earth movement from landslides or fault activity could affect these facilities; therefore, careful risk assessment should be required for any proposal that requires clear-cutting trees. (1) • Concern that the loss of predator species would result in an increase in mice and rats (1)
	Invasive Species	26	• Removal of non-native vegetation is important to reducing fire hazard potential (9) • Some species now labeled as native were historically non-native (4) • Tree removal would result in an influx of fire-prone non-native species (3) • Invasive species tend to populate areas that have been disturbed by human activity (4) • Request for information on what types of species are expected to populate areas where eucalyptus is removed (1) • Eucalyptus reduces fire danger by intercepting and precipitating fog drip (1) • Request for information on a post-treatment plan for invasive species (1) • Request for information on affected habitat types and a description of what type of habitat would replace it (1) • Request that vegetation mapping be completed and reported as stated in *Manual of California Vegetation – Second Edition* (1) • EIS should analyze the increase in invasive species from the proposed action and outline best management practices that will be used to control their spread (1)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Affected Environment: (cont.)	Land Use/Induced growth	9	• Tree removal may be a means to facilitate expansion of housing or the UCB Lawrence Berkeley Lab (7) • Urbanization of land above UCB is irresponsible (1) • Inconsistencies in land use among jurisdictions in the region leads to increased fire hazard (1)
	Noise	2	• Questioning what sound effects will be incurred by neighborhoods that rely on trees as wind/sound breaks (1) • Eucalyptus function as a sound break (1)
	Recreation/Open Space Recreation/Open	7	• Proposed action will have detrimental effects on parklands (3) • Proposed action will have detrimental effects on hikers (1) • An Olmstead Brothers report from 1930 mentions that the ridges above Strawberry and Blackberry canyons is important as a great public, scenic, and natural resource (1) • Open space management has suffered from economic cutbacks (1) • Efforts should be made to thin and maintain eucalyptus groves as a canopy for recreational areas (1)
	Revegetation Process	12	• A plan is needed to increase the number of existing trees through replanting (1) • Erosion and landslides will be catastrophic after tree removal unless there is a revegetation plan (3) • Adding wood chips to the ground after tree removal will increase the fire hazard (1) • Proposed action does not include a revegetation plan (1) • Areas should be revegetated and not left to naturally revegetate (1) • Plants cannot regerminate under a layer of wood chips (1) • Revegetation plans should depend on site conditions and existing plant communities present (1)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Affected Environment: (cont.)			• Thinning young eucalyptus woodlands of suckers and sprouts for temporary management is undesirable and the goal should be to convert to native vegetation (1) • There is existing ample natural seed bank and revegetation is unnecessary (1) • Chip mulch will reduce the propagation of non-native plants (1)
	Sensitive Areas	3	• UC designated the area as an Ecological Study Area, thus reappraisal of its landscape and ecological value is warranted (1) • Strawberry Canyon is a sensitive area and should be protected (1) • Description of an "ecotone" and stating that ecotones occur throughout the area (1)
	Soil/Erosion	28	• General concern about soil erosion, stabilization, and sedimentation (14) • Concern about landslides (10) • Soil health and poisoning soils with herbicides (3) • Soil compaction (1)
	Water	24	• Concern about deteriorating water quality from erosion/ sedimentation and herbicide/pesticide use (10) • Questioning how removing vegetation might affect water flow and the potential for flooding (4) • Concern that removal of vegetation will cause the area to become very dry (3) • There will be a loss of the trees precipitating water from fog (1) • Concern that ephemeral creeks will be used as haul roads (1) • Reference to an Oakland Creek Protection Ordinance (1) • Identification of upland wetlands as a landscape resource (1) • Water consumption of eucalyptus (1) • The EPA stated that placing chips in streams may require a permit (1) • EPA stated that the Draft EIS should address CWA Section 303(d) impaired waters (1)

Table 2. Summary of Comments by Group and Topic

Group	Topic	Number of Comments	Summary of Comments
Affected Environment: (cont.)	General Impact Assessment	5	• Projects would have, or FEMA should document, beneficial impacts (3) • There would be impacts associated with use of heavy equipment (2)
	Cumulative	24	• Comments relating to cumulative impacts (6) • Projects would contribute to cumulative impacts of carbon release or climate change (4) • Herbicide/pesticide may be small doses, but cumulative exposure is an issue in dosage (3) • Cumulative impacts cannot be identified until the lawsuit for EBRPD is resolved (3) • Identification of other past, present, or reasonably foreseeable future projects (2) • Suggested approaches to the analysis (2) • Because other parks in the region use herbicide, there is a cumulative impact to recreation (1) • There would be a cumulative significant impact to human health (no other specifics) (1) • Cumulative impact of various herbicides/pesticides can result in a synergistic impact (1) • There would be a cumulative significant impact to habitat (1)
General	Non-topic Specific Comment	13	Submissions without substantive comments, comments stating general support or opposition to project without providing details
	Duplicate Submissions	8	Submitted by the same entity in multiple formats or methods (e.g., letters submitted via e-mail and by mail), or commenters who referred to or expressed support for other submitters' comments
	Information/References	52	Recommendations for information, references, studies, and reports for FEMA to review, consider, and/or to be included in the administrative record
	Schedule	6	Comments about the process taking too long or that it should not be done too fast

CWA = Clean Water Act
EBRPD = East Bay Regional Park District
EIS = Environmental Impact Statement
EPA = Environmental Protection Agency
FEMA = Federal Emergency Management Agency
NEPA = National Environmental Policy Act
UC = University of California
UCB = University of California, Berkeley

7.1 Summary of Public Scoping Comments

All comments received during the public scoping period were assigned to topic categories, as noted above. Table 2 contains a summary of the comments. The topics with the most comments were fire hazard/behavior, alternatives, FEMA's Mitigation Program, and herbicides/pesticides. However, a broad set of issues was identified, including biology, potential impacts to aesthetics, climate change/microclimate, invasive species, soil/erosion, and water. Several submissions included extremely detailed information and references to various studies and reports.

8 Environmental Impact Statement Outline

FEMA has developed a draft EIS outline that takes into consideration the comments received during the scoping process. The outline is in compliance with CEQ regulations (40 CFR 1500) and FEMA regulations for environmental considerations (44 CFR Part 10). The draft outline is provided in Appendix G.

9 Proposed Schedule

The proposed schedule for conducting and documenting the EIS is provided in Appendix H.

10 References

FEMA (Federal Emergency Management Agency), 2008, *Wildfire Mitigation Policy for the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) Program*, Mitigation Policy MRR-2-08-1.

Appendix A:
Notice of Intent (NOI) and
NOI Comment Period Extension

Notice of Intent (NOI), Page 1

32960 **Federal Register** / Vol. 75, No. 111 / Thursday, June 10, 2010 / Notices

ACTION: 30-Day notice and request for comments; Extension of an existing information collection: 1651–0083.

SUMMARY: U.S. Customs and Border Protection (CBP) of the Department of Homeland Security has submitted the following information collection request to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act: United States-Caribbean Basin Trade Partnership Act (CBTPA). This is a proposed extension of an information collection that was previously approved. CBP is proposing that this information collection be extended with a change to the burden hours. This document is published to obtain comments from the public and affected agencies. This proposed information collection was previously published in the **Federal Register** (75 FR 15446) on March 29, 2010, allowing for a 60-day comment period. This notice allows for an additional 30 days for public comments. This process is conducted in accordance with 5 CFR 1320.10.

DATES: Written comments should be received on or before July 12, 2010.

ADDRESSES: Interested persons are invited to submit written comments on this proposed information collection to the Office of Information and Regulatory Affairs, Office of Management and Budget. Comments should be addressed to the OMB Desk Officer for Customs and Border Protection, Department of Homeland Security, and sent via electronic mail to *oira_submission@omb.eop.gov* or faxed to (202) 395–5806.

SUPPLEMENTARY INFORMATION: U.S. Customs and Border Protection (CBP) encourages the general public and affected Federal agencies to submit written comments and suggestions on proposed and/or continuing information collection requests pursuant to the Paperwork Reduction Act (Pub. L. 104–13). Your comments should address one of the following four points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency/component, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agency's/component's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collections of information on those who are to respond, including the use of appropriate automated, electronic, mechanical, or other technological techniques or other forms of information.

Title: United States-Caribbean Basin Trade Partnership Act (CBTPA).

OMB Number: 1651–0083.

Form Number: 450.

Abstract: This collection of information is required to implement the duty preference provisions of the United States-Caribbean Basin Trade Partnership Act (CBTPA). The provisions of CBTPA were adopted by the U.S. with the enactment of the Trade and Development Act of 2000 (Pub. L. 106–200). The objective of the CBTPA is to expand trade benefits to countries in the Caribbean Basin. For preferential treatment under CBTPA, importers are required to have CBTPA Certification of Origin (Form 450) in their possession at the time of the claim, and to provide it to CBP upon request. CBP uses the information provided on Form 450 to determine if an importer is entitled to preferential duty treatment under the provisions of the CBTPA. The CBTPA is provided for in 19 CFR 10.224 and the Form 450 can be found at *http://www.cbp.gov.*

Current Actions: This submission is being made to extend the expiration date with a change to the burden hours. CBP proposes to reduce the burden hours by revising our estimate of the number of claims made under CBTPA on a yearly basis. These revised estimates are based on the number of CBTPA claims that CBP received in 2009.

Type of Review: Extension (with change).

Affected Public: Businesses.

Estimated Number of Respondents: 84.

Estimated Number of Responses per Respondent: 57.2.

Estimated Number of Total Annual Responses: 4,804.

Estimated Time per Response: 15 minutes.

Estimated Total Annual Burden Hours: 1,201.

If additional information is required contact: Tracey Denning, U.S. Customs and Border Protection, Office of Regulations and Rulings, 799 9th Street, NW., 7th Floor, Washington, DC 20229–1177, at 202–325–0265.

Dated: June 7, 2010.

Tracey Denning,

Agency Clearance Officer, U.S. Customs and Border Protection.

[FR Doc. 2010–13935 Filed 6–9–10; 8:45 am]

BILLING CODE 9111–14–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

[Docket ID FEMA–2010–0037]

Hazardous Fire Risk Reduction, East Bay Hills, CA

AGENCY: Federal Emergency Management Agency, DHS.

ACTION: Notice of intent to prepare an Environmental Impact Statement.

SUMMARY: The Federal Emergency Management Agency (FEMA) intends to prepare an environmental impact statement evaluating the environmental impacts of funding a combination of hazardous fuel reduction projects within the East Bay Hills area in Alameda and Contra Costa Counties, California. The projects may be funded through Federal assistance grants under the Pre-Disaster Mitigation (PDM) and Hazard Mitigation Grant Program (HMGP).

DATES: Comments must be submitted by July 12, 2010.

ADDRESSES: You may submit comments, identified by Docket ID FEMA–2010–0037, by one of the following methods:

Federal eRulemaking Portal: http://www.regulations.gov. Search for Docket ID FEMA–2010–0037 and follow the instructions for submitting comments.

Fax: 703–483–2999.

Mail/Hand Delivery/Courier: Office of Chief Counsel, Federal Emergency Management Agency, 500 C Street, SW., Room 835, Washington, DC 20472–3100.

Instructions: All submissions received must include the agency name and Docket ID. Regardless of the method used for submitting comments or material, all submissions will be posted, without change, to the Federal eRulemaking Portal at *http://www.regulations.gov,* and will include any personal information you provide. Therefore, submitting this information makes it public. You may wish to read the Privacy Act notice that is available via a link in the footer of *http://www.regulations.gov.*

Docket: For access to the docket for this notice or comments submitted by the public on this notice, go to the Federal eRulemaking Portal at *http://www.regulations.gov* and search for docket ID FEMA–2010–0037. These documents may also be inspected at FEMA, Office of Chief Counsel, Room 835, 500 C Street, SW., Washington, DC 20472–3100.

FOR FURTHER INFORMATION CONTACT: Alessandro Amaglio, Regional

Notice of Intent (NOI), Page 2

Federal Register / Vol. 75, No. 111 / Thursday, June 10, 2010 / Notices **32961**

Environmental Officer, Region IX, FEMA, 1111 Broadway, Suite 1200, Oakland, CA 94607–4052 and phone number at (510) 627–7027.

SUPPLEMENTARY INFORMATION: Section 102(2)(C) of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA, and FEMA's Environmental Considerations regulations require the preparation of an environmental impact statement (EIS) for major Federal actions that would have significant impacts on the quality of the human environment. The CEQ regulations at 40 CFR 1501.7 require the issuance of a notice of intent to prepare an EIS to initiate the scoping process. Scoping is an early and open process that assists the Federal action agency in determining the scope of issues to be addressed and for identifying significant issues related to a proposed action.

FEMA has received four hazard mitigation applications for fuel reduction projects in the East Bay Hills area in California. The proposed action is to fund these four projects under section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), Public Law 93–288, as amended, establishing the Hazard Mitigation Grant Program (HMGP) and Section 203 of the Stafford Act, establishing the Pre-Disaster Mitigation (PDM) grant program. The Strawberry Canyon Vegetation Management Project involves the removal of eucalyptus and other exotic-non native trees in a 60-acre area, chipping the downed trees and scattering the chips in portions of the cleared area, and the semiannual application of herbicides, as needed, to eradicate eucalyptus tree sprouts from the area. The Claremont Canyon Vegetation Management Project involves the removal of eucalyptus, Monterey pine, and acacia trees in a 45-acre area, chipping the downed trees and scattering the chips in portions of the cleared area, and the semiannual application of herbicides, as needed, to eradicate eucalyptus tree sprouts from the area. The City of Oakland's project involves thinning and eradication techniques within 325 acres. The East Bay Regional Park District project involves the treatment of 590 acres to reduce fuel load through brush removal (mechanical and hand), chemical treatment, limbing and mowing, thinning, and grazing techniques as appropriate to reduce the risk of fire hazard. These projects would affect approximately 980 acres of the Wildland-Urban Interface in the East Bay Hills running from Lake Chabot to Wildcat Canyon and Sobrante Ridge, encompassing both Alameda and Contra Costa Counties.

In January 2008, FEMA published a notice of availability of a draft environmental assessment for the Strawberry Canyon Vegetation Management Project for public comment. The draft environmental assessment can be found at FEMA's Web page *http://www.fema.gov/library/viewRecord.do?id=3111*. The public involvement process revealed concerns regarding the effectiveness and scope of the vegetation removal methodologies and application of wood chips in portions of the area, impacts to plant and animal species in the area, and concerns regarding cumulative impacts of all projects in the area. FEMA has determined that an EIS should be conducted to address cumulatively the Vegetation Management Projects for the Strawberry Canyon as well as the Claremont Canyon, and the ones proposed by the City of Oakland and the East Bay Regional Park District.

In addition to the proposed action, FEMA is considering the following alternatives:

(1) No action, which involves denying the grant applications;

(2) Funding the grant applications with conditions to address their environmental impacts;

(3) Funding the grant applications with fuel reduction methodologies that are different than as proposed by the applicants; and

(4) Partially funding the grant applications, including funding some grant projects and denying others.

FEMA plans to conduct public scoping meetings during July 2010. FEMA will provide notices of the time and place of the meetings through local news media.

Authority: 42 U.S.C. 4331 *et seq.;* 40 CFR part 1500; 44 CFR part 10.

W. Craig Fugate,

Administrator, Federal Emergency Management Agency.

[FR Doc. 2010–13926 Filed 6–9–10; 8:45 am]

BILLING CODE 9119–19–P

DEPARTMENT OF THE INTERIOR

National Park Service

30-Day Federal Register Notice of Intention To Request Clearance of Collection of Information; Opportunity for Public Comment

AGENCY: National Park Service, Interior.

ACTION: Notice and request for comments.

SUMMARY: Under the provisions of the Paperwork Reduction Act of 1995 (Pub. L. 104–13, 44 U.S.C., Chapter 3507) and 5 CFR Part 1320, Reporting and Record Keeping Requirements, the National Park Service (NPS) invites public comments on an extension of a currently approved information collection Office of Management and Budget (OMB) Control # 1024–0231.

The OMB has up to 60 days to approve or disapprove the requested information collection, but may respond after 30 days. Therefore, to ensure maximum consideration, OMB should receive public comments within 30 days of the date on which this notice is published in the **Federal Register**.

The National Park Service published the 60-day **Federal Register** notice to solicit comments on this proposed information collection on April 5, 2010 (75 FR 17152–17153). No comments were received on this notice.

DATES: Public comments on the proposed Information Collection Request (ICR) must be received by July 12, 2010.

ADDRESSES: You may submit comments directly to the Desk Officer for the Department of the Interior (OMB #1024–0231), Office of Information and Regulatory Affairs, OMB by fax at 202/395–5806, or by electronic mail at *OIRA_DOCKET@omb.eop.gov*. Please also send a copy of your comments to Ms. Jo A. Pendry, Chief, Commercial Services Program, National Park Service, 1849 C Street, NW. (2410), Washington, DC 20240, or electronically to *jo_pendry@nps.gov*.

FOR FURTHER INFORMATION CONTACT: Jo A. Pendry, phone: 202–513–7156, fax: 202–371–2090, or at the address above. You are entitled to a copy of the entire ICR package free-of-charge.

SUPPLEMENTARY INFORMATION:

Title: Concession Contracts—36 CFR Part 51.

OMB Control Number: 1024–0231.

Expiration Date of Approval: July 31, 2010.

Type of Request: Revision of a currently approved information collection.

Description of Need: The information is being collected to meet the requirements of Sections 403(7) and (8) of the NPS Concessions Management Improvement Act of 1998 (the Act), concerning the granting of a preferential right to renew a concession contract and Section 405 of the Act regarding the construction of capital improvements by concessioners. The information will be used by the agency in considering appeals concerning preferred offeror determinations and agency review and

NOI Comment Period Extension, Page 1

Federal Register / Vol. 75, No. 144 / Wednesday, July 28, 2010 / Notices 44275

Amylin Pharmaceuticals, Inc., having a place of business in San Diego, California, U.S.A. The patent rights in this invention have been assigned to the United States of America, the University of Texas Southwestern Medical Center at Dallas, and Amgen, Inc.

The contemplated exclusive license territory may be worldwide, and the field of use may be limited to "use of leptin and leptin analogs for the treatment of lipodystrophy or a metabolic condition associated with lipodystrophy in humans, including lipodystrophy associated with or secondary to HIV infection".

DATES: Only written comments and/or application for a license which are received by the NIH Office of Technology Transfer on or before August 27, 2010 will be considered.

ADDRESSES: Requests for copies of the patents, inquiries, comments, and other materials relating to the contemplated license should be directed to: Tara L. Kirby, PhD, Senior Licensing and Patenting Manager, Office of Technology Transfer, National Institutes of Health, 6011 Executive Boulevard, Suite 325, Rockville, MD 20852–3804; Telephone: 301–435–4426; Facsimile: 301–402–0220; E-mail: *tarak@mail.nih.gov*.

SUPPLEMENTARY INFORMATION: This technology relates to leptin, a protein hormone that plays a key role in regulating energy intake and expenditure. This hormone is released from adipose tissue and inhibits appetite in the brain by counteracting peptide hormones responsible for stimulating hunger, and also stimulates the synthesis of another peptide hormone, α-MSH, which acts as an appetite suppressant.

Lipodystrophy, a disorder characterized by pathological deposition of adipose tissue (fat), is caused by a deficiency or complete absence of leptin. Patients with severe lipodystrophy have abnormalities in adipose tissue distribution with loss of subcutaneous fat, and suffer from multiple metabolic disorders—extreme insulin resistance, very high triglyceride levels, diabetes and steatosis (fat accumulation in tissues like liver and muscle)—that are associated with increased risk of severe pancreatitis, early diabetes complications, cirrhosis and early cardiovascular death. Leptin replacement therapy in such patients leads to clear and dramatic metabolic benefits, including a reduction in insulin resistance and triglyceride levels, which are refractory to other treatment.

This technology relates to the use of leptin, a leptin analog, or a leptin derivative to treat lipoatrophy, as well as methods and kits for determining a predisposition of a lipoatrophic patient to respond to treatment with leptin, a leptin analog, or a leptin derivative.

The prospective exclusive license will be royalty-bearing and will comply with the terms and conditions of 35 U.S.C. 209 and 37 CFR 404.7. The prospective exclusive license may be granted unless, within 30 days from the date of this published Notice, the NIH receives written evidence and argument that establishes that the grant of the license would not be consistent with the requirements of 35 U.S.C. 209 and 37 CFR 404.7.

Applications for a license in the prospective field of use filed in response to this notice will be treated as objections to the grant of the contemplated exclusive license. Comments and objections submitted in response to this notice will not be made available for public inspection, and, to the extent permitted by law, will not be released under the Freedom of Information Act, 5 U.S.C. 552.

Dated: July 22, 2010.

Richard U. Rodriguez,

Director, Division of Technology Development and Transfer, Office of Technology Transfer, National Institutes of Health.

[FR Doc. 2010–18492 Filed 7–27–10; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

[Docket ID FEMA–2010–0037]

Hazardous Fire Risk Reduction, East Bay Hills, CA

AGENCY: Federal Emergency Management Agency, DHS.

ACTION: Notice of extension of comment period.

SUMMARY: The Federal Emergency Management Agency (FEMA) is extending the comment period on its notice of intent to prepare an Environmental Impact Statement (EIS) evaluating the environmental impacts of funding a combination of hazardous fuel reduction projects within the East Bay Hills area in Alameda and Contra Costa Counties, California.

DATES: Comments must be submitted by October 1, 2010.

ADDRESSES: You may submit comments, identified by Docket ID FEMA–2010–0037, by one of the following methods:

- *Federal eRulemaking Portal: http://www.regulations.gov.* Search for Docket ID FEMA–2010–0037 and follow the instructions for submitting comments.
- *Fax:* 703–483–2999.
- *Mail/Hand Delivery/Courier:* Office of Chief Counsel, Federal Emergency Management Agency, 500 C Street, SW., Room 835, Washington, DC 20472–3100.

Instructions: All submissions received must include the agency name and Docket ID. Regardless of the method used for submitting comments or material, all submissions will be posted, without change, to the Federal eRulemaking Portal at *http://www.regulations.gov,* and will include any personal information you provide. Therefore, submitting this information makes it public. You may wish to read the Privacy Act notice that is available via a link in the footer of *http://www.regulations.gov.*

Docket: For access to the docket for this notice or comments submitted by the public on this notice, go to the Federal eRulemaking Portal at *http://www.regulations.gov* search for docket ID FEMA–2010–0037. These documents may also be inspected at FEMA, Office of Chief Counsel, Room 835, 500 C Street, SW., Washington, DC 20472–3100.

FOR FURTHER INFORMATION CONTACT: Alessandro Amaglio, Regional Environmental Officer, Region IX, FEMA, 111 Broadway, Suite 1200, Oakland, CA 94607–4052 and phone number at (510) 627–7027.

SUPPLEMENTARY INFORMATION: On June 10, 2010, (75 FR 32960), FEMA published a notice of intent to prepare an EIS and request for comments for four hazard mitigation applications for fuel reduction projects in the East Bay Hills area in California pursuant to Section 102(2)(C) of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA, and FEMA's Environmental Considerations regulations.

FEMA is extending the public comment period on the notice of intent to prepare an EIS to accommodate comments that the Federal, State, Tribal, and local government agencies and interested members of the public may have after the public scoping meetings.

Authority: 42 U.S.C. 4331 *et seq.;* 40 CFR part 1500; 44 CFR part 10.

NOI Comment Period Extension, Page 2

44276 **Federal Register** / Vol. 75, No. 144 / Wednesday, July 28, 2010 / Notices

Dated: July 19, 2010.

W. Craig Fugate,

Administrator, Federal Emergency Management Agency.

[FR Doc. 2010–18484 Filed 7–27–10; 8:45 am]

BILLING CODE 9111–A6–P

DEPARTMENT OF HOMELAND SECURITY

Federal Emergency Management Agency

[Docket ID FEMA–2008–0010]

National Fire Academy Board of Visitors

AGENCY: Federal Emergency Management Agency, DHS.

ACTION: Notice of cancellation of meeting.

SUMMARY: The National Fire Academy Board of Visitors public teleconference meeting scheduled for August 2, 2010 is cancelled.

FOR FURTHER INFORMATION CONTACT: Teressa Kaas, 16825 South Seton Avenue, Emmitsburg, Maryland 21727, telephone (301) 447–1117, fax (301) 447–1173, and e-mail *teressa.kaas@dhs.gov.*

SUPPLEMENTARY INFORMATION: The Federal Emergency Management Agency (FEMA) published a Notice in the **Federal Register** on July 9, 2010 (75 FR 39561) announcing a National Fire Academy Board of Visitors public teleconference meeting on August 2, 2010. The meeting is cancelled. If the meeting is rescheduled, FEMA will publish a Notice in the **Federal Register** announcing the new date for the meeting.

Dated: July 20, 2010.

Denis G. Onieal,

Acting Deputy United States Fire Administrator, United States Fire Administration, Federal Emergency Management Agency.

[FR Doc. 2010–18454 Filed 7–27–10; 8:45 am]

BILLING CODE 9111–45–P

DEPARTMENT OF THE INTERIOR

Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE); Cancellation of Oil and Gas Lease Sale 220 in the Mid-Atlantic Planning Area on the Outer Continental Shelf (OCS)

AGENCY: Bureau of Ocean Energy Management, Regulation, and Enforcement, Interior.

ACTION: Cancellation of Offshore Virginia Lease Sale 220.

SUMMARY: On May 27, 2010, the President announced the Secretary of the Interior's decision to cancel offshore Virginia Lease Sale 220 that was scheduled for 2011. Cancellation of Sale 220 will allow time to develop and implement measures to improve the safety of oil and gas development in Federal waters, provide greater environmental protection, and substantially reduce the risk of catastrophic events. The Call for Information and Interest/Nominations and Notice of Intent to prepare an Environmental Impact Statement for OCS Oil and Gas Lease Sale 220 was published in **Federal Register** Vol. 73, No. 220, on Thursday, November 13, 2008. The findings of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, (the National Commission was established by Executive Order 13543, dated May 21, 2010, as published in the **Federal Register** on May 26, 2010, (75 FR 29397)), environmental reviews, science-based analysis and public input will inform the Secretary's decisions about whether to move forward with other leases sales in the Mid-Atlantic Planning Area in the future 2012–2017 leasing program.

FOR FURTHER INFORMATION CONTACT: Ms. Renee Orr, Bureau of Ocean Energy Management, Regulation, and Enforcement, Chief, Leasing Division, at (703) 787–1215 or *renee.orr@mms.gov.*

Dated: July 7, 2010.

Michael R. Bromwich,

Director, Bureau of Ocean Energy Management, Regulation, and Enforcement.

[FR Doc. 2010–18510 Filed 7–27–10; 8:45 am]

BILLING CODE 4310–MR–P

DEPARTMENT OF THE INTERIOR

Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE); Cancellation of Oil and Gas Lease Sale 215 in the Western Planning Area (WPA) on the Outer Continental Shelf (OCS) in the Gulf of Mexico (GOM)

AGENCY: Bureau of Ocean Energy Management, Regulation, and Enforcement, Interior.

ACTION: Cancellation of WPA Gulf of Mexico Lease Sale 215.

SUMMARY: On May 27, 2010, the President announced the Secretary of the Interior's decision to cancel WPA Sale 215 that was scheduled to occur on August 18, 2010. Cancellation of Sale 215 will allow time to develop and implement measures to improve the safety of oil and gas development in Federal waters, provide greater environmental protection, and substantially reduce the risk of catastrophic events. The Notice of Availability of the Proposed Notice of Sale for OCS Oil and Gas Lease Sale 215 in the WPA in the GOM was published in **Federal Register** Vol. 75, No 64, on Monday, April 5, 2010. The findings of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, (the National Commission was established by Executive Order 13543, dated May 21, 2010, as published in the **Federal Register** on May 26, 2010 (75 FR 29397)), environmental reviews, science-based analysis, and public input will inform the Secretary's decisions about whether to move forward with other leases sales in the Gulf of Mexico that are currently scheduled for 2011 and 2012.

FOR FURTHER INFORMATION CONTACT: Ms. Renee Orr, Bureau of Ocean Energy Management, Regulation, and Enforcement, Chief, Leasing Division, at (703) 787–1215 or *renee.orr@mms.gov.*

Dated: July 7, 2010.

Michael R. Bromwich,

Director, Bureau of Ocean Energy Management, Regulation, and Enforcement.

[FR Doc. 2010–18516 Filed 7–27–10; 8:45 am]

BILLING CODE 4310–MR–P

DEPARTMENT OF THE INTERIOR

Office of the Secretary

Vendor Outreach Workshop for Small Businesses in the Midwest Region of the United States

AGENCY: Office of the Secretary, Interior.

ACTION: Notice.

SUMMARY: The Office of Small and Disadvantaged Business Utilization of the Department of the Interior is hosting a Vendor Outreach Workshop for small businesses in the midwest region of the United States that are interested in doing business with the Department. This outreach workshop will review market contracting opportunities for the attendees. Business owners will be able to share their individual perspectives with Contracting Officers, Program Managers and Small Business Specialists from the Department. Following the workshop, businesses will also participate in a matchmaking event that will allow businesses to talk with Department representatives during roundtable discussions.

Appendix B:
Public Meeting Advertisement, Post Card, E-mail Notification, and Press Release

Public Meeting Advertisement

Oakland Tribune

August 12, 2010

3.417 inch x 8 inch

FEMA

PUBLIC MEETING

Hazardous Fire Risk Reduction, East Bay Hills, California Public Scoping Meeting for Environmental Impact Statement

Meeting Date:
Thursday,
August 26, 2010

Location:
Trudeau Center
11500 Skyline Blvd.
Oakland, CA 94619

Times:
2:00 pm – 4:30 pm
and
6:30 pm – 9:00 pm

Written comments may be submitted through:

WEBSITE:
http://ebheisforca.ursdcmetro.com

MAIL:
EBH-EIS
P.O. Box 72391
Oakland, CA 94612

EMAIL:
EBH-EIS-FEMA-RIX@dhs.gov

Project information will soon be available at
http://ebheisforca.ursdcmetro.com

Persons with disabilities may request reasonable accommodation by contacting:
(510) 627-7222
Request should be made by August 19, 2010.

The University of California at Berkeley, the City of Oakland, and the East Bay Regional Park District have submitted grant applications through the State of California, Emergency Management Agency, to the Department of Homeland Security's Federal Emergency Management Agency (FEMA) requesting funding under the Hazard Mitigation Assistance programs. The four grant applications are for hazardous fire risk reduction projects in the East Bay Hills. Hazardous fire risk reduction is defined in FEMA Mitigation Policy MRR-2-08-1, *Wildfire Mitigation Policy for the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) Program* (September 8, 2008), which describes long-term, cost-effective actions taken to reduce or eliminate damage to vulnerable structures and associated loss of life from future wildfire.

FEMA is providing interested members of the public and other governmental agencies the opportunity to participate in public informational (scoping) meetings regarding FEMA's proposed action related to the four grant applications. Two meetings, each presenting the same information, will be held in the afternoon and evening of Thursday, August 26, 2010. The purpose of these meetings is to engage the general public, local businesses, associations, stakeholders, affected governmental agencies and other interested parties to solicit relevant input regarding the scope and the significant issues to be analyzed in depth in the Environmental Impact Statement (EIS). The meetings will include a 1-hour open house (2:00 – 3:00 pm and 6:30 – 7:30 pm) to allow the public and interested parties to talk directly to Federal, State, and local representatives regarding the applicants and sub-applicants proposed projects and the EIS process. The open house will be followed by a brief presentation and an additional opportunity for the public to provide comments.

Public meetings are a critical element of FEMA's commitment to meeting their environmental and historic preservation compliance responsibilities. These meetings are in accordance with the requirements of the National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA), and provide interested parties the opportunity to participate in the decision-making process and ensure that FEMA and the State take into account concerns and comments regarding the impact of the proposed Federal Action on environmental and historic properties. **In addition to the scheduled public meeting, comments will be accepted until 4:30 pm on October 1, 2010.**

Postcard

FEMA PUBLIC MEETING

THURSDAY, AUGUST 26, 2010
2:00 PM – 4:30 PM AND 6:30 PM – 9:00 PM

Hazardous Fire Risk Reduction, East Bay Hills, California, Public Scoping Meeting for Environmental Impact Statement

Written comments may be submitted through:

WEBSITE:
http://ebheisforca.ursdcmetro.com

MAIL:
EBH-EIS
P.O. Box 72391
Oakland, CA 94612

EMAIL:
EBH-EIS-FEMA-RIX@dhs.gov

Project information will soon be available at
http://ebheisforca.ursdcmetro.com

Persons with disabilities may request reasonable accommodation by contacting:
(510) 627-7222
Request should be made by August 19, 2010.

The University of California at Berkeley, the City of Oakland, and the East Bay Regional Park District have submitted grant applications through the State of California, Emergency Management Agency, to the Department of Homeland Security's Federal Emergency Management Agency (FEMA) requesting funding under the Hazard Mitigation Assistance programs. The four grant applications are for hazardous fire risk reduction projects in the East Bay Hills. Hazardous fire risk reduction is defined in FEMA Mitigation Policy MRR-2-08-1, *Wildfire Mitigation Policy for the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) Program* (September 8, 2008), which describes long-term, cost-effective actions taken to reduce or eliminate damage to vulnerable structures and associated loss of life from future wildfire.

FEMA is providing interested members of the public and other governmental agencies the opportunity to participate in public informational (scoping) meetings regarding FEMA's proposed action related to the four grant applications. Two meetings, each presenting the same information, will be held in the afternoon and evening of Thursday, August 26, 2010. The purpose of these meetings is to engage the general public, local businesses, associations, stakeholders, affected governmental agencies and other interested parties to solicit relevant input regarding the scope and the significant issues to be analyzed in depth in the Environmental Impact Statement (EIS). The meetings will include a 1-hour open house (2:00 – 3:00 pm and 6:30 – 7:30 pm) to allow the public and interested parties to talk directly to Federal, State, and local representatives regarding the applicants and sub-applicants proposed projects and the EIS process. The open house will be followed by a brief presentation and an additional opportunity for the public to provide comments.

Public meetings are a critical element of FEMA's commitment to meeting their environmental and historic preservation compliance responsibilities. These meetings are in accordance with the requirements of the National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA), and provide interested parties the opportunity to participate in the decision-making process and ensure that FEMA and the State take into account concerns and comments regarding the impact of the proposed Federal Action on environmental and historic properties. **In addition to the scheduled public meeting, comments will be accepted until 4:30 pm on October 1, 2010.**

E-mail Public Scoping Meeting Notification

Subject: FEMA Public Meeting for Hazardous Fire Risk Reduction, Environmental Impact Statement, East Bay Hills, California

The University of California at Berkeley, the City of Oakland, and the East Bay Regional Park District has submitted grant applications through the California Emergency Management Agency, to the Department of Homeland Security's Federal Emergency Management Agency (FEMA), requesting funding under the Hazard Mitigation Assistance programs. The four grant applications are for hazardous fire risk reduction projects in the East Bay Hills.

FEMA is providing local residents and interested stakeholders the opportunity to participate in public informational (scoping) meetings regarding FEMA's proposed actions related to the four grant applications. The purpose of these meetings is to engage the general public, local businesses, associations, stakeholders, affected governmental agencies and other interested parties to solicit relevant input regarding the scope and the significant issues to be analyzed in-depth in the Environmental Impact Statement (EIS).

Date: August 26, 2010

Location: Trudeau Center, 11500 Skyline Blvd., Oakland, CA 94619

Times: 1st Session 2:00PM – 4:30PM
2nd Session 6:30PM – 9:00PM

Public comments may be submitted during the public scoping meeting, or may be submitted in writing and sent by:

Mail: EBH – EIS
P.O. BOX 72391
Oakland, CA 94612

Email EBH-EIS-FEMA-RIX@dhs.gov

Website http://ebheisforca.ursdcmetro.com

Press Release

FOR IMMEDIATE RELEASE **CONTACT: John Hamill, FEMA**
August 16, 2010 **(510) 627-7054**

FEMA HOSTS PUBLIC SCOPING MEETING FOR HAZARDOUS FIRE RISK REDUCTION ENVIRONMENTAL IMPACT STATEMENT EAST BAY HILLS, CALIFORNIA

OAKLAND – The University of California, Berkeley, the City of Oakland, and the East Bay Regional Park District have submitted grant applications, through the State of California Emergency Management Agency, to the Department of Homeland Security's Federal Emergency Management Agency (FEMA) requesting funding under the Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Program. The four grant applications are for hazardous fire risk reduction projects. Hazardous fire risk reduction is defined in FEMA Mitigation Policy MRR-2-08-1, *Wildfire Mitigation Policy for the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) Program* (September 8, 2008), which describes long-term, cost-effective actions taken to reduce or eliminate damage to vulnerable structures and associated loss of life from future wildfire.

FEMA will be hosting two public scoping meeting sessions on ***August 26, 2010*** at the ***Trudeau Center*** located at ***11500 Skyline Boulevard, Oakland, CA 94619*** with the first session from ***2:00 pm to 4:30 pm*** and the second session from ***6:30 pm to 9:00 pm***.

The two scoping sessions, each presenting the same information, will seek to solicit relevant input regarding the scope and the significant issues to be analyzed in depth in the required Environmental Impact Study (EIS). The sessions seek to engage the general public, local businesses, associations, stakeholders, affected governmental agencies and other interested parties. The meetings will include a 1-hour open house to allow the public and interested parties to provide comments and speak directly with Federal, State and local representatives regarding both the proposed projects and the EIS process. The open house will be followed by a brief presentation and an opportunity for interested parties to provide comments.

Public meetings are a critical element of FEMA's commitment to meeting its environmental and historic preservation compliance responsibilities. These meetings are held in accordance with the requirements of the National Environmental Policy Act and National Historic Preservation Act, and provide the interested parties the opportunity to participate in the decision-making process and ensure that FEMA and the State take into account concerns and comments regarding the impact of the proposed federal action on environmental and historic properties. In addition to the scheduled public meetings, written comments will be accepted until October 1, 2010 at 4:30 pm.

Written comments may be submitted through the project website at ***http://ebheisforca.ursdcmetro.com*** or via email at ***EBH-EIS-FEMA-RIX@dhs.gov***. Comments may also be mailed to ***EBH-EIS, P.O. Box 72391, Oakland, CA 94612***.

######

Appendix C:
Sign-in Sheets for Both Public Meetings

Sign-in Sheets

Afternoon

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email
Judith Malamut	LSA Associates Inc	judith.malamut@LSA-Assoc.com

Address	City	State	Zip	Phone
2215 Fifth St	Berkeley	CA	94710	510 540 7331

Name	Affiliation (Optional)	Email
Yeda Altes	Oakland Fire Dept	yaltes@oaklandnet.com 510.238-7396

Address	City	State	Zip	Phone
250 Frank H. Ogawa Plaza 3rd Fl.	Oakland	CA	94612	

Name	Affiliation (Optional)	Email
Gordon Wozniak	City of Berkeley	gwozniak@ci.berkeley.ca.us

Address	City	State	Zip	Phone
2180 Milvia St	Berkeley	CA	94704	510-981-7180

Name	Affiliation (Optional)	Email

Address	City	State	Zip	Phone

PLEASE SIGN IN!

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email
Cheryl Miller		cmillerla@comcast.net

Address	City	State	Zip	Phone
3311 39th Ave	Oakland		94619	510-536-0143

Name	Affiliation (Optional)	Email
RALPH KANZ		rkanz@sonic.net

Address	City	State	Zip	Phone
4808 CONGRESS AVE,	OAKLAND CA		94601	510-535-9868

Name	Affiliation (Optional)	Email
Kelly Kirkpatrick	Berkeley City Council, Cllr. Wozniak	kkirkpatrick@cityofberkeley.info

Address	City	State	Zip	Phone
2180 Milvia St.	Berkeley	CA	94704	(510) 981-7180

Name	Affiliation (Optional)	Email

Address	City	State	Zip	Phone

PLEASE SIGN IN!

Sign-in Sheets

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email
Bill McClung	Berkeley CA 94705	williammcclung@mac.com
Address: 240 Alvarado Rd.	City / State / Zip	Phone: 510 841 8447

Name	Affiliation (Optional)	Email
Jackie Levin	Claremont Conservancy	Jackie_Levin at hotmail.com
Address: 7831 Claremont Ave	City: Berk (Oakland) State: CA Zip: 94705	Phone: 5108451347

Name	Affiliation (Optional)	Email
John Shively, P.E.		jrshively@gmail.com
Address: 2 Van Cleave Way	City: Oakland State: CA Zip: 94619	Phone: 510-531-1355

Name	Affiliation (Optional)	Email
Robert Sieben	"	510 841 2746
Address	City / State / Zip: 94618	Phone

PLEASE SIGN IN!

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email
Dan Grasse Hi	HCN	dangrass@comcast.net
Address: 1305 Alvarado Rd	City: Berkeley State: CA Zip: 94705	Phone: 510-849-2601

Name	Affiliation (Optional)	Email
Quentin Thompson		
Address: 4464 6th Street	City: Sac. State: CA	Phone: 619 549-3780

Name	Affiliation (Optional)	Email
Peter Rauch		peterar@berkeley.edu
Address: Kensington	City: CA State / Zip	Phone

Name	Affiliation (Optional)	Email
Lesley Emmington	Save Strawberry Canyon	
Address: 195 The Uplands	City: Berkeley State / Zip: 94705	Phone

PLEASE SIGN IN!

Sign-in Sheets

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email
Marg Hall		sismhall7@aol.com

Address	City	State	Zip	Phone
1927 Fairview St	Berkeley	Ca	94703	520 654 1366

Name	Affiliation (Optional)	Email
BARRY PILGER	Claremont Canyon Conservancy	barrypilger@gmail.com

Address	City	State	Zip	Phone
2625 ALCATRAZ AVE #281	Berk.	CA	94607	510-812-7305

Name	Affiliation (Optional)	Email
CLAUDINE TORES	—	cptorfs@gmail

Address	City	State	Zip	Phone
601 ALVARADO RD	BERKELEY	CA	94705	

Name	Affiliation (Optional)	Email
[illegible]	Oakland Landscape Committee	Rgpiper@sbcglobal.net

Address	City	State	Zip	Phone
333 Hillen Dr.	Oakland	CA	94618	510-910-2969

PLEASE SIGN IN!

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email
STEVEN BOBZIEN	EBRPD	sbobzien@ebparks.org

Address	City	State	Zip	Phone
				(510) 544-2347

Name	Affiliation (Optional)	Email
Trudy Washburn	Berkeley Co	TrudyWashburn@comcast.net

Address	City	State	Zip	Phone
20 Ajax Place	"		94708	510-843-9668

Name	Affiliation (Optional)	Email
Matthew P. Mitchell		msz@ix.netcom.com

Address	City	State	Zip	Phone
151 Alvarado Rd.	Berkeley	CA	94705	510 845-4258

Name	Affiliation (Optional)	Email
Nicole COURTET	none	NicoleCourtet@yahoo.com

Address	City	State	Zip	Phone
6519 Tremont St.	Oakland	CA	94609	(510) 654-8372

PLEASE SIGN IN!

Sign-in Sheets

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email
Khin Chin	City of Berkeley OES	kchin@cityofberkeley.info
Steven Riggs	City of Berkeley Fire	sriggs@CityofBerkeley.info
Zahn Sand	BC CA 94705	
Julie Andersen	MROSD	jandersen@openspace.org

Address	City	State	Zip	Phone
330 Distel Circle	Los Altos	CA	94022	

PLEASE SIGN IN!

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email
Bev Von Dohre		SLAKEWINGS@AOL.COM
Mary Kay Cunnies-Ross	City of Berkeley	mcunnies-ross@cityofberkeley.info
Joe Engbeck	Claremont Canyon Conservancy	jhengbeck@AOL.com
LYNN Hovland	HCN	m.nelson@ MHovland@

Address	City	State	Zip	Phone
	Bkly			510|981-7008
281 Alvarado				510 549-1670

PLEASE SIGN IN!

Sign-in Sheets

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email	Address	City	State	Zip	Phone
Bev Von Dohre		SLAKEWINGS@AOL.COM	3012 Kansas St.	Oakland	CA	94602	482-9999 + 967-5069
Mary Kay Cunnies-Ross	City of Berkeley	mcunnies-ross@cityofberkeley.info		Bkly			510/981-7008
Joe Engbeck	Claremont Canyon Conservancy	jhengbeck@AOL.COM					
LYNN Hovland	HCN	MHovland@[illegible].com	281 Alvarado				510 549-1670

PLEASE SIGN IN!

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email	Address	City	State	Zip	Phone
Amelia Wilson	RPA			ORINDA	CA		
Norman La Force	Sierra Club	n.laforce@comcast.net	802 Balra Dr	El Cerrito	CA	94530	510-558-4657
KEITH MCALLISTER	—			OAKLAND			
BARBARA GOLDENBERG	WPAD	msgoldie@sbcglobal.net	Paso Robles Dr	Oakland		94611	

PLEASE SIGN IN!

Sign-in Sheets

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)			Email
Tomiko Eya				hana_ko77777@yahoo.com
Address	**City**	**State**	**Zip**	**Phone**
2050 Manzanita Dr	Oakland		94611	510-410-9753
Name	**Affiliation (Optional)**			**Email**
John Sutter	EBRPD Board			
Address	**City**	**State**	**Zip**	**Phone**
3627 Klamath St.	Oakland	CA	94602	510 530-3711
Name	**Affiliation (Optional)**			**Email**
Lilah (Eliza T) Greene	Wildfire Prevention Assessment District			
Address	**City**	**State**	**Zip**	**Phone**
13450 Skyline Blvd	Oakland	CA	94619	510-569-6963
Name	**Affiliation (Optional)**			**Email**
Address	**City**	**State**	**Zip**	**Phone**

PLEASE SIGN IN!

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (2:00-4:30 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)			Email
Karen Perkins	Parents for A Safer Environment			
Address	**City**	**State**	**Zip**	**Phone**
Name	**Affiliation (Optional)**			**Email**
Address	**City**	**State**	**Zip**	**Phone**
Name	**Affiliation (Optional)**			**Email**
Address	**City**	**State**	**Zip**	**Phone**
Name	**Affiliation (Optional)**			**Email**
Address	**City**	**State**	**Zip**	**Phone**

PLEASE SIGN IN!

Sign-in Sheets

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (6:30-9:00 PM)

SIGN IN SHEET

Name	Affiliation (Optional)	Email
Nancy Mennel		
Address	**City**	**State / Zip / Phone**
116 Vicente Rd	Berkeley	CA 94705
Name	**Affiliation (Optional)**	**Email**
PAMELA SIHUOLA	CMTW	
Address	**City**	**State / Zip / Phone**
P.O. BOX 9646	BERKELEY,	CA 94709
Name	**Affiliation (Optional)**	**Email**
MICHAEL BOND	EL CERRITO FIRE	510 215 4450
Address	**City**	**State / Zip / Phone**
10900 SAN PABLO AVE		MBOND@ci.el-cerrito.ca.us
Name	**Affiliation (Optional)**	**Email**
Address	**City**	**State / Zip / Phone**

PLEASE SIGN IN!

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (6:30-9:00 PM)

SIGN IN SHEET

Name	Affiliation (Optional)	Email
CAROLE SCHEMMERLING	STRAWBERRY CREEK WATERSHED COUNCIL	carole37@gmail.com
Address	**City**	**State / Zip / Phone**
861 REGAL RD	BERKELEY, CA 94708	
Name	**Affiliation (Optional)**	**Email**
Address	**City**	**State / Zip / Phone**
Name	**Affiliation (Optional)**	**Email**
Address	**City**	**State / Zip / Phone**
Name	**Affiliation (Optional)**	**Email**
Address	**City**	**State / Zip / Phone**

PLEASE SIGN IN!

Sign-in Sheets

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (6:30-9:00 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email
LECH NAUMOVICH	CNPS	CONSERVATION@EBCNPS.ORG
Address	**City / State / Zip**	**Phone**
	EAST BAY	510 734 0335

Name	Affiliation (Optional)	Email
Joanne Drabek		joanne1892@gmail.com
Address	**City / State / Zip**	**Phone**
40 Saddle Brook Ct	Oakland CA 94619	510-530-5216

Name	Affiliation (Optional)	Email
JON KAUFMAN	CLAREMONT CANYON CONSERV.	JONK@SOLEM.COM
Address	**City / State / Zip**	**Phone**
107 ALVARADO RD	BERKELEY CA 94705	510.644.0771

Name	Affiliation (Optional)	Email
DAVID KESSLER	NHCA/OWPD	Kesdavid@gmail.com
Address	**City / State / Zip**	**Phone**
116 Vicente Rd	Berkely CA 94707	—

PLEASE SIGN IN!

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (6:30-9:00 PM) **SIGN IN SHEET**

Name	Affiliation (Optional)	Email
Tom Kelly		kyotonsa@sbcglobal.net
Address	**City / State / Zip**	**Phone**
1809 San Ramon Ave.	Berkeley CA 94707	

Name	Affiliation (Optional)	Email
RAY JOHNSTON	CLAREMONT CANYON CONSERVANCY	
Address	**City / State / Zip**	**Phone**
2723 ASHBY PL.	BERKELEY CA 94705	

Name	Affiliation (Optional)	Email
Barbara Allen	~~Berkeley~~ 94708	BBAllen100@aol.com
Address	**City / State / Zip**	**Phone**
91 Whitaker Ave	Berkeley Neighbors for Fire Safety	

Name	Affiliation (Optional)	Email
MARK RAVZON	FRIENDS of Sausal Creek	mjravz@aol.com
Address	**City / State / Zip**	**Phone**
4701 Edgewood Ave	OAKLAND CA 94602	

PLEASE SIGN IN!

Sign-in Sheets

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

Thursday 26th August, 2010 (6:30-9:00 PM)

SIGN IN SHEET

Name	Affiliation (Optional)	Email
Ken Benson	—	kenbenson@earthlink.net

Address	City	State	Zip	Phone
11140 Ettrick Street	OAKLAND	CA	94605	510 635-3226

Name	Affiliation (Optional)	Email
Dinah Fischbach-Benson	Oakland Wildfire Prev. Bd.	dinah-benson@usa.com

Address	City	State	Zip	Phone
11140 Ettrick Street	OAKLAND	CA	94605	510.635.3226

Name	Affiliation (Optional)	Email
Jane Kelly	Greens at Work	janekelly@ygc.org

Address	City	State	Zip	Phone
1809 San Ramon Ave	Berkeley	CA	94707	

Name	Affiliation (Optional)	Email
Bob Allen		

Address	City	State	Zip	Phone
91 Whitakers	Berkeley			

PLEASE SIGN IN!

Appendix D:
Meeting Handouts

Comment Card

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: _____

Address: _____

Email: _____ Affiliation *(If Any)*: _____

Comment *(Please Print)*: _____

Comments can be submitted via email at **EBH-EIS-FEMA-RIX@dhs.gov**, *or via the project website at* **http://ebheisforca.ursdcmetro.com**
Comments may also be mailed to **EBH-EIS, PO Box 72391, Oakland, CA 94612**

Understanding NEPA Fact Sheet, Page 1

UNDERSTANDING NEPA

The NEPA Process

The National Environmental Policy Act of 1969 (NEPA), passed by Congress assures that environmental considerations are taken into account when federal agencies are making decisions regarding specific federal actions. The Council on Environmental Quality issued regulations implementing the Act, which require all federal agencies to follow the NEPA process. The objective of the NEPA process is to assess the significance of impacts a proposal may have on the quality of the human environment and to make that assessment information available to public officials and citizens before decisions are made and actions are taken. NEPA requires that FEMA:

- Consider the potential environmental impacts of the proposed action and its alternatives before deciding on a course of action.
- Guarantee that information is made available to interested parties and provides opportunities for public involvement, which may include participation in project scoping, attending any public meetings, and reviewing the Draft and Final EIS.

The NEPA process contributes to, but does not dictate FEMA's decision.

A Fact Sheet prepared by the Federal Emergency Management Agency

Environmental Impact Statement (EIS) Summary

An EIS must be prepared when an agency's proposed action has the potential to significantly impact the environment. An EIS provides input to the agency's planning and decision making process and includes the following information:

- The purpose of and need for action
- Alternatives, including the Proposed Action
- Affected environment
- Environmental consequences of all alternatives studied
- Means to mitigate adverse environmental impacts
- List of agencies and persons consulted during the preparation of the EIS
- List of preparers

SUMMARY OF ALTERNATIVES	
NO ACTION ALTERNATIVE	▪ **FEMA does not provide financial assistance**
APPLICANT'S PROPOSED ACTION	▪ **The alternative preferred or favored by the applicant**
OTHER ACTION ALTERNATIVES	▪ **As identified by FEMA and Cooperating Agencies, with input from interested parties**

If you have questions or would like to be on the mailing list please use the contact information below:
E-mail: EBH-EIS-FEMA-RIX@dhs.gov
Mail: EBH-EIS, P.O. Box 72391, Oakland, CA 94612
Website: http://ebheisforca.ursdcmefro.com
8/26/2010

Understanding NEPA Fact Sheet, Page 2

UNDERSTANDING NEPA

Public Scoping and Opportunities for Public Involvement

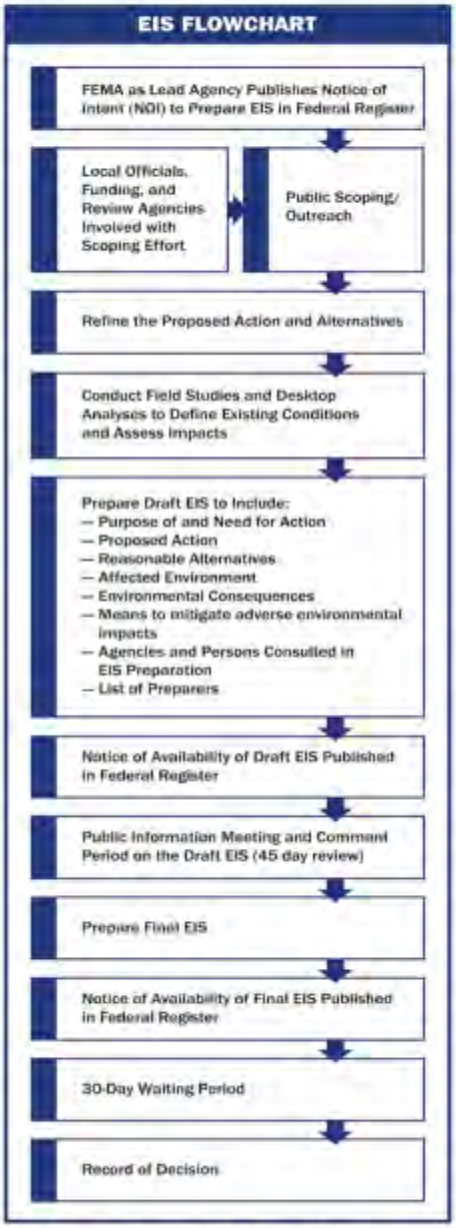
Public involvement plays an important role in the NEPA process. To gather input on environmental concerns from the public, special interest groups, and government agencies, FEMA may host public meetings during the NEPA process. Public meetings may occur during the scoping process and when the Draft EIS is available for review and comments. The Final EIS will be prepared after taking into consideration input received during the public comment period on the Draft EIS.

Resources and Other Areas of Concern Assessed for Impacts

- ✓ Air Quality
- ✓ Floodplain Management
- ✓ Socioeconomics, including Environmental Justice
- ✓ Hazardous Materials
- ✓ Land Use and Planning
- ✓ Biological Resources
- ✓ Threatened and Endangered Species
- ✓ Invasive Species
- ✓ Soil Erosion and Water Quality
- ✓ Greenhouse gasses
- ✓ Geology and Seismic Hazard
- ✓ Public Safety
- ✓ Historic Properties
- ✓ Public Facilities
- ✓ Noise
- ✓ Transportation
- ✓ Visual and Aesthetic Resources

Cooperating Agencies

FEMA is the lead agency in conducting the NEPA activities associated with the project. Other federal, state, and local agencies may be involved in the NEPA process because of their technical and special expertise, jurisdiction by law, or need to approve or finance a portion of the proposal.



If you have questions or would like to be on the mailing list please use the contact information below.
E-mail: EBH-EIS-FEMA-RIX@dhs.gov
Mail: EBH-EIS, P.O. Box 72391, Oakland, CA 94612
Website: http://ebheisforca.urscmetro.com
8/26/2010

FEMA Project Fact Sheet, Page 1

FEMA
PROJECT
FACT SHEET

Hazardous Fire Risk Reduction Environmental Impact Statement East Bay Hills, California

August 26, 2010

BACKGROUND

The University of California at Berkeley (UCB), the City of Oakland (City), and the East Bay Regional Park District (EBRPD) have submitted grant applications through the California Emergency Management Agency (Cal EMA), to the Department of Homeland Security's Federal Emergency Management Agency (FEMA) requesting funding under the Hazard Mitigation Assistance programs. The four grant applications are for hazardous fire risk reduction projects in the East Bay Hills. Hazardous fire risk reduction is defined in FEMA Mitigation Policy MRR-2-08-1, *Wildfire Mitigation Policy for the Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) Program* (September 8, 2008), which describes long-term, cost-effective actions taken to reduce or eliminate damage to vulnerable structures and associated loss of life from future wildfire.

FEMA has determined that an Environmental Impact Statement (EIS) will be prepared in compliance with the National Environmental Policy Act (NEPA). See the FEMA Fact Sheet *"Understanding NEPA"* for more information. FEMA has invited the U.S. Forest Service, the National Park Service, the U.S. Fish and Wildlife Service, Cal EMA, UCB, EBRPD, and the City to be Cooperating Agencies and all have agreed.

HISTORY

- Between 1923 and 1992, 15 major wildfires occurred in the East Bay Hills of Alameda and Contra Costa Counties, California.
- These 15 fires burned about 9,000 acres, destroyed more than 3,500 homes, and killed 26 people.
- Among these fires, the 1923 Berkeley Fire destroyed over 600 homes in an hour.
- The 1970 fire consumed over 200 acres and burned 37 homes.
- The 1991 Tunnel Fire killed 25 people, destroyed approximately 3,400 homes and did an estimated $1.5 billion in damages.

PROJECT INFORMATION

The Proposed Action consists of FEMA's financial assistance through Cal EMA to UCB, EBRPD, and the City to implement the four hazardous fire risk reduction projects described below:

- The Claremont Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-003) submitted by UCB involves felling all eucalyptus, Monterey pine, and acacia trees on approximately 45 acres of UCB property, chipping the downed trees and scattering the chips in the cleared area, and semi-annually applying herbicides to eradicate eucalyptus tree sprouts.
- The Strawberry Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-011) submitted by UCB involves felling all eucalyptus, Monterey pine, and acacia trees on approximately 60 acres of UCB property, chipping the downed trees and scattering the chips in the cleared area, and semi-annually applying herbicides to eradicate eucalyptus tree sprouts.
- The Oakland Regional Fuel Management Project (PDM-PJ-09-CA-2006-004) submitted by the City involves various vegetation thinning and eradication techniques on appoximately 325 acres owned by the City, UCB, and EBRPD. Each agency would be responsible for implementing the project on its own property. Fuel management techniques would vary by agency.
- The Brushland Fuels Management Project (HMGP 1731-16-34) submitted by EBRPD involves the treatment of approximately 590 acres of EBRPD property to reduce fuel load through brush removal (mechanical and hand clearing), chemical treatment, limbing, mowing, thinning, and grazing.

cont. on next page

WEBSITE: http://ebheisforca.ursdcmetro.com
EMAIL: EBH-EIS-FEMA-RIX@dhs.gov
MAIL: EBH-EIS, P.O. Box 72391, Oakland, CA 94612

FEMA Project Fact Sheet, Page 2

cont. from previous page

FEMA IS CONSIDERING FIVE ALTERNATIVES IN THE EIS:

No Action Alternative:
Deny the grant applications for financial assistance

Alternative 1:
Funding grant applications for financial assistance as submitted by Cal EMA **(Proposed Action)**

Alternative 2:
Funding grant applications for financial assistance with conditions to address environmental impacts

Alternative 3:
Funding grant applications for financial assistance, but stipulate that a different fuel reduction methodology be used rather than those proposed in the applications

Alternative 4:
Partially funding grant applications for financial assistance (i.e., approve one, two, or three of the applications)

*- **Alternatives 1, 2, 3,** and **4** involve varying treatment measures, treatment areas, and size.*
- FEMA may modify or eliminate some of these alternatives or add new alternatives as identified through the EIS scoping process.

NEXT STEPS

- Publication on June 10, 2010 of the Notice of Intent (NOI) to prepare an EIS for these projects initiated the public scoping period, which will conclude October 1, 2010. Government agencies, neighborhood associations, special-interest groups, and individuals are encouraged to participate in the public scoping process by providing comments and participating in one of the public scoping meetings to be held on Thursday, August 26, 2010 at 2:00 pm - 4:30 pm and 6:30 pm - 9:00 pm at the Trudeau Center, 11500 Skyline Blvd., Oakland, CA 94619.
- At the conclusion of the public scoping period on October 1, 2010, FEMA will take all public comments into consideration while preparing the Draft EIS. The Draft EIS is expected to be available for public review and comment in summer 2011. Availability of the Draft EIS will be announced in the Federal Register, local newspapers, and the project webpage. All parties on the project mailing list will be notified individually by email or U.S. mail.

Environmental Impact Statement Flowchart

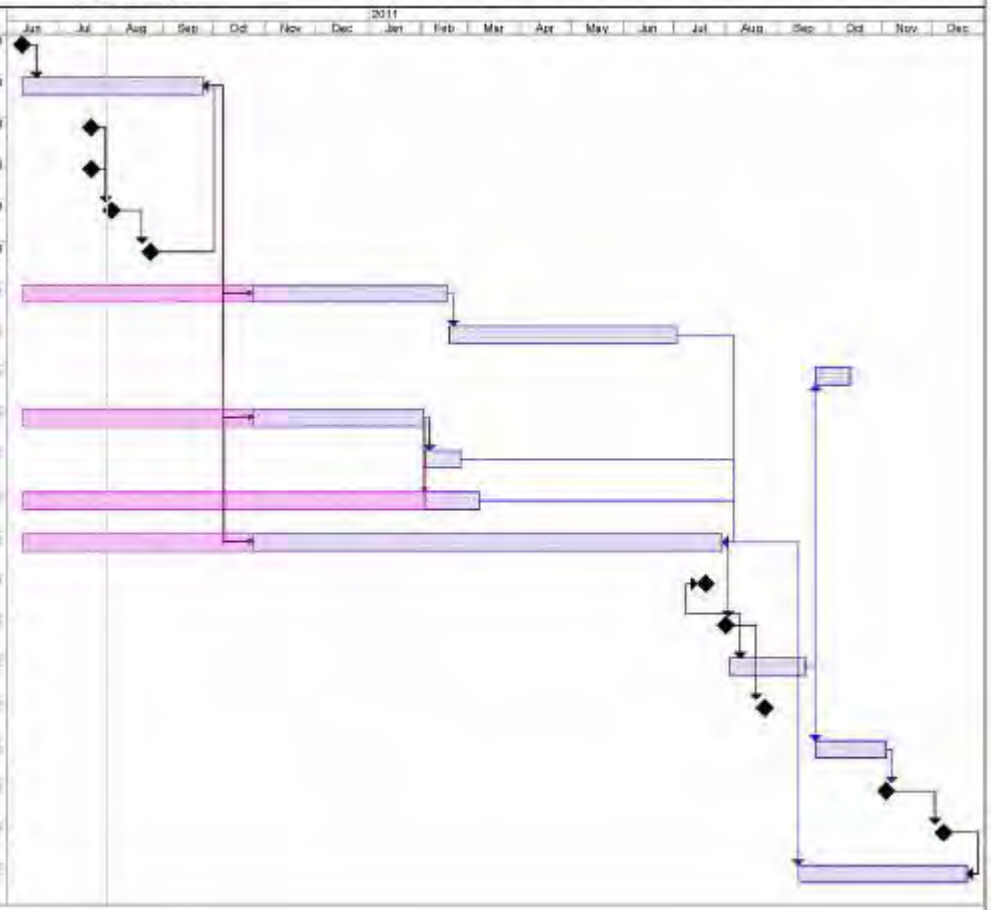
Hazardous Fire Risk Reduction EIS Milestones

PROPOSED

Hazardous Fire Risk Reduction, East Bay Hills, CA

Revised Fri 7/30/10

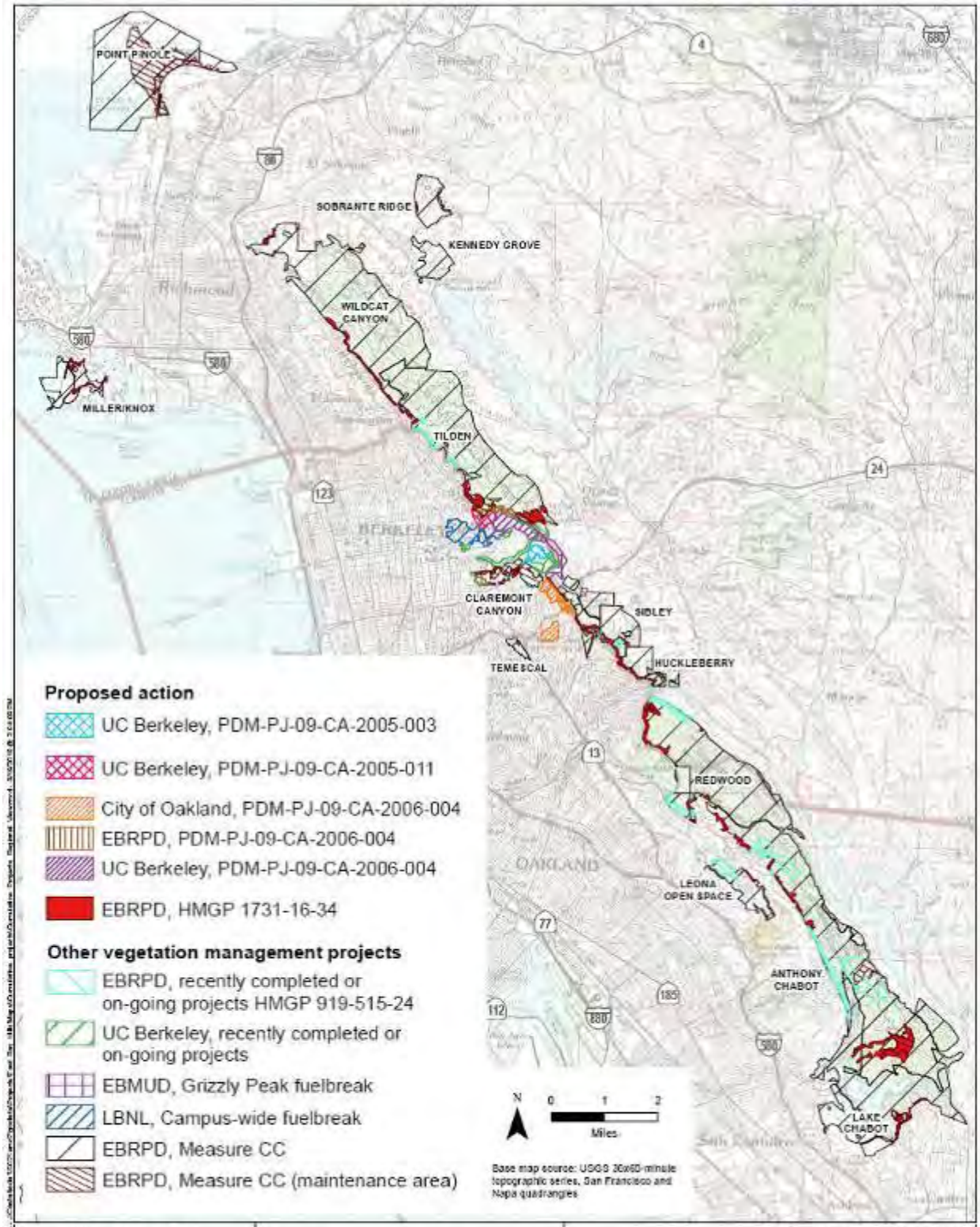
ID	Task Name	Duration	Start	Finish
1	Notice of Intent	1 day	Thu 6/10/10	Thu 6/10/10
2	Public Comment Period	75 days	Thu 6/10/10	Fri 9/24/10
3	Publish NOI Amendment	1 day	Wed 7/21/10	Wed 7/21/10
4	Kickoff Meeting with Cooperating Agencies	1 day	Wed 7/21/10	Wed 7/21/10
5	Advertise Public Scoping Meetings	2 days	Mon 8/2/10	Tue 8/3/10
6	Public Scoping Meetings	2 days	Wed 8/25/10	Thu 8/26/10
7	Prepare Biological Assessment	175 days	Thu 6/10/10	Wed 2/16/11
8	U.S. Fish and Wildlife Service prepares Draft Biological Opinion	135 edays	Thu 2/17/11	Sat 7/2/11
9	U.S. Fish and Wildlife Service prepares Final Biological Opinion	15 days	Fri 9/23/11	Thu 10/13/11
10	Prepare Historic Properties Findings Report	185 days	Thu 6/10/10	Wed 2/2/11
11	State Historic Preservation Officer review and comment	21 edays	Thu 2/3/11	Thu 2/24/11
12	Tribal consultation, review, and comment	168 days	Thu 6/10/10	Mon 3/7/11
13	Prepare Draft Environmental Impact Statement (EIS)	290 days	Thu 6/10/10	Fri 7/29/11
14	Draft EIS Meeting with Cooperating Agencies	1 day	Wed 7/20/11	Wed 7/20/11
15	Publish Notice of Availability (NOA)	2 days	Mon 8/1/11	Tue 8/2/11
16	Public Comment Period on Draft EIS	45 edays	Tue 8/2/11	Fri 9/16/11
17	Public Meetings on Draft EIS	2 days	Wed 8/24/11	Thu 8/25/11
18	Prepare Final EIS	30 days	Fri 9/23/11	Thu 11/3/11
19	Publish NOA	2 days	Fri 11/4/11	Mon 11/7/11
20	Publish Record of Decision	2 days	Thu 12/8/11	Fri 12/9/11
21	Compile Administrative Record	71 days	Tue 9/13/11	Wed 12/21/11



days = working days, edays = calendar days

Task Preliminary Milestone

Disclaimer: This schedule assumes no unexpected significant impacts or other unforseen issues are identified during the EIS process.



PDM-PJ-09-CA-2005-003 PDM-PJ-09-CA-2005-011 PDM-PJ-09-CA-2006-004 HMGP 1731-16-34	Environmental Impact Statement for Hazardous Fire Risk Reduction East Bay Hills, California	**CUMULATIVE PROJECTS REGIONAL VIEW**

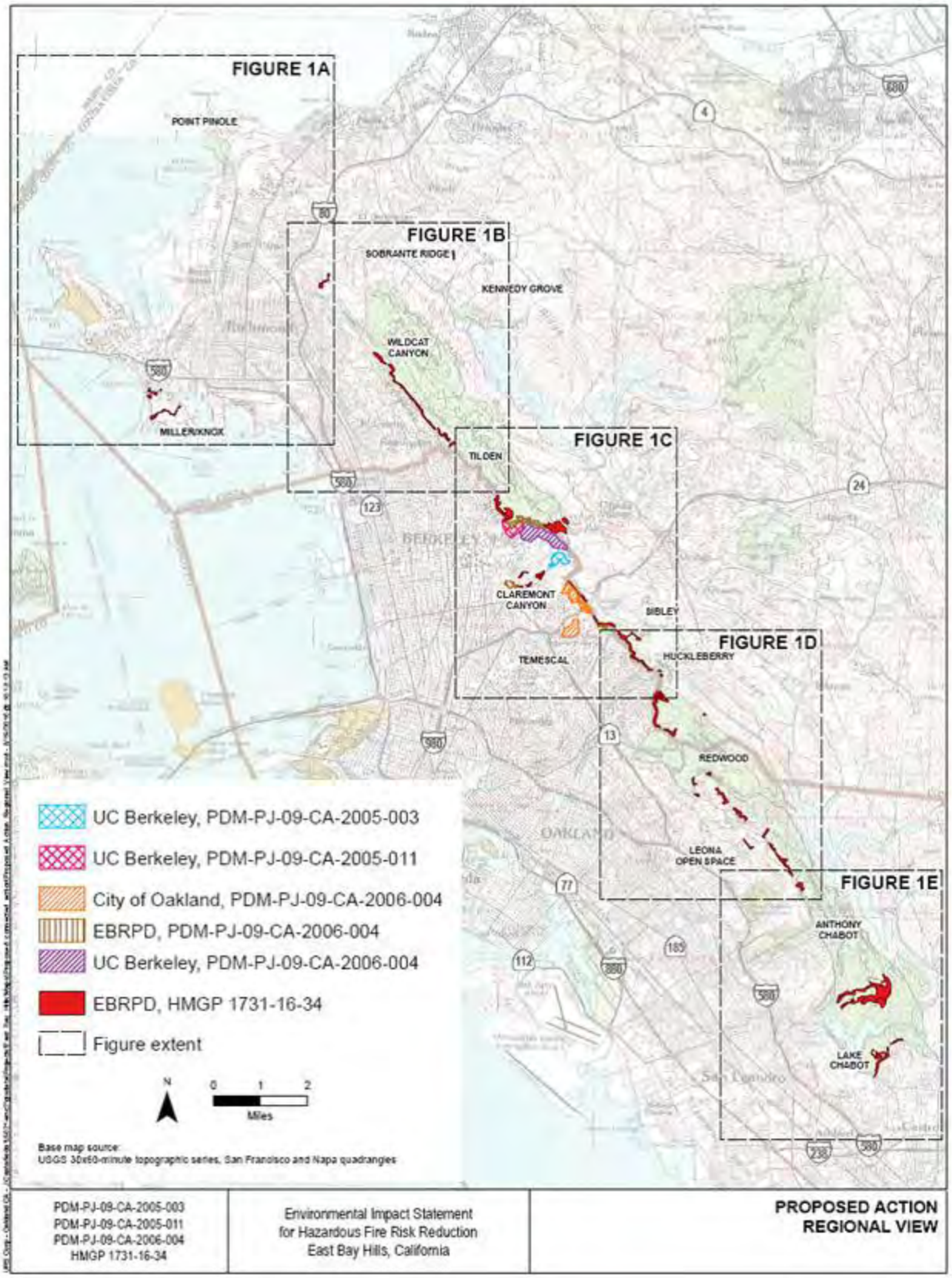
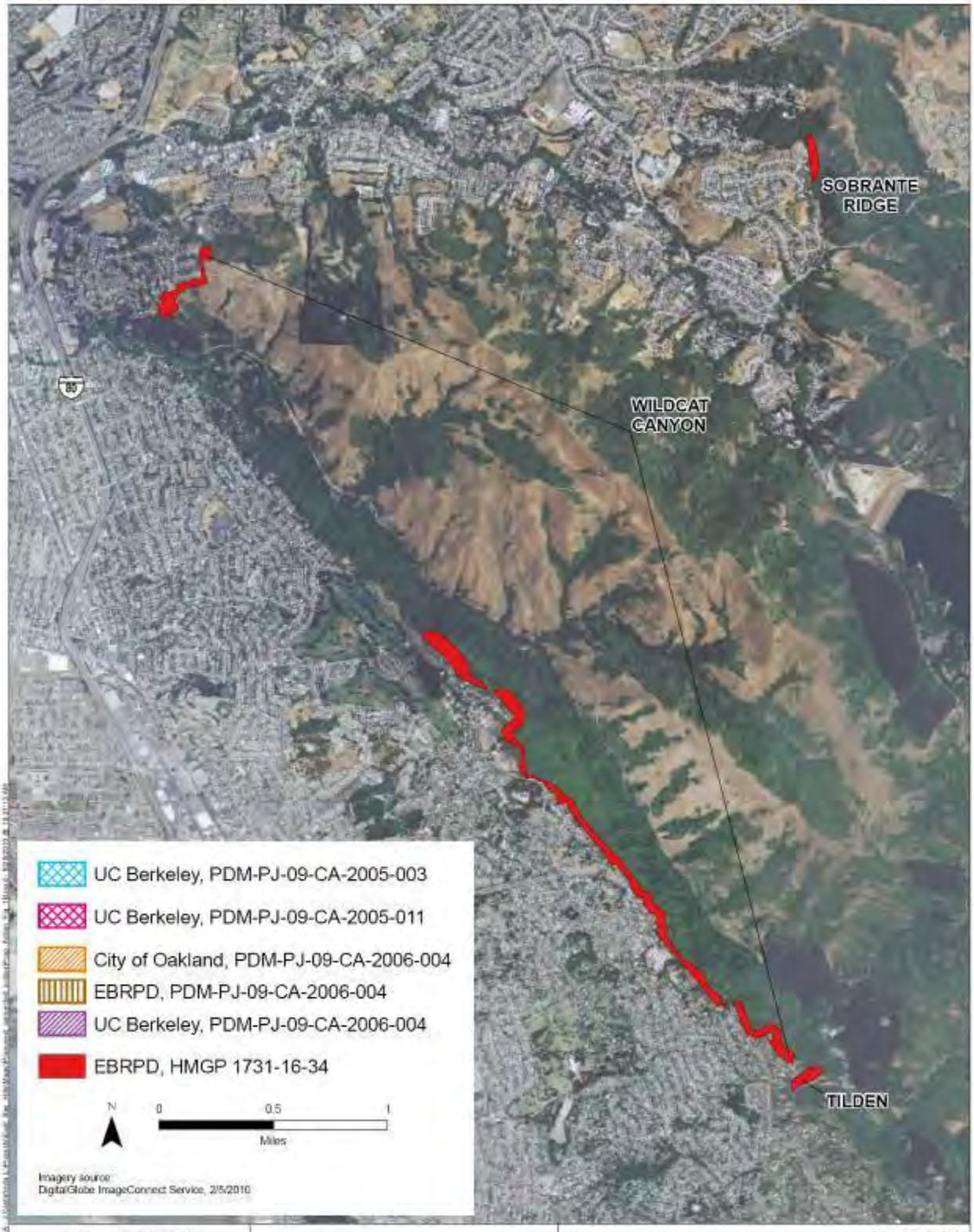


FIGURE 1A
POINT PINOLE
MILLER/KNOX
FIGURE 1B
SOBRANTE RIDGE
KENNEDY GROVE
WILDCAT CANYON
FIGURE 1C
TILDEN
CLAREMONT CANYON
TEMESCAL
BIBLEY
FIGURE 1D
HUCKLEBERRY
REDWOOD
LEONA OPEN SPACE
FIGURE 1E
ANTHONY CHABOT
LAKE CHABOT
UC Berkeley, PDM-PJ-09-CA-2005-003
UC Berkeley, PDM-PJ-09-CA-2005-011
City of Oakland, PDM-PJ-09-CA-2006-004
EBRPD, PDM-PJ-09-CA-2006-004
UC Berkeley, PDM-PJ-09-CA-2006-004
EBRPD, HMGP 1731-16-34
Figure extent
N
0 1 2
Miles
Base map source:
USGS 30x60-minute topographic series, San Francisco and Napa quadrangles
PDM-PJ-09-CA-2005-003
PDM-PJ-09-CA-2005-011
PDM-PJ-09-CA-2006-004
HMGP 1731-16-34
Environmental Impact Statement
for Hazardous Fire Risk Reduction
East Bay Hills, California
PROPOSED ACTION
REGIONAL VIEW

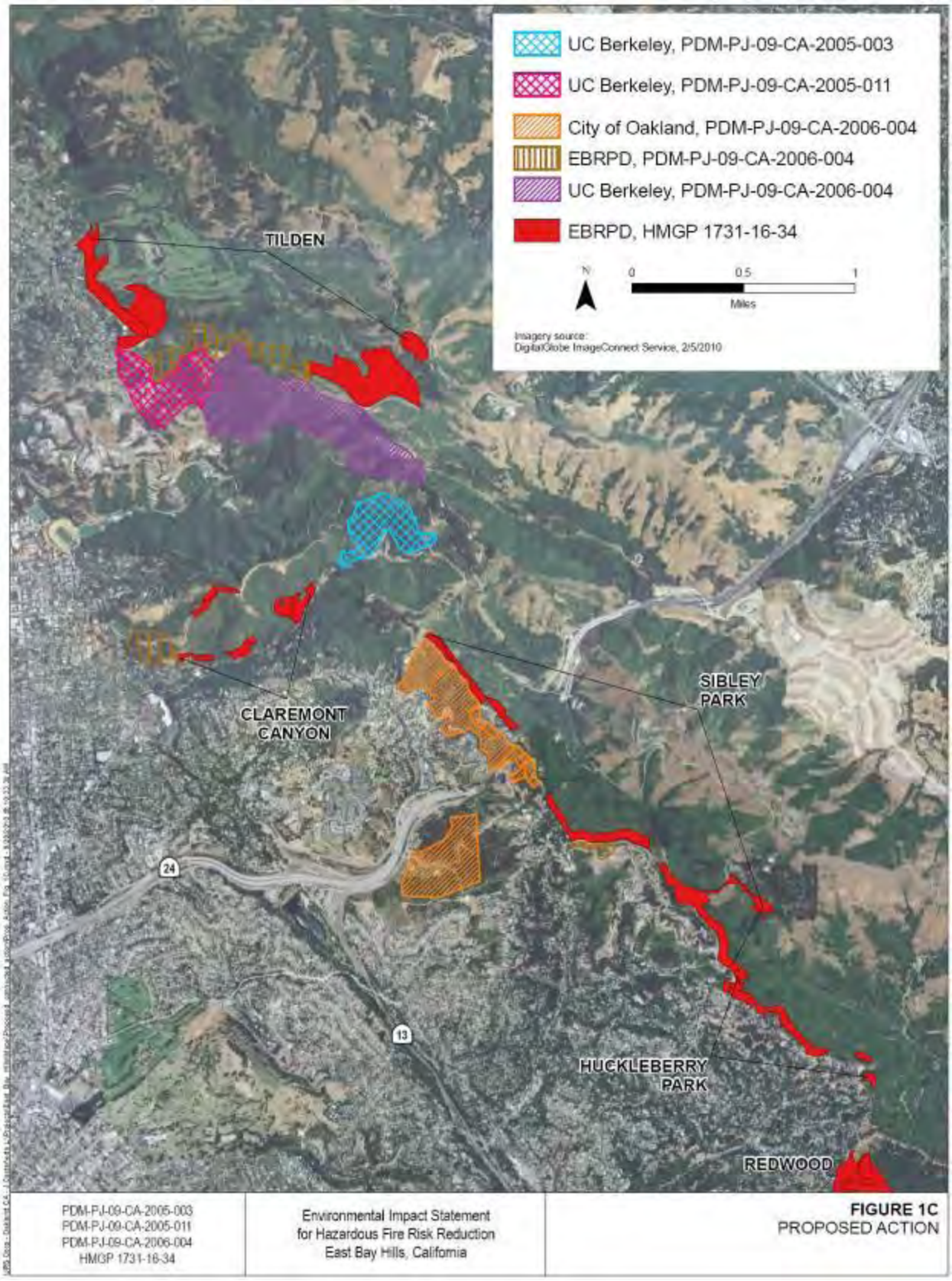
PDM-PJ-09-CA-2005-003
PDM-PJ-09-CA-2005-011
PDM-PJ-09-CA-2006-004
HMGP 1731-16-34

Environmental Impact Statement
for Hazardous Fire Risk Reduction
East Bay Hills, California

FIGURE 1A
PROPOSED ACTION



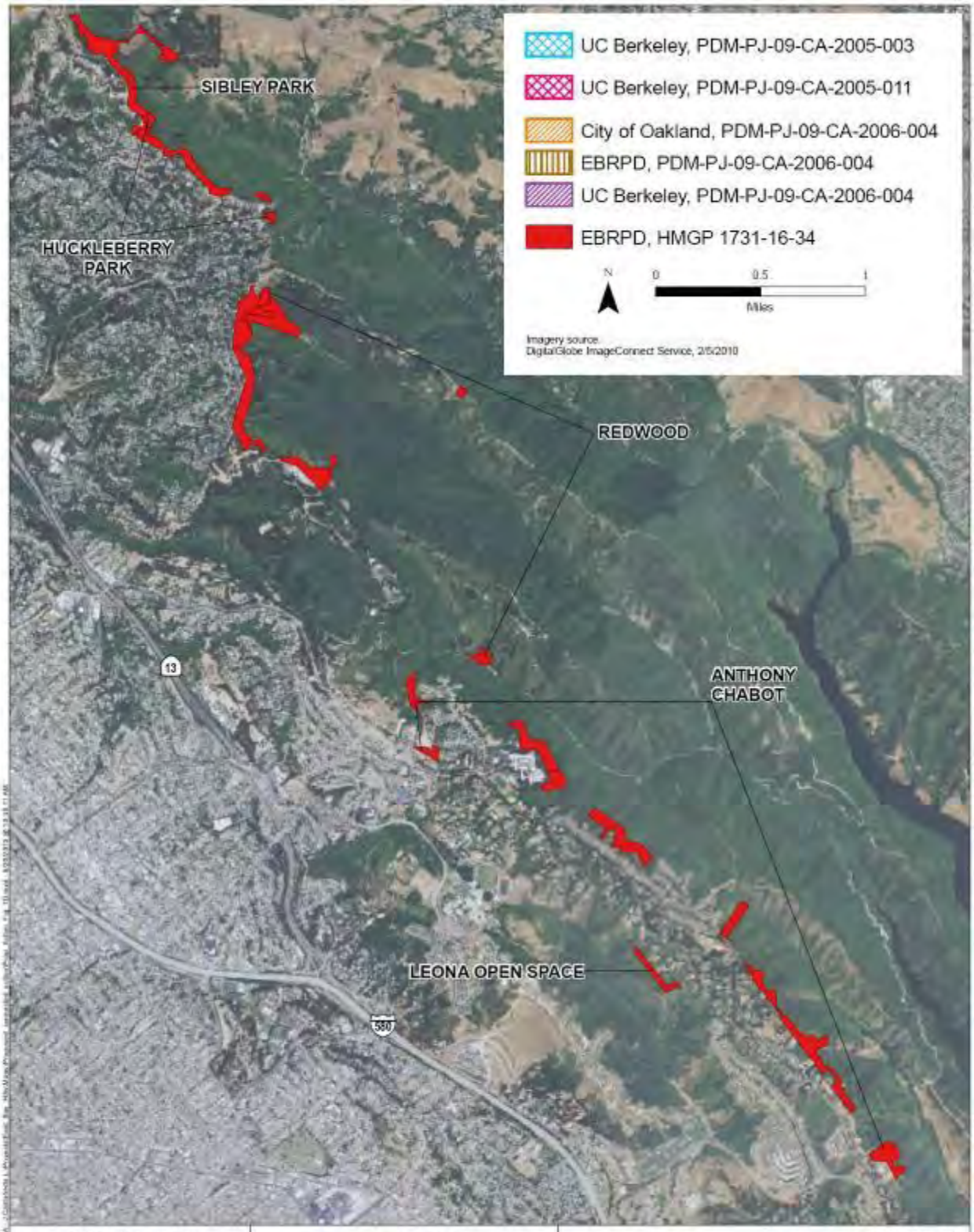
PDM-PJ-09-CA-2005-003 PDM-PJ-09-CA-2005-011 PDM-PJ-09-CA-2006-004 HMGP 1731-16-34	Environmental Impact Statement for Hazardous Fire Risk Reduction East Bay Hills, California	**FIGURE 1B** PROPOSED ACTION



PDM-PJ-09-CA-2005-003
PDM-PJ-09-CA-2005-011
PDM-PJ-09-CA-2006-004
HMGP 1731-16-34

Environmental Impact Statement
for Hazardous Fire Risk Reduction
East Bay Hills, California

FIGURE 1C
PROPOSED ACTION



PDM-PJ-09-CA-2005-003 PDM-PJ-09-CA-2005-011 PDM-PJ-09-CA-2006-004 HMGP 1731-16-34	Environmental Impact Statement for Hazardous Fire Risk Reduction East Bay Hills, California	**FIGURE 1D** PROPOSED ACTION

PDM-PJ-09-CA-2005-003 PDM-PJ-09-CA-2005-011 PDM-PJ-09-CA-2006-004 HMGP 1731-16-34	Environmental Impact Statement for Hazardous Fire Risk Reduction East Bay Hills, California	**FIGURE 1E** PROPOSED ACTION

Appendix E:
Public Scoping Meeting Presentation and Oral Comments Transcripts

Afternoon Meeting

PUBLIC SCOPING MEETING

In Re:)
)
Hazardous Fire Risk Reduction)
Environmental Impact Statement)
East Bay Hills, California)
_____)

ORIGINAL

FIRST SESSION

THURSDAY, AUGUST 26, 2010

2:00 P.M. - 4:30 P.M.

Reported by: Desiree C. Tawney, CSR No. 12414

NCCR

Northern California Court Reporters

Certified Shorthand Reporters & Legal Photocopy

(916) 485-4949 ■ Fax (916) 485-1323 ■ (888) 600-NCCR

1325 Howe Avenue, Suite 105 ■ Sacramento, CA 95825

nccr@norcalreporters.com ■ www.norcalreporters.com

1 APPEARANCES:

2 Kevin Spesert, URS Corporation
David Kennard, FEMA
3 Alessandro Amaglio, FEMA

4 Public Speakers:

5 Dan Grassetti, Hills Conservation Network
Norman LaForce, Sierra Club
6 Jerry Baer, Hills Conservation Network
Karen Paulsell, Friends of Sausal Creek
7 Marg Hall
Nicole Courtet
8 John Shively
Lynn Hovland
9 Matt Mitchell
Gordon Piper, Oakland Landscape Committee
10 Bev VonDohre
Karen Perkins
11 Bob Sand
Keith McAllister
12 Robert Sieben, Advisory Committee to Oakland Wildfire
Protection District
13
14
15
16
17
18
19
20
21
22
23
24
25

BE IT REMEMBERED, that on THURSDAY, AUGUST 26, 2010, commencing at the hour of 2:00 P.M., at the Trudeau Center, 11500 Skyline Boulevard, Oakland , California, before me, DESIREE C. TAWNEY, Certified Shorthand Reporter in and for the county of Placer, state of California, the following scoping meeting took place:

(The following proceedings took place on the record.)

KEVIN SPESERT: First of all, I'd like to thank everybody for attending. My name is Kevin Spesert. I'll be serving as the facilitator for the meeting for today.

Just a couple of housekeeping items. If everybody does not know, the restrooms are right behind the door. If you need to use the restrooms, feel free to get up and use those.

We have emergency exits. There is a door out the back and I believe one out behind the registration table.

I would ask everyone to turn off their cell phones or put it on vibrate. Let me make sure mine is. I'm good.

Well, again, thank you all for being here for this important meeting. Our meeting today is a public scoping meeting for the Environmental Impact Statement or the EIS for the Hazardous Fire Risk Reduction Project in the East

Bay Hills, California.

The purpose of our scope of our EIS scoping meeting is to receive comments from the public regarding issues and concerns that should be addressed during the development of the EIS.

This is your opportunity to provide comments on what resources or areas of concern that will be analyzed and how they are analyzed during the development of the EIS. This is a very important part of the EIS process.

We're very happy to see as many people who showed up who want to play a role in this to contribute to the effort.

I'd like to stress the meeting today is one of the first steps in the EIS process. There will be a lot of opportunities in the future for members of the public to engage in the process and to also provide comments into the process as we move forward. But tonight the purpose of our -- today, the purpose of our meeting is to receive your comments regarding the scope of the EIS.

Hopefully you've had an opportunity -- I think we had a great open house session. I think everybody got an opportunity to interact in the back, look at poster boards and chat with the representatives of FEMA and the cooperative agencies here today.

When you came in and signed in at the table in the

back, you should have got a bunch of handouts there.

Rebecca, in the back of the room -- Rebecca, waive your hand -- and Joan and Linda in the back. If you don't have one or any of the handouts, raise your hand and she can bring some to you.

Also, there are comment cards back there. I hope everyone has a comment card. If you don't have a comment card, Rebecca has one in the back. Raise your hand and we'll make sure you get one of those. We'll talk about the comment cards in a minute.

I'd like to stress our meeting today is focused on -- right here, Rebecca. Great. I'd like to stress our meeting today is focused on receiving your comments regarding the scope and analysis of the EIS.

So if you have any program questions or process questions, I'd ask that you hold that until the end of the public comment period. We'll take official public comment in a few minutes.

If you have any specific questions as you're giving your comment, put that in the confines of your comment and at the end of the meeting in the back of the room, back at the poster boards are -- we'll have representatives from some of the cooperating agencies who are here and who will speak to you individually, one-on-one about your specific questions. We want to keep our public comments session

1 focused on soliciting official comments so we can secure
2 them for the record.
3 In the next couple of minutes we'll have a brief
4 overview presentation on FEMA's Hazard Mitigation Programs
5 and the proposed hazardous fire risk reduction projects in
6 the East Bay Hills by Mr. David Kennard, who is the Hazard
7 Mitigation Program branch chief for FEMA, Region IX.
8 David's presentation will be followed by a brief
9 presentation on the EIS process by Mr. Alessandro Amaglio,
10 who is the regional environmental officer for FEMA, Region
11 IX.
12 Following their presentations, we'll open the public
13 comment portion of our meeting for those of you who would
14 like to provide a comment. The comment cards -- I have
15 several up here already. If you would like to make a
16 comment during the public comment portion, I'd ask you take
17 one of the public comments cards, put your name and write
18 "speaker" at the top, give it to Rebecca or Linda. As we
19 move through the process, I'll call your name and you can
20 come to the microphone and give your comments.
21 There are several other ways you can make a comment.
22 You can take this comment card, write out your comment, put
23 it in the box on the table or give it to me. You can make
24 your comments orally today as we've just talked about. If
25 you want to wait until a later date to send in your

comment, you can take this form with you. At the bottom of the comment card there is an e-mail address, mailing address for the project, as well as a website link where you can go directly on the website and submit your comments on the website.

The public comment period ends October 1st. So you have some time to take it home with you and mull out what you heard tonight or today and forward your comments on to us.

If you wish to speak for the public comment period, take your card, fill it out. While the presentations are going on, Rebecca or Linda will be in the back. Hold your card up. We'll go and collect them.

We'll introduce Mr. David Kennard, who will give his comments.

DAVID KENNARD: So good afternoon. As Kevin said, my name is David Kennard.

I'm the Hazard Mitigation Assistance branch chief for the FEMA office here in Oakland.

So for the mitigation grants I'm the one in charge of the group that does that. And I just wanted to say before I start my talk, yesterday was my birthday. So when I blew out the candles last night, all those candles, I felt like I was engaged in hazardous fire risk reduction by putting out that fire.

Anyway, I am going to start off this part of the meeting by giving a brief overview of the two FEMA mitigation government programs and the four grant applications that are the focus of today's meeting.

And I want to begin with just a brief discussion of the underlying law that allows FEMA to do all of our emergency management activities. Robert T. Stafford Disaster Relief and Emergency Assistance Act, also known as the Stafford Act -- I always use Stafford Act. If I have to do the whole name, I make sure I have it written down. It is the legal basis for FEMA's emergency management activities for: Preparedness, Response, Recovery and Mitigation. It's the mitigation part I'm interested in. I'm in charge of the grant programs.

The two sections of the Stafford Act that authorize FEMA to provide funding to the state and local governments to assist in the implementation of long-term, cost-effective actions that will reduce or eliminate the risk of danger to people and property from natural hazards, which include wildfires.

Because the Stafford Act authorization, we offer the grant programs. And wildfires are one of the projects we can use the grants for.

I want to point out here though when I use the term "risk" or "risk reduction," I'm using them in the context

of the general mitigation sense of reducing the threat of damage from wildfires to property and human life. I'm not using it in the narrower firefighting usage of major cause for wildfires.

So you know, I'm not talking causative agents, such as an unattended campfire, discarded cigarette butts, lightning strikes; but we're focusing on actions that will reduce the likelihood of a wildfire damaging the build around. That is the focus of our program and the focus of the projects.

The two FEMA hazard mitigation assistance programs mentioned in the two sections of the Stafford Act are the Hazard Mitigation Grant Program, which is also known as the HMGP and the Pre-Disaster Mitigation Program, which is also known as the PDM.

Funding from these two programs is available for wildfire mitigation activities with the primary hazard mitigation purpose of reducing the threat to at-risk structures and the associated loss of life from future wildfires.

Again, that is the focus of the programs.

Now, the Hazardous Mitigation Grant Program is set up to provide funding for states after a Presidential disaster declaration. You may be familiar with these. There was an earthquake down in Southern California several months ago

and there was a Presidential declaration from that. There will be hazard mitigation grant funding that results from that.

That funding is generally 15 percent of the FEMA disaster recovery assistance. There is a sliding scale. It is more complicated than it needs to be. State of California, because they have an enhanced mitigation plan, it is actually 20 percent. But kind of nationwide, in general, if you think of 15 percent, that is usually right.

The State in this case, the California Emergency Management Agency, or also known as Cal EMA -- and Paul Ransom is here as our representative from Cal EMA -- the State administers the program. Cal EMA establishes the mitigation priorities. It facilitates the development of project applications and it submits those applications to FEMA based on the State's criteria usually stated in the mitigation plan and the available funding.

So if there was 17 million from the earthquake down in El Centro, then that is the amount of Federal funding that Cal EMA could supply applications for.

The FEMA regional office reviews the project application after receiving from the State. Once a specific award is made, the funding is available through the sub-applicant to reimburse up to 75 percent of the eligible project costs. The remaining 25 percent of costs

are the required state or local match cost share.

The Pre-Disaster Mitigation Program, which is the other section, Section 203, is a nationally competitive program. The process is similar except for one key element. So it's a nationally competitive program that provides funding to the states on an annual basis and subject to Congressional appropriations. So the level of funding that has gone to PDM has kind of changed over the years of the program. It has been 150 million one year nationwide, 100 million a different year. It's an annual appropriation that is available to all of the states in this national program.

Again, the State, Cal EMA, administers the program. Cal EMA establishes the mitigation priorities. It facilitates the development of the project application and submits them to FEMA.

In this instance, however, the applications go to a national panel. The national panel is made up of Federal, state, local emergency management team members. They review all of the applications. They prioritize them on this nationwide competition and they select top project applications for further review at the regional office.

They're sent to national. Competition happens and then the applications go back to the regions for the completion of the review.

Once a specific project award is made, the funding is available to the sub-applicant to reimburse up to 75 percent of the eligible project costs. The remaining 25 percent again is the local share -- the local cost share.

So those are the two programs that are the basis of our grant activity. I'm going to talk a little bit about the four projects now that we've received.

California -- FEMA has received from Cal EMA four mitigation applications for Hazardous Fire Risk Reduction in the East Bay Hills. Cal EMA submitted three of these applications, these proposed projects, under the Pre-Disaster Mitigation Program. It went through the national evaluation before coming to us. And the fourth was submitted under the Hazard Mitigation Grant Program.

As you notice from the poster boards and as you can see in the maps on the handouts, the four projects run along the East Bay Hills in both Alameda and Contra Costa counties. It's stretched quite a distance there.

If you want to look at the Figure 1C in the handout, for example, it is the central section. It shows most of the proposed project areas. I'll just briefly describe the four applications that we received for this.

The first one I want to mention is the Strawberry Canyon Vegetation Management Project. It was submitted by the University of California Berkeley under the PDM

Program, the Pre-Disaster Mitigation Program. And it involved removal of the eucalyptus and other exotic non-native trees and about 60 acres. It is shown in the red hatching in the top left-hand side of that map.

The Claremont Canyon Vegetation Management Project was also submitted by the University of California Berkeley also under the PDM. It involves removing the eucalyptus, Monterey pine, acacia trees in a 45-acre area. And it is shown in the blue hatching there in the -- towards the center of the map.

The Oakland Regional Fuel Management Project was submitted by the City of Oakland under the PDM, Pre-Disaster Mitigation Program. It involves various vegetation, thinning and eradication techniques on about 325 acres that are owned by the City of Oakland, University of California Berkley and also the East Bay Regional Park District.

Each agency is responsible for implementing the project on its own property and the fuel management techniques vary from the various sub-applicants. This project is shown in the orange and magenta diagonal hatching in the center of the map again and in the gold vertical hatching up towards the top left-hand side of the map.

The last project is the Brushland Fuels Management

Project, which was submitted by the East Bay Regional Park District under the Hazardous Mitigation Grant Program. Funding from that comes from the October 2007 wildfire disaster that actually was centered in Southern California but the program is a statewide program. So it does not necessarily have to be in the area where the disaster happened. And this project involves treatment of approximately 590 acres in ten of the regional parks. And the treatment to reduce the fuel load includes things like -- the proposed treatment includes things like brush removal, limbing, mowing, thinning, chemical treatment and grazing as appropriate to reduce the risk of wildfires. And this project is shown in solid red. And because it's strung out along the ten parks, it is -- if you flip through the various maps in the package, you'll see the various sub-units. Or if you go all of the way towards the front, there is one map that is called "A Proposed Action Regional View" that shows all of the projects. And the East Bay Regional Park Projects are shown in the solid red.

Together these four projects are -- these four proposed projects would reduce the hazardous fuels with the intent to reduce wildfire risks to the built environment in approximately 980 acres of the Woodland-Urban Interface of the East Bay Hills running from Lake Chabot, which I think it is just south of here, all of the way up to Wildcat

Canyon and Sobrante Ridge -- I live in Albany so I am more familiar with the northern end of this -- and encompassing both Alameda and Contra Costa counties.

FEMA is determined that the EIS should be conducted to address the four proposed projects. Now I'll turn it over to Alessandro Amaglio to describe the environmental review process.

Thank you.

ALESSANDRO AMAGLIO: Thank you, David. I hope I have voice. Otherwise, I ask for help.

First of all, I am Alessandro Amaglio. I pronounced it right this time. I'm the environmental officer for Region IX.

I want to thank you all for coming and taking the time from your schedule to come at this meeting today.

I think we really, really appreciate and we need your assistance in this process. We appreciate -- I, and the agents, appreciate your assistance and your presence today.

My first -- like David mentioned and also our facilitator mentioned, I need to give you a little brief of our process. And I want to clarify why, first of all, FEMA talks about NEPA and what NEPA is.

I wanted to quote you two -- and I am not going to do a lecture but I want to make sure I quote you two sentences in the regulation. These are going to carry us along for

the next several months.

The first is the mention of "major Federal action." Any -- all Federal agencies are mandated to comply with the National Environmental Policy Act of 1969 when whatever they're proposing to do is considered a major Federal action. And the definition of major Federal action is: Any action with effects that may be major and which are potentially subject to Federal control or responsibilities. And underline "may." All of our process is aimed at looking at what could be, not the certainty of what it is. Because that is the analysis we're going through.

The second is: What is "actions"? And we are here, some agencies -- I go through later explaining the presence in this room. But each of the Federal agencies, state agencies, local agencies have different missions and different responsibilities. FEMA especially in particular in this kind of process is funding.

So how come funding or what funding has to do with trees, vegetation? So here it is the second definition. It is: Action includes new and continuing activities -- remember this -- continuing activities, projects and programs entirely or partially funded, assisted, conducted permitted by Federal agents.

Like a code of engineer issuing a permit but now in this case we're giving seed money to some projects. There

are other agencies providing money but we still have to look at the full picture because the partial funding involves us in the full picture.

We could continue in talking about NEPA but I think that I am going through the major step of the process. I think that we need to remember that why we're here. Our action is funding these four proposed grants. And we're going to work together -- and I mean really together because as a team there are different responsibilities. I'm going through those. But unless we're together in the process and provide comments and provide the support the agency needs, we cannot reach the right decision in terms of funding, not funding, what to fund in the overall project scheme.

With that said -- I'm trying to be brief. The vital part of the meeting tonight is listening to you. So I don't want to give a lecture here and take our time from what you have to say to us.

And I promise you as an agency, unless we hear and we record everything that is being said today, we cannot complete our process and we have not done our job right.

I want really you take the courage. And if you cannot speak on the microphone, send us the comments; but we need to hear from you.

Now, I believe -- and I was going around talking with

some of you on the floor before. And some people are saying that they were here in this room before not long ago, some for some eradication of the brooms, some for a project similar connected actually to what we're proposing due to the CEQA process, due to the concern of how to remove the French Broom. Believe me, it's a problem in my own county where I live. It's an issue that is at the heart of everybody that lives there.

I wanted to assure you that, first of all, for instance the meeting that you had here a couple of times I believe -- I'm not sure because I don't follow the local. Of course, the CEQA process is a State process. But we're not doing all over again. I want to assure you, you're not here to rehearse what happened during the CEQA process.

NEPA and CEQA are similar. They're complimentary to each other but not necessarily reach the same conclusions. And we're trying to coordinate this together in order to expedite the process but we're not responsible for the process. We're working with our partners, particularly the California Emergency Management and the applicants for the grants to ensure they're complying with CEQA in a timely manner so at the end we're reaching the same conclusion. But we don't have control of that.

So FEMA tried -- discussed at length internally also to combine because there is a possibility to combine CEQA

and NEPA. And we realized it was not the right approach in this case. And the very basic reason is just the nature of and the mission of the four grants in particular. So the three agencies that are applying for those grants compared to FEMA mission are so different that it would be almost impossible to have a combined CEQA document in a reasonable manner.

So that set aside, I assure you that we are really trying to coordinate that process in order to not have further delay, if possible. Actually, you're helping the case would be also appreciated.

You are going to be involved as local -- as commentators on the CEQA process. There is different levels of the project that is being already covered by documents. Others are on the way, too. Your assistance in having those moving would be helpful to us.

Going back to NEPA now, my daily job here. Where are we and why we are here. Where are we in the process? Some of you already know, David mentioned before, the Strawberry Canyon Project was the first initiation process for us for NEPA. We draft an environmental assessment. And we were working on that part and into the Claremont Canyon actually. We could not produce a document that really satisfied the nuts and bolts of NEPA in terms of being -- sure. I could sign off, meaning, FEMA could sign off and

say there are not going to be significant impacts. We did not know.

I want to emphasize this. We don't know yet if there are significant impacts. We only know we could not for certainty say that there are not.

NEPA in that case triggered a more in-depth analysis. It is called an Environmental Impact Statement. In addition to that, the other two grants came to life, the Oakland one and now the East Bay Regional Park. That is much broader in the area. Reason more to combine all of this and for FEMA and the partners to look at that comprehensively.

So we're down at the end of this. So I mentioned "partners." FEMA is the money expert and the airplane expert when we have to send out for response when something bad happens, and as David mentioned, the earthquake or fires down south or a hurricane somewhere else. But also we are not experts in fire. We're not experts in vegetation. We're not experts in biology, per se, because we are the funding agency.

FEMA reaches to the resource agencies and says: Can you help us out? We have this big task. We want to be sure at the end of the day when we reach a conclusion we know we have not hurt as much as possible, the whip snake or whatever is the species that is important to the

ecosystem in this area.

We also want to be sure that we hear from the experts that deal with fire issue every day so -- and with people that manage parks. We ask the National Park Service, our sister agency. We ask Fish and Wildlife because they are involved. And we ask the Forest Service because they deal with these issues every day.

So they accepted. We asked them to participate as a cooperating agency -- NEPA terminology -- but basically our partner in the process to provide us the technical expertise to conduct the studies during the next several months. But we didn't stop there. We asked the grant applicants to be also cooperating agencies. Why? Well, they know their backyard. Right, Tom?

You need to tell us what is really -- that is, your needs and why you actually need to have this action done. And you suggest the method and we're going to work together on that analysis. We're in the same boat in terms of analyzing all of the possible alternatives and proceeding in the process.

The last part in this is you all here because we need to hear from you again. If we don't consider, why we are here? We're here because everybody already determined -- the State of California determined, without going into detail, there is a situation that fire can happen if

something is not done everywhere but there are areas with more potential than others. We need to address because we're the Federal Emergency Management Agency after all. And our program allows us to address or mitigate the task. We are focusing on that.

So but it can affect your home. It can affect your tree in your backyard. It can affect the tree on the park. We want to hear from you because you're enjoying the parks and so forth. Here is why we're here. Okay.

So not to lose track of what I'm suppose to say, I would like to address what is the next step in all of this. Today is the scoping meeting called. It is actually -- I like to call it "information gathering." We don't know much. We know that we have this money available. We know about the need. We know that we need to make this happen in the best way possible.

So we're collecting information, as I said, from our sister agencies and their experience and from you all. This is the first step. But it is continuing. Like Kevin said, it's not today it is over. This is not a decision making day. Today is the beginning of that process.

In the next 30 days we're going to -- until October 1st we're going to receive hopefully many of your comments and you're going to go through again the various vehicles to give us your suggestions and comments. So this is just

the first step.

What happens is after October 1st we start really working. We have to do a draft. We start preparing a draft, an Environmental Impact Statement. It's a big deal. What is this? It is a document that is going to be molded from all of this input. This is why this is vital. And again, we're not the experts, guys. We need really to get the basic information, the diversity. The difference of opinion is very important. We need to have a full record of all of the different answers so we can address it properly from the agencies and from you and from the residents, the people, there is a concern about or is in favor or against or has some ideas about it.

The process started -- what -- on June 10, June 12. FEMA decided we could not proceed with environmental assessment. We issued the Notice of Intent that I believe is actually a copy in your handout that informed the public through the Federal Register that, indeed, FEMA is initiating the process. That Notice of Intent is also listing the intent to do this meeting today and also listing the alternatives they're going to -- we are going to evaluate. Now, I don't want you to get mislead by that.

NEPA requires for EIS a minimum of no action alternative and possibly three alternatives to be evaluated in order to have a defensible process and documents under

NEPA.

Now, in our case, let me maybe make another example. If I had an Environmental Impact Statement for school and -- it's already a wrong terminology. I'm trying to bring you to what I have to do every day. If somebody needs more -- if a community needs more classrooms because it is increasing population, more kids, that is our -- the purpose of the project. It is not the school. Meaning, I can't visualize that I can provide more classrooms in adding classrooms to an existing school. I can provide classroom by building a new school. I can provide classrooms by -- bussing is a bad term -- but to explain, moving kids to another location. Those are the alternatives I have when I have to provide more educational tools to -- but it is not the problem. It's not the school. The school is only one of the alternatives.

Here I have a problem. I don't have the luxury to say: I move University of Berkeley -- I suggest -- because FEMA does not move anything. But I suggest we move University of Berkeley on the other side of the Bay so they're far from the park and fire.

I don't have that luxury. "I" meaning FEMA or university. We are limited by the situation, by -- by the environment situation.

So we are not talking about alternatives in terms of

drastic differences but we're more talking about the alternatives in terms of methodology. Reason more due to the program constraints.

There are ways to address probably fire hazard in many ways. You can get a big concrete dump truck, cover the hill with concrete. But maybe that is really not the right solution. The reality is also that program has limitations and cannot say: If there is a park, buy fire trucks more because that is not within the parameters of our program.

Just to make simple example. We're are looking, like David mentioned before, to reduce the fire hazard like fuel or other situations so we can protect more of the facilities, what is being built around. Those are the parameters we're working on.

The other issue that the Environmental Impact Statement is going to address is, of course, the effect on the environment. The environment is a big term. The environment includes species, resources, includes also the population in a way. Because the environmental justice, we have to make sure we're fair to everybody. It is encompassing all of the components of the environment that is around us but more so here is coming the big challenge. We have to address the cumulative impact. Big word. Cumulative impact.

If you looked at a map before -- if you saw before the

one in the middle of the room near John Swanson now, that shows a lot of stuff. I wanted to read you again. This is my last, you know, quote. The definition of "cumulative impact" -- this is going to follow us again for several months -- the impacts on the environment which results from an incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of agency or individual.

Remember this. It is not just because Forest Service -- that is another Federal agency -- proposes to do something but can be an individual, can be somebody that starts doing something at a scale that can impact what is the proposal here. That is the challenge we have.

That map shows similar actions that have occurred in the past, FEMA or not FEMA involvement, is proposed possibly to happen in the foreseeable future is under way maybe now and is altogether affecting because -- also the timing is important. But for example, and I don't think we have our friend here from Fish and Wildlife but, for example, if you have a habitat -- some trees that provide shelter for a species, and if you have, let's say, vegetation control. You have to remove some of the trees but habit stays on the top and stays on the ground. You have a continuing habitat for the species. So you have not affected that creature drastically.

If you have, instead, a clear opening on everything you may have a different impact or resources. Time is also important of all of the actions.

This is why our challenge, first, will be to identify all of the actions/activities that happen and can have a connection to what has been proposed now.

If you have knowledge of any action we did not mention -- and this is actually in your handouts, too -- please let us know because we are not the depository of all of the knowledge here.

The majority of those information have been provided to us from our grant applicants. They are the ones managing the area here. I believe it is accurate. If something is missing, please.

So what is your role regarding the draft Environmental Impact Statement we're going to produce after October 1st? It is again, huge. Because we are going to keep on asking your input. We gather all of the information on this process. We're going to start drafting the documents and at a certain stage we may have another public meeting like this. But after sending a draft out and/or we may need to meet again because of the comments because we're going to work together on this. The reality is the several months we take to prepare a draft Environmental Impact Statement is not to be a vacuum. Oh, God, who knows what FEMA is

doing now for the next three months? You're going to hear. We should have release. There are web pages you see the progress on. It's a public process. NEPA is all about process and decision making at the end. But it's really a procedural act. It is not really substantive like some times is CEQA that is more stringent on impact, on resources.

To be frank, on the end of Environmental Impact Statement a selection can be made on an action that tests impact on environment like a building of a damn because the purpose of the action overcomes the impact. So we have to be honest on that. While, maybe, in CEQA situation it's a little bit different.

I'm losing my voice. The last thing I want to mention is the schedule. I think in your handout there is a draft schedule. I hope you can help us shrink that. I think we're all aware of the risk hazards in the area. A lot depends on the cooperation we have altogether. And substantive, good comments, please bring it because that will help us shrink those days.

At the end of the process we're planning, hoping, counting that by the end of next year we're done. And the Record of Decision or ROD will be based on all of this work done together. I hope I did not talk too much but I want to give you the microphone again. If you have a specific

question about the process, I will be around after.

Thank you.

KEVIN SPESERT: Great Alessandro. Thank you very much. We're now going to go into our public comment portion of our meeting.

As both David and Alessandro discussed, we really want to hear your individual comments at the beginning of this EIS process. What you say here today will be a very important part of the process of moving forward as we start to develop the documents.

As I stated earlier, we'd like you to hold your questions during this public comment portion until the end; and after we go through the public comment -- the official public comment portion, we'll make the room available for you to ask individual questions to both David and Alessandro, as well as other members of the cooperating agencies and representatives who are here today.

Just a quick couple of notes. If there are any other speaker cards that are floating around out there, if you have them and want to speak, Rebecca is up here with a comment card. If you have one give them to her. Here we go. Got another one. Great.

And as we're going through the process, if you come up with something you want to talk about, just raise your hand and we'll make sure you get a card. Give it to Rebecca and

she'll get it to me.

We have several cards, probably 15 or so folks who want to make a comment. So to keep the process moving along, we ask that you make your comments as brief as possible but we want to make sure you can get as much information in the public comment period here. We don't have a time clock but we'll try to ask everyone to stay right around three minutes. When the three minutes are up, I'll step in and say: "Three minutes. Try to wrap it up."

Please remember you have a lot of other opportunities to comment, if you need a little more time. You can put it in writing. We'll collect that. You can go to the website and enter your comment via web -- the website or e-mail address.

The public comment period does not close until October 1st. Don't feel if you make a comment tonight you cannot comment again. Make your comment orally. If you have more information you want, type it in an e-mail or mail it to us or however works best for you.

We do have a court reporter here today who is going to keep a verbatim record here so we can make sure we encapsulate your comment. When you come up to the microphone, say your name for the record, as well as a place of residence, a city would be fine. We don't need your address. And speak clearly so that the court reporter

can make sure she captures your comments. If she has any problems, she'll waive her hand and we'll make sure and ask you to speak up. I think we should be okay with the microphones.

We'll start with our first speaker. The first one I have is the Bob Sand.

BOB SAND: I'm going to wait.

KEVIN SPESERT: Okay. Pass. Let me make sure the microphone is on.

All right. Okay. So we'll go with Dan Grassetti.

DAN GRASSETTI: Hello. Hi. I'm Dan Grassetti from the Hills Conservation Network, resident of Oakland, California.

Mmm, really not much to say today other than I'm delighted this process is finally getting under way. I think our group would have been delighted to have this process started a few years earlier but I think some others have had the belief that this process should have been avoided altogether and that these projects should have been just waived through with minimal review.

So we're very, very thankful that didn't happen in spite of enormous pressure to cause it to happen. FEMA did stick to its ground and is now getting this process under way.

We think it is so important because this area is so

beautiful and these projects are of such magnitude and to not give them the review and scrutiny that will happen under an EIS would have been, in our view, a travesty.

So I'm delighted by what I see here today. I believe FEMA will approach this process in the way they've approached the process so far: With an extraordinary degree of professionalism, integrity, honesty, openness and to focus on fact-based decision making as opposed to preconceived notions of what the outcome should be.

We look forward to working with FEMA in the development of what we think will be an outstanding EIS and the results being an outstanding set of actions.

Thank you.

KEVIN SPESERT: Thank you. Next up we have Norman LaForce.

NORMAN LA FORCE: Good afternoon. My name is Norman LaForce. I'm chair of the Bay Chapter of the Sierra Club, speaking on behalf of the Sierra Club today; and also have been involved with vegetation management issues concerning East Bay Hills for probably 20 years as part of the Sierra Club's working group on the issue.

That background needs to be included in the study because the East Bay Regional Park District has just completed a Vegetation Management Program Plan and conducted a Programmatic Environmental Impact Report that

should be part of this information and material that you're going to be looking at as part of your process. We hope all of that is included.

But in addition, FEMA is going to need to get some very good scientific analysis of both fire behavior and resource protection and management to make this a process that is going to come out with informed choices and decisions in the end. And particularly it needs to look at the scientific issues concerning eucalyptus and the fire potential for eucalyptus.

More importantly or equally important really is in terms of -- we've heard the phrase "cost benefit analysis." Benefit is not simply economic benefit or limited costs to some particular form of vegetation management; but for this process to work and to be successful needs to look at what are the beneficial impacts of actions taken that help avoid further risk and provide for a reduction of risk over the long-term for these areas. It is simply insufficient to say we're simply going to cut or thin 200 acres of so many trees and then that is it.

FEMA needs to look at how do you then provide for a cost effective management program afterwards, which it may not fund, but it has to be part of your process for the agencies here; and in particular, from the club's perspective, the restoration of the native habitat,

enhancement of native habitat. Because our belief and our position, which is founded on strong scientific information, is native habitat is better in terms of fire protection, less costly in terms of long-term maintenance, and is going to be more cost effective to the agencies involved in the long-term programmatic maintenance of these areas.

What we don't want to have is FEMA fund projects that do short-term maintenance and then long-term issues are avoided and not looked at. That is going to be very important.

I hope what comes out of this EIS is not simply looking at, well, we're going to destroy the environment here and what's our mitigation. This EIS has to do what NEPA calls for, which is looking at the beneficial environmental impacts of certain actions. That is going to require a far more nuance and elaborate look at different alternatives and methodologies than simply: Do we clear cut or not clear cut? Do we simply do fire? Do we do goats? And then what is the impact? Oh, it's going to destroy ten acres and we'll have the Park District mitigate ten acres somewhere else.

That is an inadequate analysis for purposes of dealing with this issue.

I would urge FEMA to look at what the Park District

did over a course of ten years of work with the environmental community -- California Native Plant Society, Golden Gate Audubon Society and the Sierra Club -- to put together what became the Park District's Vegetation Management Program and the EIR and what was involved with that. That will be very important.

Finally, I have to -- there is many other comments. We'll be providing further comments down the line here. Finally, I'm a little disturbed by the notion we should be looking how we shrink the timeline. This is not an easy process. The Park District discovered that when it went to work on its Vegetation Management Plan, what it thought would be a simple analysis of the issues turned out to be very complex. It may be this is going to be equally complex or equally difficult to look at. And sorry to say folks, it may not be shrinking the timeline but we may need to expand it. But I think in doing that what you're going to get and we'll get as a community is a far better understanding of the scientific background and issues facing how we handle this important issue of fire management, along with protecting and enhancing the native habitat in the areas here.

Thank you.

KEVIN SPESERT: Thank you for your comment. Next up is Jerry Baer.

JERRY BAER: All right. Good afternoon. First, my home was involved in the '91 firestorm. So I have a real interest in making sure there is fire mitigation in this area.

I'd like to applaud FEMA for its professional work and what they've done throughout this entire process. I support the position of requiring an EIS and I hope through this re-examination we can achieve what I call "fire risk mitigation" and not "native plant restoration," which is what the original EA was.

Our recommendation is to thin the trees so that only trees eight inches in diameter or smaller are cut. Keep ten feet between trees, clean out the understory and limb trees up eight to ten feet, keeping canopy wherever possible. This increases fire safety, allows the air quality of our hills to remain high. It also reduces the amount of pesticides that would be used otherwise.

Thank you.

KEVIN SPESERT: Thank you. Next up is Karen Paulsell.

KAREN PAULSELL: Thank you. I wore my official T-shirt today. I am with Friends of Sausal Creek but speaking mostly for myself in this case rather than the organization.

Friends of Sausal Creek has 15 years of experience doing environmental restoration in the Wildland-Urban

Interface and participated in the Oakland Wildfire Department Wildfire Prevention District when they attempted to pass an ordinance that would allow the use of herbicide on non-native re-sprouting trees and a lot of the people were very surprised of that. We have a lot of hands-on experience of the hard way of controlling re-sprouting trees. We know what it is to go back with the hatchet over and over for two or three years to get rid of the patches of acacia. You can imagine the cost of the acres and acres of eucalyptus.

We also -- Monterey pines and cypresses are California natives but they're not local natives. We definitely see the impacts of those on our environment here. Build soil and support the invasive annual grasses and the perennial ehrharta grass, which are huge fire risks and very, very difficult to control.

I did not know whether to actually be unhappy or happy when I looked at the maps and really none of this was really in my watershed. Because we have seen really, really negative effects from some of the Wildfire Prevention District contractors who seem to think the little ephemeral creeks make good chutes and ladders for climbing up and hauling debris down.

Oakland has a creek protection ordinance. At least that much protection should be afforded to all of the

creeks and ephemeral drainages. We have native Rainbow Trout in our creeks. I don't know about the other creeks in Oakland. We would be very, very concerned about silt and sediment control. You're going to be working on very, very steep landscapes. Gravity is not on our side in this case.

Another thing Friends of Sausal Creek does is we collect seeds and cuttings to grow in our native plant nursery. We've been on every trail in Joaquin Valley Park, managed to work with the Wildfire District to reduce the frequency in the grazing in the grasslands. In just a couple of years -- every other year grazing, we've now found species we've never seen in the ten years in the park.

So you know, dozens of examples of the cumulative impact, you know, reducing those to the degree possible. And working in the Wildlife-Urban Interface you definitely realize Mother Nature does not like to lie about naked. You expose the soil, clear the room of blackberry and the ehrharta moves in or the broom moves in. And places where you're opening up a huge amount of canopy, what is going to go in that place? Are you going to cut the eucalyptus and the broom moves in? Are you going to cut the broom and something else will moves in? So that process of, you know, what goes back in the place? It is going to be very

very important.

Was there anything else? I think that is all I have to say.

KEVIN SPESERT: Great. Thank you. Thank you for your comment. We've got a couple more.

All right. Next up I have Marg Hall.

MARG HALL: Yes. I'm Marg Hall and I live in Berkeley. And I don't represent anyone but me but I have some experience that is relevant. That is two things. For 20 years I worked as a building inspector. So I know kind of viscerally. I saw the hill fire. I have a visceral reaction to the danger. I understand about hazard mitigation. I applaud hazard mitigation.

As it turns out, I also am disabled partly because of chemical sensitivity. I am one of those people in very low doses the implication of herbicides would be dangerous.

I ask you in your scoping to consider two things. Specifically, I'm addressing the herbicide issue. First, that the precautionary principle be followed. The Presidential commission on cancer recently released a report. I don't know if you know about this. Do you know about this? And they recommended that the precautionary principle be followed.

When you say herbicides are safe, I would like it to be based not on "there is no evidence of harm" but really

if there is any doubt, you don't, just like they do in Europe. And the evidence has to show -- the burden of proof has to show that it is safe.

KEVIN SPESERT: Can you repeat the pre --

MARG HALL: Precautionary principle.

UNIDENTIFIED SPEAKER: It is EPA decision recently.

MARG HALL: Okay. It was issued by the EPA?

UNIDENTIFIED SPEAKER: Yeah.

MARG HALL: Thank you. Secondly, one of the problems we have with these situations with the herbicides is that there are a long list of inert ingredients that are protected from disclosure. I don't know the details of this. It seems to me in scoping you need to really consider the impact of the inert ingredients that can be just as hazardous to humans. That is my suggestion.

KEVIN SPESERT: Great. Thank you for your comment.

Next up I have Nicole Courtet.

NICOLE COURTET: I am Nicole Courtet and I am not affiliated to any group. I'm talking for myself, too. I have some experience also to share. I have been living in this area for 35 years and hiking in the hills and recently in most -- in Strawberry Canyon because I gave up my car so I can get there by bicycle. And I have been concerned recently by this spraying of Roundup in Strawberry Canyon. I have been removing French Brooms myself by hand on every

single hike I've done there and I have accomplished incredible job. And I'm amazed at what one person can accomplish physically.

So if I am -- I'm really grateful that the invasive plant invasion problem is dealt with because over the years I've been seeing the progression. And I think it is -- it is a fire hazard and it is also an environmental hazard for native plants. But I would like this to be done in a way that we can use as little chemical as possible. And I think the use of herbicides should be done only on the condition that all other solutions are exhausted. I'm a former breast cancer patient, too, and I am concerned about the quality of the environment.

So what I have observed in Strawberry Canyon is the action taken recently has increased the fire hazard by spraying the plants that were sometimes still green, even though they were invasive, and dried them up and left them either standing on the ground. And I've talked to different people living in the area and they're very concerned about the fact it does increase the fire hazard. And to my observation it is obvious it did. You can walk in Strawberry Canyon and see the dry plants that are incredible potential for fuel -- for fire fuel.

I really want to support the selective removal in Strawberry Canyon. What has been done is the vertical

plants have been sprayed and at the same time the background plants that were on vertical bottom of the cliff have been sprayed and died, which removed the plants -- the native plants have died and the roots which hold the soil won't be there to hold it in the future. It really creates another hazard which destabilizes the soil in the area.

Invasive plants tend to settle in places that have been disturbed by humans and these actions are very disturbing to the environment and really increase by that the continual arrival of new invasive plants.

KEVIN SPESERT: Can I jump in? We're running long on minutes.

MARG HALL: I have one more. It is make sure if you use -- I'm glad the eucalyptus are dealt with. I think if it is the only resort we use pesticide but only as last resort and the public being informed about what the others are -- according to the precautionary European principle and that there will be postered warnings about use of chemicals. In Strawberry Canyon it has been done during the spraying but afterwards there are children moving around and there is no warning that we should not touch the plants. It is my concern. Fire hazard concern, health concern and environmental concern.

Thank you very much.

KEVIN SPESERT: Thank you for your comment. Next up I

have John Shively.

JOHN SHIVELY: Yep. I'm John Shively. I live in Oakland just down the hillside from here. And I thank you for this opportunity.

Briefly I want to mention I'm an engineer. I'm retired from a staff position with UC Berkeley. I'm concerned about the proposed action primarily of the felling of the trees that is presented in this project information. It seems excessive. In the handout it says felling of eucalyptus -- all eucalyptus, Monterey pine and acacia on approximately 45 acres of UC Berkeley. That is in Claremont Canyon. The other is the felling of all eucalyptus, emphasis on "all," Monterey pine and acacia on approximately 60 acres of UC Berkeley property and Strawberry Canyon. Strawberry Canyon is a very -- in my opinion is a very sensitive area. And I am quite concerned about protecting that.

I would -- there are alternatives that I don't see in the handout. There certainly are a number of things that can be done to prevent fires. In my area here I don't see the needed mowing along the highways or streets. That would certainly do a lot to prevent fires. A lot of the fires in this area versus the Sierra start along the highways as a result of things like cigarettes. And lightning is not a particular hazard here.

Knocking down trees is not going to do a lot to cope with that. I think the -- as proposed, the consideration of alternatives to cutting these trees is not covered in this and should be.

Thank you.

KEVIN SPESERT: Great. Thank you for your comment.

Next I have Lynn Hovland.

LYNN HOVLAND: I'm a member of the Hills Conservation Network. My house is in the area of the 1991 firestorm. It is in a group of approximately 15 houses that did not burn in the fire. At the place where the fire stopped on Alvarado Road there were and still are three giant eucalyptus trees that did not ignite in the fire. The fire stopped about a foot away from those trees. Nothing. No embers got into the crown.

At any rate, we are very fortunate. I realize that. Maybe it was the wind. I love trees. I think those trees are part of the reason why our house did not burn. The thickness of the trees was one of the reasons why they did not ignite.

So as I have found out more about trees and how they store carbon and help prevent global warming, I love them even more. I hope that whatever results from this EIS that fewer large trees would be removed of any species.

Preventing fire is most important to those who live in

the Wildland Interface. And we support FEMA's effort to do this with no other agenda than reducing fire risks and protecting our beautiful and unique environment.

I also want to say that I'm a cancer survivor. I'm very much against the use of pesticides, except when there is no other way of preventing re-sprouts where it is really important to prevent re-sprouts. I don't understand why that cannot be done by hand labor, even though it is expensive.

How much is a life worth?

UNIDENTIFIED SPEAKER: Yes.

UNIDENTIFIED SPEAKER: Yes.

LYNN HOVLAND: I also want to point out most of the fires in California are not -- are not fires that start in non-native plants. They're grassland and brush fires. In fact, the fire that was recently burning -- I don't know if it is already out. It has been burning for over a week, 375 acres east of Mt. Diablo. That fire started in grass and brush and spread to Oak Woodland. And those are all native plants.

That is all I have to say.

KEVIN SPESERT: Great. Thank you for your comment.

Next up I have Matt Mitchell.

MATT MITCHELL: Pass.

KEVIN SPESERT: Pass. All right. Next up, Gordon

Piper. You can adjust that microphone.

GORDON PIPER: Gordon Piper. I'm the chair of the Oakland Landscape Committee and we're a local affiliated to California Relief Grass Roots Tree Planting Network. We planted several thousand trees since the Oakland Hills firestorm in '91 where I lost my home.

I'm here to offer my strong support and encouragement to FEMA to proceed with Alternative 1 to help address the hazardous fuel in our hills and also to encourage special focus on the public safety dangers that we face here in Oakland.

As chair of the Oakland Landscape Committee of the Oakland Hills firestorm, I helped to build a memorial to the 25 victims of the firestorm. There were hundreds of people injured in the firestorm. Over 3500 homes destroyed in the fire. One of the largest urban fires ever. And I feel that the potential is even far greater at this time.

As I was preparing to speak, I thought of Paul, Nero fiddles as Rome burns. That the amount of time it has taken FEMA to get to this point, in relation to these -- pending of these hazard fuel mitigation programs, I think it has taken too long. I served on the City's Wildfire Prevention Board. They also support Alternative 1.

I feel it has taken too long. Essentially we've tied the hands of our fire departments and regional leaders in

terms of addressing our aging forest. Two million trees were planted in the early 1900's. Most of them are beyond senior citizenship and impose a real fire risk. They need to be removed or there needs to be replacement of the aging forest.

Effectively we're not managing the aging forest. We're spend money on environmental consultants rather than on vegetation management that is much needed. We've also had serious problems within the last few years with the economic problems with both the City and the State kind of cutting back severely on their open space management.

I lead vegetation management projects in the hills. Probably worked removing over a thousand cubic yards of French Broom in the last decade. I would say the invasives are winning the war.

And in terms of the public safety risk, I think they're really substantial here in the Oakland Hills. We have major problems with the aging forest not being managed, invasives out of control. And there is a very serious problem: A lack of defensible space in most of the Oakland and Berkeley Hills. In terms of rigorous enforcement of our fire codes, there is a need for stronger enforcement. And the concentrations of homes and the forest not being maintained and the hazardous fuel, there are a substantial number of homeless encampment, it's a

recipe for a catastrophe much worse than the '91 firestorm.

I would like to see the timeframe shrunk. The public safety risks are substantial. While we fiddle, Oakland Hills can burn.

Thank you.

KEVIN SPESERT: Great. Thank you for your comments.

Next I have Bev VonDohre.

If you can say your name in the microphone and make sure the court reporter can get that.

BEV VON DOHRE: It's Bev VonDohre. First, I was going to say that I don't trust that things will be done carefully. I don't. Having seen what Audubon did at Cesar Chavez, well, they cut down the natives and non-natives. What happened at Aves Laguna, Point Reyes where they destroyed clapper rail habitat. I don't trust what will be done.

I don't trust there won't be terrible devastation of the hills because I've seen it with very careful agencies. Cutting any of the plants reduces the diversity of the native animals, many of whom rely on the native plants for nesting, food, shelter. And you take them away and you'll lose those plants. The only place I've seen the red-shouldered hawks nesting and great horned owls has been in eucalyptus.

All trees, native or not, precipitate water from the

fog and add to the water accumulation on the ground and in the watershed and in the creeks. Some of the areas under the Monterey pines along here along Skyline are green all year long no matter how hot and dry it is. Those trees keep the ground wet and they're not native, neither are most of us. They're beautiful.

And in terms of the eucalyptus, I really appreciate what somebody said how the eucalyptus did not burn near her house. It is the grasses. The grasses are the problem. Grass does not grow under eucalyptus. It kills things around it. So it would be great if we had all natives but we don't. We have these magnificent trees now.

Somebody talked about removing dead trees and then you're going to remove the acorn woodpeckers. A lot of the animals use the dead trees to store food. The raptors like to sit and look for prey. They are a really important part of the ecosystem.

Glyphosate, which is Roundup, the main herbicide used. The industry says it is safe. Other literature says it is extremely dangerous. All banned pesticides and poisons were once declared safe. I don't think it should be used even if it's said to be no alternative. Like someone else said, we don't need more cancer. We don't need more death. None of it is safe. It is certainly not safe for the people applying, the people exposed and who knows what ends

up in the watershed. It's bad enough they spray right near the drinking water reservoirs.

Every tree and every shrub improves the air quality. Enough cutting has already been done. Why not eliminate the ivy, which is completely covering trees, leaving dead trees. I see trees like 150 feet tall covered in ivy. You can see it along the freeways. You can see it in the parklands. Nobody is talking about killing the ivy. The birds eat the seed -- eat the fruit, drop the fruit. It spreads. It is much more invasive and much more damaging than broom.

I guess I want to add that I love trees. I love all of the trees. I love the eucalyptus the least I guess but I love them all. I love the acacia and the broom especially. In the dark winter months when people are really depressed, they bloom bright yellow. They smell incredible. I'm part Native American. Most of us are really not. If we're going to get rid of the non-natives, let's start with the cats killing the wildlife, which I love cats. I don't want them to go either. If we're going to keep all of the other animals and the humans, let's not destroy the trees or shrubs or the plants.

Whoever brought up it's the grasses that are the problem with the fires, I agree with that. The trees will help protect us on many, many levels. I don't know why

this is happening. I'm very suspicious about why the money and what all is going on.

KEVIN SPESERT: Thank you. If you can wrap it up.

BEV VON DOHRE: Those in the hills, let's exchange houses. Where I live it is like wasteland. It is concrete. If you grow a little something, the City comes and wants to kill it so.

KEVIN SPESERT: Great. Thank you for your comments.

Next up I have Karen Perkins.

KAREN PERKINS: This seems like dTja vu all over again to me. I was -- I'm a member of Parents for a Safer Environment. I'm still a member of Stop the Spray East Bay. I don't know. There was a big scare tactic about a little moth -- about a light brown apple moth, which somehow has not gobbled everything up. It is really amazing. But that seemed to be something the Department of Homeland Security and USDA and CDFA -- they were all going to get a lot of funding for that somehow. It is very interesting these things that are -- my questions are: Why now? It is 20 years since the Oakland firestorms and I moved into that area after the firestorm. And it's very interesting to me that the people who lived in that area, which is one of the nicest areas in terms of nature in Oakland, cared so much about their property value and apparently the City of Oakland did, too; they did not start

cutting down trees all over the place. They had a yearly cutting of weeds and grasses down, making sure branches were not overhanging roofs, making sure tree branches were trimmed up. I think it was four or six feet up. Other than that, checking for hot spots and having the fire department do a lot of inspections and driving around. They didn't go around chopping down every tree. They had Monterey pines, eucalyptus. They have, you know, redwoods. They have everything there.

So I have -- my question is why now? It does seem like a lot of the public agencies are fighting for the funding, scrambling for as much funding as they can get right know. It is just an interesting coincidence.

Also, what will it cost taxpayers? And the other thing is someone from one of my groups wanted me to ask what pesticides or herbicides would be used on the sprouts?

But to get to all of my points here, this was a really wet year in California. In fact, we had a cold summer except for one day a couple days ago. I don't know if you're from Washington, DC or where you're from. California is kind of beautiful. We have all of these beautiful trees and we're not totally sprayed yet. We still have trees. It may be different when people realize the trees and everything are a source of funding.

Of course, they've been proving small exposures to all

kinds of, you know, supposedly safe pesticides are cumulative and we do have an epidemic of cancer and autoimmune diseases.

And I'm really -- I'm thinking, too, you know if whatever you're going to spend and whatever you're giving to the pesticide corporation, this -- why don't you just take unemployed people -- I hear there are a lot of unemployed people nowadays, especially in California. Why don't you have them cut and go out and get rid of the sprouts? If you're going to cut the eucalyptus, which are apparently supposed to be the biggest fire danger -- as far as fire danger goes, I used to live in the mountains of Montclair in the Oakland Hills. I now live in Contra Costa. I saw the fire from Mt. Diablo the other day. It started, as someone mentioned, from grasses.

As far as natives versus illegal alien trees, I don't know if you've heard of Dr. Daniel Harder but he is head -- maybe still is the head of UC Santa Cruz Arboretum -- and he has done a lot of research on non-native plants here. And you know, most of these plants were non-native plants at one time. If you start cutting down all of our non-native plants, then we're going to cut down Monterey Bay pines. Then you'll cut down acacia. Pretty soon what are we going to have left?

I am a user of the East Bay Regional Park. I enjoy

being there. I don't -- won't enjoy it if there is no shade. We may have a danger of flooding considering with climate change. No one knows where the climate is going to go. What about erosion?

KEVIN SPESERT: If you can wrap it up.

KAREN PERKINS: I'll wrap it up. Yeah. I would like my questions answered about which pesticide or herbicide on the sprouts? Why now is it so important? And, also, what will it cost the taxpayers? And if you've answered it previously because I, unfortunately, couldn't attend the whole meeting, I'll try and find out after the session.

KEVIN SPESERT: After we close the public session, we'll have representatives from FEMA and other the agencies in the back.

KAREN PERKINS: Yeah. Thank you.

KEVIN SPESERT: You're welcome. I have Bob Sand.

BOB SAND: Okay. I'll take a shot.

KEVIN SPESERT: I would let folks know we have about ten minutes to go. So try to keep your comments right at the end as close as you can. Go ahead.

BOB SAND: My name is Bob Sand. I want to take a much more controversial view of what is going on.

I personally resent the idea that a boatload of money has to come from Washington to take care of maintenance of the local forest.

I think FEMA has to realize that there is a big industry that lives off killing trees. They like the idea. They make a lot of money from it. I think they overexaggerate the fear and the danger and spend a lot of time cutting great big trees.

I have photographs of a tree five and a half feet in diameter that was cut down by UC that is at least a thousand feet from any residence.

So I think FEMA, when they make their awards, has to look very carefully at the details that are presented to them with the idea that a lot of the action that takes place is very expensive.

And they should also realize there are entities that control eucalyptus and similar forests at no cost to the government. I could cite, for instance, the Claremont Hotel that has a stand of eucalyptus that is 95 years old. And it is not costing the government a nickle and isn't costing the taxpayers a nickle.

I think these days where money is scarce and difficult to come by you should be very careful at what you approve and what you send money out for. And I'll leave it at that. If you want details, I'll get them for you.

KEVIN SPESERT: Great. Thank you for your comments. Keith McAllister.

KEITH MC ALLISTER: Good afternoon. My name is Keith

McAllister. I'm a resident of Oakland.

I would like to focus specifically on a comment on what I think is meant by the word "scope." I hope your study will examine whether the proposed actions actually reduce fire hazard. We're not really sure what you plan on spending but I think it will be very helpful if you can look at from an objective point of view whether the proposed action actually reduces fire hazards and not take the word of the grant-seeking agencies that that is what it is about.

When you read what is proposed as a previous speaker mentioned, two of the proposals on the sheet you handed out say in their entirety felling all eucalyptus, Monterey pine and acacia trees. That is on two of them.

The other big one, the East Bay Regional Park District proposal, which I'm sure you've seen is about that thick, when you go through with it, over and over again, specifically that is what they're proposing to do to remove specifically non-native trees and they never propose removing any native trees, which makes me suspect the agenda is not fire hazard mitigation. It is reworking the environment and replacing non-native trees with native trees.

I think you folks, FEMA, can do us all a big service by having independent investigators look at this frequently

made but totally bogus claim that somehow non-native trees and brush are more flammable than native trees and brush.

Thank you.

KEVIN SPESERT: Great. Thank you for your comments. I think this will be our last one. Robert Sieben.

ROBERT SIEBEN: Thank you. I am a cancer survivor. It had nothing to do with pesticides. I can guarantee you, 20 years. I'm a physician, pediatric neurologist. I deal with children that have developmental problems.

I would like to do two things. One, we're talking about firestorms. Of course, fires start in grass. The danger here is the flame height. When it gets into the big dead forest or lots of dead wood and so forth and the only thing that stops the fire is when the wind changes.

Let me give one example. I'd like to get into the herbicide issue a little bit. The Oakland North Athletic Field, the eucalyptus all died in the big freeze. This is going to happen again. We'll have a lot of dead trees whether we do anything or not. There will also be more fires. There have been dozens of fires since 1991 that have been controlled. If you look at the forest throughout the United States, this is one of the big issues why we're having the huge fires is because we've controlled it so well.

This is what happened in Tahoe. They're thinning out

trees. They're saving the trees by thinning them. It is a principle that appears very much here. We've got to manage the forest in the way we're not going to have a catastrophic fire.

In the North Athletic Field, getting into the herbicides, these trees when cut repeatedly -- every time it's cut more branches come up like Medusa's head. You can't control these particularly stems without using an herbicide. And one is not talking about spraying it. You're talking about painting something around the cambium layer of the tree. We're not talking about spraying crops, which I guess 70 percent or 80 percent of the crops are sprayed with Roundup or something like that. We're talking about painting a very small area, for example.

I think the real risk is not the imagined risk that this very limited use of herbicide does. Look what happens when you get a fire. 3500 homes burned. What about all of the PVC's? What about the lead batteries in the cars? This is a real risk. When you get that big of a fire, you're throwing carbon in the air, all kinds of things. That is a very real risk and not the imagined risk in my opinion of this very limited use to accomplish the greater goal. All right.

KEVIN SPESERT: Great. Thank you for your comments.

I think with that we'll go ahead and close the public

comment portion of our meeting.

If you would like to provide comments, you can take another comment card. We have them in the back. You can go to the website. You can go to the e-mail address, mail them in. We encourage everybody who spoke today, if you have more comments to send those in.

In the back by the poster boards we'll have David and Alessandro as well as some of the other agency reps in the back. You can go talk to them.

With that, thank you very much.

(End of proceedings.)

CERTIFICATE

OF

CERTIFIED SHORTHAND REPORTER

The undersigned certified shorthand reporter of the state of California does hereby certify:

That the foregoing meeting was taken before me at the time and place therein set forth;

That the testimony of the public and all presentations made at the time of the meeting were recorded stenographically by me and thereafter transcribed, said transcript being a true copy of my shorthand notes thereof.

In witness whereof, I have subscribed my name this date August 26 2010.

DC Tawney

Desiree C. Tawney

Certificate Number 12414

Evening Meeting

PUBLIC SCOPING MEETING

In Re:)
)
Hazardous Fire Risk Reduction)
Environmental Impact Statement)
East Bay Hills, California)
_____)

ORIGINAL

SECOND SESSION

THURSDAY, AUGUST 26, 2010

6:30 P.M. - 9:00 P.M.

Reported by: Desiree C. Tawney, CSR No. 12414

NCCR

Northern California Court Reporters

Certified Shorthand Reporters & Legal Photocopy

(916) 485-4949 ■ Fax (916) 485-1323 ■ (888) 600-NCCR

1325 Howe Avenue, Suite 105 ■ Sacramento, CA 95825

nccr@norcalreporters.com ■ www.norcalreporters.com

1 APPEARANCES:

2 Kevin Spesert, URS Corporation
David Kennard, FEMA
3 Alessandro Amaglio, FEMA

4 Public Speakers:

5 Michael Bond, El Cerrito Fire
Jane Kelly
6 Jon Kaufman, Claremont Canyon Conservatory
Tom Kelly
7 Joanne Drabek
Barbara Allen, Neighbors for Fire Safety
8 Bob Allen, Neighbors for Fire Safety
David Kessler, NMCA-OWPD
9 Ken Benson
Mark Rauzon
10 Lech Naumovich
Carole Schemmerling, Strawberry Creek Watershed Council
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

BE IT REMEMBERED, that on THURSDAY, AUGUST 26, 2010, commencing at the hour of 6:30 P.M., at the Trudeau Center, 11500 Skyline Boulevard, Oakland , California, before me, DESIREE C. TAWNEY, Certified Shorthand Reporter in and for the county of Placer, state of California, the following scoping meeting took place:

(The following proceedings took place on the record.)

KEVIN SPESERT: All right. Great. I think we'll go ahead and get started.

My name is Kevin Spesert. I'd like to thank everyone for being here. I'll be the facilitator for the meeting tonight.

Actually, just a couple of housekeeping items. If nobody has seen it, the restrooms are right behind this door. The exits are right there where you came in. There is an exit back by the bathrooms and an exit way back in the back.

Just real quickly, make sure everybody has got their cell phones turned off or on vibrate. Make sure mine is turned off. Probably would be good. Good. It is. Great.

Again, thank you for being here tonight. I want to focus tonight a little bit on our meeting. It is a public scoping meeting for the Environmental Impact Statement or

the EIS for the Hazardous Fire Risk Reduction project in the East Bay Hills, California.

The purpose of the EIS scoping meeting is to receive comments from the public regarding issues and concerns that should be addressed during the development of the EIS.

This is your opportunity to provide comments and address what resources or areas of concern will be analyzed and how they were analyzed during the development of the EIS. It is a very important part of the EIS process. We're very happy you're here tonight to contribute to that effort.

I would like to stress this is one of the early steps of the EIS. There will be, in the future, numerous opportunities for the public to be engaged and potentially provide comments in the future.

However, tonight our purpose of the meeting is to receive your comments regarding the scope of the EIS.

Hopefully you've had an opportunity when you walked in to pick up the handouts that are back on the sign-in table. If you don't have the handouts, raise your hand. I'll have Rebecca come and bring you anything.

We have the poster boards in the back. I hope you have an opportunity to look at the poster boards. You have a copy in your handouts of all of the boards in a little packet of information.

I hope you've had a chance to talk with the some of the FEMA staff and cooperating agencies who are representatives back there.

In the next couple of minutes we'll have a brief overview presentation on the FEMA Hazard Mitigation Program and the proposed Hazardous Fire Risk Reduction Project in the East Bay Hills presented by David Kennard, the Hazard Mitigation Program branch chief for FEMA, Region IX.

And following David's presentation we'll have a presentation from Mr. Alessandro Amaglio, who is the regional environmental officer for FEMA, Region X --

ALESSANDRO AMAGLIO: Nine.

KEVIN SPESERT: Sorry. Did I say ten? Nine. All right.

Following the presentation we'll have a brief public comment portion of our meeting, where -- for those of you who would like to come up this evening and speak for official public comment, can do so. I hope everybody has a comment card. If not, raise your hand. We'll have Rebecca bring one around.

On your comment card, if you could -- if you would like to speak, write your comment and name and up at the top write "speaker" and Rebecca will collect those up and she'll give them to me. And as we go through the process I'll call your name and we'll keep a flow for our public

comment section.

Also to note, on the bottom of the card there are a couple other ways -- three ways you can submit comments. There is an e-mail address where you can submit your comments. There is a mailing address if you choose to send your written comments. There is a link to the website. You can go on the website and you can submit your comments and send it through, through that.

So if anybody has one, raise your hand. Rebecca will come by and grab it.

If you'd like to take one of these home, that is fine. The public comment period closes October 1st. You have plenty of time to provide comments, if you don't think you're ready to do that tonight or you want to sit and mull it over a little bit and forward the comments at a later date.

I'd like to introduce Mr. David Kennard, who will give his comments and he will pass it over to Alessandro.

DAVID KENNARD: Okay. Thank you. So my name is David Kennard and I'm the Hazard Mitigation Assistance branch chief at the FEMA office here in Oakland just down the hill.

And I started with a story in the afternoon session. Yesterday was my birthday. When I blew out all of the numerous candles on my cake my daughter's provided for me,

I felt like I was taking part in hazardous fire mitigation risk reduction by putting out all of those fires.

And I also have a tie. Some of you noticed mine. This is my lucky earthquake tie, the San Andreas fault. I don't have a fire tie yet but maybe after the meeting I'll get a risk reduction tie.

I'll start off this part of the meeting by giving a brief overview of the FEMA mitigation grant programs and then the four grant applications, four proposed projects that are the focus of today's meeting. And I want to start this discussion with a just a brief overview of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. I have to read that because we always know it as the Stafford Act. To get all of the names correctly, I have to read it off. It is the legislation that governs all of FEMA's emergency management activity. It is our underlying document that give us the authority to do these various things: Preparedness, Response, Recovery and Mitigation. The grant programs that I oversee in our office down here.

The two parts of the Stafford Act -- the two sections of the Stafford Act that authorize FEMA to provide funding to the local governments are Sections 404 and Section 203. They authorize FEMA to provide funding to state and local governments to assist in the implementation of long-term, cost-effective actions that will reduce or eliminate the

1 risk of damage to people and property from natural hazards
2 which include wildfires. It's the basis -- the authority
3 we have to provide these grants for the projects we are
4 reviewing today.
5 I want to point out here that when I use the term
6 "risk" or "risk reduction" in this discussion I'm using it
7 in the more general mitigation sense of reducing the threat
8 of damage from wildfires to property and human life. I'm
9 not using it in the narrower firefighting sense of major
10 cause of wildfires, not talking about causative agents such
11 as unattended campfires, discarded cigarette butts,
12 lightning strikes, the things that cause fires. Instead,
13 I'm focusing on the actions that reduce the likelihood that
14 a wildfire will cause damage to the build environment. Our
15 focus is reduce the likelihood something will affect the
16 homes and structures.
17 The two mitigation assistance programs that are
18 authorized by the Stafford Act are the Hazard Mitigation
19 Grant Program, which is also known as the HMGP; and
20 Pre-Disaster Mitigation Program, which is also known as the
21 PDM. The funding from the two programs is available for
22 wildfire mitigation activities with a primary hazard
23 mitigation purpose of reducing the threat to at-risk
24 structures and the associated loss of life from future
25 wildfires.

So the way it is applied to these projects in this context is reducing the risk to the structures the risk of wildfire damage.

The Hazard Mitigation Grant Program provides funding to states following Presidential declaration. Those of you who are familiar there was an earthquake down in Southern California a couple of months ago in the El Centro area. There was a Presidential declaration as a result of the damage caused by that event. There will be hazard mitigation funds available. The intent is to do things/actions that would reduce the likelihood of damage from earthquakes in the future, for example.

The HMGP that results in general is about 15 percent of the FEMA disaster recovery assistance that is provided after the declaration.

In the case of California because they have an enhanced mitigation plan, they get 20 percent. But in general, nationwide it is -- works out to be 15 percent for the HMGP funding. That is the normal amount we cite.

The State of California in this case, the California Emergency Management Agency or Cal EMA, administers this program. So Cal EMA establishes the mitigation priorities. It facilitates the development of the applications. And it submits them to FEMA based on the State's criteria and the available funding.

The criteria the State uses is usually included in their mitigation plan. It is an enhancement of the mitigation plan I mentioned. And the availability of funds is determined by that 15 percent criteria I mentioned.

In the case of the El Centro earthquake, it is going to be about 17 million dollars is the estimate of what HMGP funds will be there.

Once a specific project award is made, the funding from this program is available to the sub-applicant, the local government that made the -- submitted the application is available to them to reimburse up to 75 percent of eligible project costs and the remaining 25 percent is the required state or local cost share.

The other program that is authorized by the Stafford Act is the Pre-Disaster Mitigation Program. It sounds similar in a lot of ways to the HMGP. There is one important difference.

The disaster -- the Pre-Disaster Mitigation Program is a nationally competitive program that provides funding to the states on an annual basis subject to the Congressional appropriations. Rather than being tied to a disaster event, there is funding usually on an annual basis that is available to the states to undertake these mitigation projects.

And it is important to realize it is subject to

Congressional appropriations. It changes year by year. 150 million nationwide one year. 100 million another year. It's usually annual funding.

Again, the State is -- again, California EMA administers the program. It establishes the mitigation priorities. It facilitates the development of the project application and submits them to FEMA.

The fundamental difference is this is a nationally competitive program. Once the State submits it, it goes to national panel that is made up of Federal, state, local emergency management members. They review the application. They select the top applications based on the priorities they develop during the review process and they send those top applications. Then back to the regional office to complete the review of the applications.

So once the review is finished and a specific project award is made, the funding is then again available to reimburse up to 75 percent of the eligible project costs. The remaining, again, 25 percent is the required state or local match.

Now, these four projects we've seen from Cal EMA are for the Hazardous Fire Risk Reduction Projects in the East Bay Hills. And Cal EMA submitted three of these projects and -- three of these proposed projects under the Pre-Disaster Mitigation Program. And the fourth one was

submitted under the Hazardous Mitigation Program.

And those of you who have had a chance to look at the posters and talk to the folks around can see that the four projects run along the East Bay Hills in both Alameda and Contra Costa counties. And the posters are also reproduced in the handouts you've received. What I'll do is refer to that as I talk through the brief descriptions of the four projects.

The first of the four projects is the Strawberry Canyon Vegetation Project. That was submitted by UC Berkeley under the PDM. It involves the removal of the eucalyptus trees and other non-exotic native trees in 60 acres. It is shown on the map Figure 1C. I think it is the easiest one to look at. It is shown on there as the red hatched section up in the top left-hand corner of the map.

The second project is the Claremont Canyon Vegetation Management Project. It was also submitted by UC Berkeley also under the PDM Program. It involves the removal of the eucalyptus, Monterey pine and acacia trees on a 45-acre area. It is a blue shaded area on the map 1C, kind of almost in the center of the map.

The Oakland Regional Fuel Management Project was submitted by the City of Oakland under the PDM. It involves various vegetative thinning and eradication

1 techniques on about 325 acres. That land is owned by the
2 City of Oakland, the University of California Berkeley and
3 also East Bay Regional Park District.
4 Each agency is responsible for implementing projects
5 on its own property and the fuel management techniques vary
6 by agency. That is shown on the map by the orange and
7 magenta diagonal hatching sections and by the gold vertical
8 hatching. The vertical gold is, again, in the top
9 left-hand side. The magenta and orange hatchings are kind
10 of in the center of the map.
11 The last project we have is the Brushland Fuel
12 Management Project. That was submitted by the East Bay
13 Regional Park District under the Hazard Mitigation Grant
14 Program, the HMGP, that resulted from the October 2007
15 wildfire disaster that was declared in Southern California.
16 The HMGP is statewide. It does not have -- the projects
17 don't have to be specific in the areas of the declaration.
18 That is why we have it in northern -- one of the projects
19 in Northern California.
20 This proposed project involves treatment of
21 approximately 590 acres in 10 regional parks. The intent
22 of the treatment is to reduce fuel loads through brush
23 removal, chemical treatment, limbing, mowing, thinning and
24 grazing where appropriate to reduce the risk of wildfire.
25 And this project is shown in the solid red. And because it

stretches this long distance, it is actually shown on several maps. Probably the easiest one to get the overall view is the map at the beginning of this packet that lists the "Proposed Action Regional View." You can see it goes from Lake Chabot all of the way up to Wildcat Canyon and Sobrante Ridge.

So together these four projects would reduce the hazardous fuels in the -- with the intent of reducing the wildfire risk to the built in environment in approximately 980 acres of the Woodland-Urban Interface in the East Bay Hills, Lake Chabot up to Wildcat Canyon and Sobrante Ridge encompassing both Alameda and Contra Costa counties.

With that brief description of the grants and proposed projects, I'll turn it over to our regional environmental officer, Alessandro Amaglio. And he'll talk about the environmental impact reviews.

ALESSANDRO AMAGLIO: Thank you, David. Thank you, David. It's been a difficult day today with a cold and trying to -- I'm Alessandro Amaglio. I'm the environmental officer, Region IX.

KEVIN SPESERT: I made note of that.

ALESSANDRO AMAGLIO: Thank you. And I want to welcome all of you to take the time this evening to be here and be part of this process. So on behalf of my agency, really, thank you to be here.

What I intend to do is give you a brief overview. First of all, why we're here, why we call this meeting. And going briefly also over the overview of the process we're facing and going to have to walk together in the next several months.

I want to try to not go too much in details because this is specifically a listening session. We want to hear from you. So I don't want to take part out of that vital process just to talk about NEPA. You probably heard many times.

However, I need to quote a couple of times the regulation, not because I want to bore you but it is because they're going to walk with us for a long time and explaining why sometimes we are -- sounds like we are beating the horse to death by talking about certain details.

So why NEPA? Why NEPA is triggered? NEPA is the National Environmental Policy Act. It was enacted in 1969. It requires all Federal agencies that are undertaking a major Federal action to comply with the Act and to go through this procedural process to evaluate the action and decision making process, per se. Major Federal action sounds a big word. Trying to define that, I prefer to read it. What I said before, the definition in the regulation so it is clear. It is -- what it is is it includes action

with effects that may be major and which are potentially subject to Federal control and responsibility. I underline "may." At this time we don't know if they have an effect. I want it to be very clear of that.

And the second is "has the potential." It is not necessarily said that we are leaning that FEMA in this case has full control in the situation. We're trying to figure it out. Like I will probably repeat again later, we are looking for your help to figure it out.

The second part is -- the second definition is the definition of "action." And the definition itself is: An action includes new and continuing activities, projects and programs entirely or partially funded, assisted, conducted, regulated or approved by Federal agency. Now you understand why we're involved.

FEMA is providing some partial financial assistance for these proposed projects. FEMA eventually is going to approve the grants for the proposed activities.

We are completely involved in the action, per se. So we need to analyze the process.

So you understand why the trigger. So David went through a few minutes ago explaining the four grants. And I would like to clarify that when you said -- because that is the application -- entails doing such an action, you know, removal tree, whatever it was the description, that

is the proposal, how to address the hazard issue. It's a proposal. It is going to be analyzed during the process. So we're still in analysis phase.

I'd like also to clarify, again, why we're here today. Today is the first step and I go through the process of NEPA a little bit in detail. This is the first step in a long journey. We are, like I said before, to listen to your concerns. You are a vital part of the process; but also many of you live here, can be affected by the proposed action. You are expecting some action to protect your properties. We are also listening not only to your concerns but to your suggestions.

We are really starting this with an open mind and we are really looking for your cooperation.

Now, some of you, if not all -- I'm not sure -- but we were talking in the session earlier -- many of the previous attendees they were here in this room and most probably many of you, too, months ago for other processes similar part for the Park Service, East Bay Regional Park service for their CEQA process. I want to assure you while quite similar, CEQA and NEPA are not the same.

CEQA is more substantive and NEPA is more procedural. To give an example, at the end of the day, under NEPA we can approve a project that is actually generating impact, while CEQA is more delicate about even the terminology and

definition.

I want to explain that because we are dealing with a combination of projects run by different agencies with different missions with different responsibilities. So we tried to combine CEQA and NEPA in order to achieve the same goal together and we realized it was almost impossible. First, for what I just said. City of Oakland has a different responsibility than the East Bay Regional Park. You can understand that. One is a developed area. There is very dense build environment. The park has to deal with resources.

On top of that, each of the agencies have also a different stage already of CEQA compliance. For us to put that all together would have created problems to the process instead of a solution.

We are working with the State of California and the applicants to expedite and coordinate the processes but we're not doing a joint document because it would impair the process. And I hope that explains a little bit the situation where we are in that respect.

Going back to where we are now and why we are at this stage now, I need to give you a little bit of history. The first project to describe it was basically an application for a grant for the Strawberry Canyon for University of California Berkeley. We start to do because of being in

action and because we are supposed to provide funding, we start to do -- perform an environmental assessment. At the time we were analyzing -- I believe it was also the Claremont Canyon -- two locations very similar in, let's say, geographic and morphologically and also connected so-to-speak. One is adjacent to the other and to the facility, meaning the university.

During the process, FEMA found that it was impossible or not very feasible to reach a determination that there were no significant impacts. And NEPA is very clear on that aspect that if an agency cannot make that determination and document the fact that there are no significant impacts, we need to do a better study, go more in detail.

And in NEPA that means Environmental Impact Statement, what we're doing now.

So what I'm saying though is not that FEMA determined that there are significant impacts. I want to be clear on that because that also has different meaning, language and consequences in CEQA if you're familiar with. So we're talking about two different terminology here. FEMA is very clear. We cannot reach a "no significance" but we're not really sure yet of that. This is why we're here.

So that is -- I think that once we decided that an EIS was required -- and going back one second, when David

1 described the four grants, you understand that we started
2 from these two very limited so-to-speak few acres in the
3 two canyons. Then the new grants came on board. So the
4 scope of the study expanded. So expanding the area, not
5 knowing the results, and all of this, you know, timing
6 together, created even more so the reason behind the need
7 to do an Environmental Impact Statement.
8 So in June of this year FEMA issued a Notice of Intent
9 to initiate the process.
10 And on the Notice of Intent I think you have a copy on
11 your handout. It actually is published in the Federal
12 Register. We informed the public we're going to have this
13 meeting and informed the public of what are the -- that is
14 you -- what are the intentions in terms of potential
15 alternatives. And we are calling basically this meeting to
16 start the process.
17 Again, it is a listening session to start getting the
18 feedback from all of you on where we are going to start the
19 study.
20 Now, what is the next step? The next step is
21 starting today. And after our brief presentation we're
22 going to -- I'm trying to be brief. We're going to start
23 listening to you, if you are willing to come on the
24 microphone. There is a recorder, like Kevin said.
25 You can send us comments between now and October 1st.

1 And we're going to collect all of those comments. And then
2 starting with that comments collection starting drafting
3 the Environmental Impact Statement document that will be
4 summarizing what is proposed to us for funding, what may be
5 the prospective of all of you and the other agencies that
6 have a stake on the action.
7 This is vital for us. We want to be sure that we
8 start scoping -- and this is why it is a scoping
9 meeting -- properly the documents. We don't want to leave
10 out a possibility of alternative or methodology or concern
11 that is out there and we're not aware. FEMA is not an
12 expert in this field. FEMA is a funding agency so in this
13 respect -- so we need to take, you know, input from who
14 knows better than us.
15 Then who knows better than us? Everybody. So sounds
16 like it at least by the number of the letters we get.
17 So we need partners in this. So NEPA, as a
18 requirement or option for the Federal agency, is to seek
19 out assistance from state and Federal and local agency that
20 have special expertise in certain science or field or
21 activities.
22 So we scratch our head and say: Who knows something
23 better than us? Of course, everybody. We ask the National
24 Park Service. They manage parks. We are talking about a
25 lot of parks here. We ask Fish and Wildlife Service

because they're not only managing resources, we have to consult with them and the Endangered Species Act, but those who can help us identifying issues relating to existing condition, what is happening after, how we can minimize effect to species and how to improve the situation. And you can understand it is a very big, big scope.

The third was the Forest Service because they manage a lot of fire, you know, activities, fire reduction activities, fire prevention activities. So they have expertise in that respect.

They -- we reach out to them. Two of the three agencies are here tonight. The second part to us, of course, who else? The agencies that asks for our financial assistance. They have their mission. They have their reason for asking for assistance. They have a plan. They know their backyard so-to-speak. They give us the input on why they want to do those actions, not just because they want the money but how to do it best. Right?

So the third part is you because you are interested party to immediate or indirect if you're living here or because in the overall Bay area you have an interest on what is happening. This is our partnership. This is how we build it together.

Going now to the specific of the draft EIS that is going to be started in October, I wanted to assure you

again that it is not the end of your participation. It is actually the beginning really. Now, we're getting the input to start writing something but then we have to come back to you and say: Are we on the right track here?

And we're going to post on the web. There are a lot of tools you're going to be aware. You can sign up for being on the mailing list. We're going to check periodically we're on the right track. Your feedback, again, will be very important.

It is a personal and FEMA commitment to do that. We don't want to work for 15 months, whatever it takes, and find out we left something too important that we did not evaluate properly. We need to be sure we do our homework but we need your help in doing that.

Part of the draft Environmental Impact Statement is going also to be to address the factor of these proposed actions on the environment, like I said, endangered species and so forth. But also we are going to address the cumulative impact. I bring it up again with a citation from the regs. I want to be sure you understand why. This is going to be following us for a long several months from now and explaining why we're looking at stuff that does not seem connected maybe.

The cumulative impact is the impact on the environment which results from the incremental impact of action that

1 added to other past, present and reasonable foreseeable
2 future regardless of what agency, Federal or not, or person
3 undertake such actions.
4 Cumulative impact can result from individually minor
5 but collectively significant when analyzed together.
6 I emphasize that because it is not because FEMA is
7 providing funds or actually partial funding in some case.
8 We have to look -- how you call the thing the horse has
9 just through -- but we need to look at the -- you know, all
10 of the impacts that happen and maybe action that happened
11 before, action that can happen a little later, action taken
12 from local agencies.
13 The definition says individual. That is really going
14 to the microsomal; but in reality there is also that. If
15 all of the neighborhood decides to do a certain action,
16 that can be construed as part of the action. We have to
17 take care of it.
18 If you saw before -- if you went through the station
19 before, there is a map that shows all of the actions that
20 we were able to collect through our applicants primarily
21 about action that happened in the recent past. Some funded
22 by FEMA or through FEMA; some through other agencies,
23 Forest Service, state agencies. If you're aware of other
24 actions that we're not aware, please, again, let us know
25 because we don't want to miss something. Or if you see

there is something wrong in those information because maybe we misunderstood something, again, speak now not six months from now. That will be only delaying the process instead of helping us out.

So again, your role is not ending here. It is starting here and is going to be all of the way through the process. Eventually the draft will be come out and you're going to provide us comments.

At the end FEMA will reach a decision on the action. And let me emphasize that the alternatives -- I kind of skimmed through the alternatives. The alternatives are very important. Don't be taken by the alternatives you saw in the Notice of Intent or the copy on your handout because those are placeholders so-to-speak of the required alternatives. One is the "no action" we are required to put in any Environmental Impact Statement or environmental assessment or FEMA would not approve the grants. But also, of course, the proposed action by the several applicants. And also we are trying -- we try to say what the different other alternatives would be.

However, in this case, alternative would be more tuned to the methodology, the three alternatives. When I was making the presentation earlier a few hours ago I made example of a school. And I said, well, an EIS for school is already bad start. The EIS in terms of school should be

classrooms. In other terms, there is a need to improve the number of classrooms for neighborhood. That is the scope of the EIS. Should not be build a school. Build a school is actually an alternative. We can increase classroom in existing school. We can combine two schools in another or we can build a new building.

In this case it is difficult to do anything else than fire reduction to a certain extent by means of different tools. And again, one of the challenges we are having is besides we cannot move the location, the other challenge is program limitation. We have so many programs in FEMA with specific purposes. This is hazard mitigation. It is not preparedness in terms of being prepared for fire. We cannot tell the East Bay Regional Park: Why don't you build two fire stations more or buy more fire trucks? That is another program. We cannot over-arch that. They have their own funding, own program, other responsibilities. We have to walk a very fine line on how we can address that.

That said, I think I give it back to you, Kevin. And again, if you have any questions about the process, hold it until we finish our comment session. We're going to be back there and happy to answer any questions you have.

Thank you.

UNIDENTIFIED SPEAKER: I have one question that may apply to all of us.

You mentioned very specifically the acreage. Could you also mention the amount of money involved for each of the four grants? How much money has been requested for the four projects?

KEVIN SPESERT: Let's go ahead and get to the public comment session so we can go through the process. At the end of that when we close the public comments, everybody will be back by the poster boards. Again, you can have the conversation one-on-one.

UNIDENTIFIED SPEAKER: It may be of interest to other people as well.

KEVIN SPESERT: We want to get through the public comment portion first. We'll get that on the record. Then we can deal with that issue offhand.

What we'd like to do is open up the public comment session now. If you have a comment card -- got a couple here. If you have a comment card and you'd like to come and speak today -- if you don't have one, you want to fill it out now, give it to Rebecca, raise your hand. She'll come and grab it.

We have a court reporter tonight who is taking a verbatim transcript of your comments. When you come up to the microphone, please state your name and general place of residence. The city where you live is fine. Speak clearly so she can make sure she gets a full reflection of your

comments. We don't have a timer here tonight. We have several folks who want to speak. We want to keep comments about five minutes. When you get close to your time, I'll just mention we're getting close now so you can kind of wrap it up. We'll at the end of the session -- public comment session we'll retire back to the back where the poster boards are and FEMA staff representatives as well as members of the other cooperating agencies will be here to talk with you one-on-one and answer some questions for you at the end of the program.

With that, we'll start with the first speaker. And I have Michael Bond.

MICHAEL BOND: Good evening. Michael Bond, Fire Marshall for the City of El Cerrito. First of all, I'd like to start by thanking the City of Oakland, East Bay Regional Parks.

KEVIN SPESERT: Oh, the microphone.

MICHAEL BOND: Shall I sing now?

KEVIN SPESERT: Please.

MICHAEL BOND: All right. Michael Bond, Fire Marshall for the City of El Cerrito.

I'd like to start by thanking the City of Oakland, East Bay Regional Parks and the University of California Berkeley for putting together the grant request that we're here to talk about tonight. And then thank Cal EMA and you

FEMA folks for being so kind as to grant these grants we're working on.

To start with, City of El Cerrito are not participants in the grant but we are greatly affected by the results of the grant.

If you look back on the wall maps back there, the one map has a very long stretch of red that goes all of the way from Tilden Park to Alvarado Park, which is Wildcat Canyon, a few miles that are directly above the El Cerrito/Kensington border. Fire coming out of the canyon is going to quickly go into our communities and devastate them. There is just no way it is not going to happen that way under fire conditions because of the amount of fuels, the steepness of the terrain and the prevailing wind conditions that will be driving it into our communities on fire weather days. So we are going to be greatly affected.

One of the things the City does -- City of El Cerrito and Kensington -- we go out and inspect all of the properties that are in that high fire severity zone and make them comply with the Fire Code.

One of the things that we're constantly getting feedback on is: We're doing our share. Why isn't the park doing more?

Well, to give the park credit, they're doing an awesome job; but, you know what, they've got thousands of

acres of interface areas that they're trying to maintain and manage. The cost alone is prohibitive, let alone the hours and stuff with the resources they have.

So this grant is going to be instrumental in us protecting our communities. Not only is it going to be helping the City of El Cerrito and community of Kensington but in the event a fire happens in our area, it is going to affect every other fire agency or city within the Bay area. We have what is called "mutual aide." What happens there is if fire is beyond our capability, we start calling resources from the closest to the furthest. And in the event of the Oakland Hills fire of '91, resources were coming all of the way from Southern California and all of the way from Northern California. It is affecting everyone. They're losing their resources to fight our fire. If they have a fire, we lose our resources to fight their fire; therefore, jeopardizing each other's community.

What you guys are doing is a very worthwhile cause and I applaud all of your efforts in doing this and bringing it to a resolution.

Thank you very much.

KEVIN SPESERT: Great. Thank you for your comment.

The next speaker I have is Tom Kelly.

TOM KELLY: Could I send Jane?

KEVIN SPESERT: All right. Jane Kelly.

JANE KELLY: Thank you. I need to perhaps lower this a little bit.

Does that work?

KEVIN SPESERT: Sounds good.

JANE KELLY: Good evening. Thank you for the opportunity. Thanks.

My comments concern the Strawberry Canyon Vegetation Management Project and specifically the project draft environmental assessment of December 2007.

My support for the university Pre-Disaster Mitigation Program is conditioned upon modifications restricting the use of herbicides. Specifically, I would support Alternative 2, as defined in the draft EA, if it were modified to restrict the use of herbicides to prevent stump regrowth; and if it were modified to include the results of the new and independent body of science of adverse effects of herbicides.

Alternative 2 calls for the removal of eucalyptus, Monterey pine and acacia. Eucalyptus are of particular concern due to their extra ordinary growth rate of up to 15 feet per year; they are a fire danger; their allelopathic qualities that prevent other seeds from sprouting; their lack of diverse habitat value and their enormous consumption of water.

I have been doing a little research and come across information from the Australian government touting eucalyptus globulus, the Tasmanian blue gum prevalent in the canyon as suitable for draining swamps because of the capacity of the trees to evaporate water from the swampy ground.

We should reduce the very dangerous fuel load but we should do so in the most environmentally friendly manner possible.

The draft EA states the initial chemicals to be used are Garlon and Stalker. And it further states that all cut tree stumps would receive semi-annual follow-up treatments of the herbicide Garlon and Stalker as well as Roundup and Rodeo and that follow-up treatments are anticipated to be done over a seven-to-ten-year period.

The justification for using the toxic chemicals for up to ten years includes statements like Glyphosate, which is the active ingredient in Roundup and Rodeo is -- and I quote, strongly absorbed by the soil, end quote. And the EA references US Department of Agriculture studies from the year 2003 to support its case. That information is both outdated and factually incorrect.

In 2009 a peer review scientific study from the University of Missouri Colombia was published. It is entitled: Glyphosate and Glyphosate-Resistant Crop

Interactions With Rhizosphere Microorganisms. Experts from this study include the following -- I have actually submitted this study for the record. This is just one of the things in the study. It says: In contrast to generalizations that Glyphosate is tightly bound and inactivated in soil, numerous studies show Glyphosate is available to soil and rhizosphere microbial communities as a sub-straight. The direct metabolism leading to increased microbial biomass and activities.

There is a lot more scientific documentation in this report talking about how it impacts non-target plants and it actually prevents manganese and iron from being absorbed by other plants. It is pretty easy to read.

This study is just one of many peer review studies published in the last few years by universities in the US, in Europe in particular, and beyond that report on the adverse effects of commonly used herbicides on our health and on our shared environment.

New science comes on the heals of a 2009 decision by the French Supreme Court, finding Monsanto guilty of false advertising by claiming its product Roundup to be, quote, biodegradable and safe for the environment. It is not.

University representatives tend to claim science is on their side on the issue of herbicides. The draft EA however lists the chemical companies BASF Corporation and

Dow AgroSciences as resources for fact sheets on the herbicides Stalker and Garlon, and the US EPA fact sheet of '93 and US Department of Agriculture's publication of 1986 to support discussions about Glyphosate.

KEVIN SPESERT: Can I jump in there? You're running a little long on time. If you can go ahead and close it up.

JANE KELLY: I request that the scientific study from the University of Missouri be included in the EA and the EA also be modified to include the entire body of new and, in particular, independent science about the herbicides in question; and that Alternative 2 be approved, excluding the use of herbicides and including manual methods of stump regrowth and control.

Thank you very much.

KEVIN SPESERT: Thank you for your comments.

The next speaker I have is Jon Kaufman.

JANE KELLY: Don't forget Tom.

KEVIN SPESERT: I'm sorry. I'll get you on the next one.

JON KAUFMAN: My name is Jon Kaufman. I live at 107 Alvarado Road, which is very close to Claremont Canyon.

First of all, I'm pleased to be here. Thank you for this opportunity. And thank you all these agencies for being here and working closely together. I think your cooperation is very important so that this study can be

expedited and moving forward.

Most people in my neighborhood strongly support removal of the eucalyptus trees and then treating them with herbicides so they won't grow back. We've had experiences with fires and people know that these trees are very dangerous.

In addition to being a fire hazard, they are non-native plants and a lot of us feel very strongly that non-native plants don't belong in our area.

Third, they're invasive. They take over and kill the native species. And someone I know who is more of an expert on this than I am refers to them as the Al-Qaeda of trees.

I think the environmental impact of what is being proposed be very positive for those three reasons: Fire hazard, get rid of non-native species and the fact these trees are invasive.

I hope when you complete the environmental impact study that these points will be reflected and that we can finally get the work done to get rid of these problems.

Thank you very much. I should also add I'm a member of the Claremont Canyon Conservancy.

KEVIN SPESERT: Thank you for your comments.

Tom Kelly.

TOM KELLY: Thank you. Thank you. Good evening. Tom

Kelly from Berkeley. And I just want to say that I support everything that Jane said a hundred percent.

KEVIN SPESERT: Duly noted.

TOM KELLY: To the issue of the use of herbicides by the various applicants, I just wanted to say that we're people of action really. We've offered to work together with the East Bay Regional Park District on a pilot project that will demonstrate to the park it is possible to kill eucalyptus stumps or prevent them from re-sprouting without the use of herbicides. We would very much like to see the projects that are being proposed to look closely at that methodology or technique we're proposing. It's been around for long time. Everyone who uses it properly has been satisfied with the results of it; and that the projects actually, should they get started before ours does, take this on as something they do right from the outset rather than waiting for the results of our efforts with the East Bay Regional Park District.

I am suggesting we use a precautionary approach. One of the reasons is we live in a closed system. We see what the excess production of carbon is doing to our climate. We see the effects of climate change every single day. This summer has been a horrendous example of what we can expect to see in the future. The same goes for chemicals. The estuaries and rivers all around the planet

are -- they're dead zones, some of which never go away. They used to ebb and flow with the seasons. Many of them are there all of the time. It is a result of use of chemicals largely in agriculture but these are herbicides that are also used by people like us in the control of weeds.

And I just want to point out that everyone we talk to about weed control always says basically the same thing: We're only using a little. You know, we are very carefully painting a stump.

But when we talk about these the overall impacts of what we're doing looking historically and also in terms of what it is all being done simultaneously, we have to begin to recognize the poisoning of the planet is the direct result of this continued often small application of poisons that people tend to want to use as a justification for their use.

I think we need a shift in our thinking on this. If we're ever going to get the planet back to some kind of healthy place, we're going to have to start doing things differently. I'm encouraging a precautionary approach. And I'm also asking you look at this community as one that is different. We're very sensitized to those environmental issues. And unlike other parts of the country that may not put as much weight on the use of chemicals on our

environment, this community is really struck and concerned about it.

The other thing I'd like to say I think the logged areas should be re-vegetated, not just left to come back on their own to see what happens. I think there should be active intervention by the contractors to assure that native vegetation is encouraged there and done through a re-vegetation process.

And the last thing I would say, since this money is coming through the Department of Homeland Security that we also think about energy independence. If we look at using the biomass, of which we have a lot, to use for fuel than rather simply chipping in place and leaving a lot of the material there, I think we should be considering alliances with our local utilities to see if we can use some -- develop some micro-utilities here like in the Port of Oakland, Port of Richmond where we can actually produce electricity from the biomass we are harvesting.

KEVIN SPESERT: Next speaker I have is Joanne Drabek.

JOANNE DRABEK: Hi. My name is Joanne Drabek. I'm a resident of Oakland and I live right next to one of the big red spaces.

My comments are mostly in regard to the Brushland, big number four project, with the East Bay Regional Park District.

To meet your goals of long-term effects of fuel reduction, a cut-and-run program will not work. Mother Nature will come in after you and plant things worse than you ever planted. It has already happened in some of the projects funded by FEMA in my personal back yard. Chibot Regional Park is my personal park.

If long-term hill reduction is a goal, as you progress, I hope firefighters and botanists will go out hand in hand to each of your project sites and do a joint evaluation of the best thing to happen; that part of the long-term fuel reduction management plan may include replanting with things that are not as flammable as Scotch Broom or eucalyptus trees; and that somewhere somebody's money, be it FEMA money or a local agency's money, has to go in to long-term management and monitoring to see if what we're doing is really working.

Thank you.

KEVIN SPESERT: Thank you for your comment.

The next speaker I have is Barbara Allen.

BARBARA ALLEN: Hello. I want to, like the Fire Chief from El Cerrito, I want to thank all of the agencies for this very important program. I am co-founder for Neighbors For Fire Safety. I live in the Berkeley Hills and fire is critical to us.

Living on the ridge there, every time there is a warm

hot day like these past couple of days we all get very nervous. The vegetation up there is horrendous. I appreciate that cutting back has occurred and I am looking forward to a cutting in the future.

I'm also concerned about eucalyptus trees. I'm very disheartened that the eucalyptus trees were cut and they grew back. We've got to figure out a way we can stop them growing. It is ridiculous. It also costs a lot of money.

I think also it is important to understand that fire in the Berkeley Hills and along the ridge is so critical and we feel that fire is the number one priority for the Berkeley Hills. And we want to have as much vegetation cut down and -- particularly the eucalyptus trees. I think they're incredible dangerous.

And in Tilden Park there are areas with so much vegetation from the eucalyptus trees along the edge. It is incredibly dangerous.

I appreciate what you're doing. And I think that -- I hope it will be very successful and we'll proceed and we love getting money for our safety.

So thank you very much.

KEVIN SPESERT: Great. Thank you for your comment.

The next speaker is Bob Allen.

BOB ALLEN: I'm Bob Allen, also from Berkeley. There is one area that apparently the FEMA money does not cover

that does concern me. And it was really brought home today. We came to the afternoon meeting but at the wrong time. We drove back along Skyline and Grizzly Peak to Berkeley.

I was really undermined -- a prior concern of mine. There is a tremendous number of electrical lines, overhead lines across the road, which is really, as we all know, the fire barrier between the park and the rest of the community.

Maybe 20, 25 years ago an almost major fire in the Berkeley Hills started just above Wildcat Canyon Road because a power line came down and ignited the brush and burned several houses. There is the dangers those lines cause because of the fire and there is the danger that was really realized in the Oakland Hills fire that you can't get fire trucks or emergency vehicles into areas where lines are down.

So I understand it is not part of the money here. I would urge all of the agencies involved to look at securing money to underground those lines where they are really blocking the major thoroughfares like Skyline and Grizzly.

Thanks.

KEVIN SPESERT: Great. Next speaker is David Kessler.

DAVID KESSLER: Good evening. Thanks for holding the meeting. My name is David Kessler. I live in Oakland and

work at UC Berkeley. My wife and I lost our home and our whole neighborhood in the 1991 fire.

I'm a member of the Claremont Canyon Conservancy. I am my City Council members appointee of the Oakland Wildfire Prevention District and I'm the head of the new North Hills Community Association, which is the neighborhood association for North Oakland.

Our organizations have all endorsed the East Bay plans that are being considered right now. Of course, we hope they're studied and, you know, that respond to what the best way to do them are. What is important to us is that something get done. We perhaps have waited too long and we can't wait too much longer. Even imperfect action is a lot better than inaction.

What we want to make sure happens is this is done as swiftly as possible and that something is done to reduce the biomass up there. And I trust that the study will consider all of the opinions about this and find a way to do it most effectively. But we can't tolerate a situation that will lead to another fire.

Thank you.

KEVIN SPESERT: Great. I have one last comment card.

If you would like to comment tonight, please fill it out and hand it to Rebecca. Our next speaker is Ken Benson.

KEN BENSON: I'm Ken Benson. I'm a citizen of Oakland. I was one of the founders and backers of the original Oakland Wildfire Prevention District. I recently came off of that board.

First of all, I want to thank both agencies FEMA and CEMA for their funding and approach to mitigation, not just these grants; but I'm also a native of the Imperial Valley and I'm pleased to hear about the funding for the El Centro earthquake. I'd like it to be more than the 17 million dollars. That is better than a shovel-ready project. They have 27 percent unemployment in my old home county. Anything can help.

That said, we're here really to talk about these projects, their importance.

I can further echo David's comments. When we started looking to pursue the grants, Tom Platt had black hair and was single. That is not the case anymore. And we were told wonderfully this is our first step on a long process. We've been stepping all along.

And I couldn't agree more with the Kelly's. Let's take what we know and what we're learning and let's share this. The beauty of these different projects is they aren't exactly the same. That is part of probably what interested FEMA and CEMA with this is that each of these mitigations are going to be somewhat different. And we

gain knowledge for future projects from this as well but only if we take the effort. Let's take the effort.

Thank you very much.

KEVIN SPESERT: Great. Thank you for your comment.

Rebecca, I think you have a couple more?

Next one I have is Mark Rauzon.

MARK RAUZON: Hi. Mark Rauzon. My name is Mark Rauzon. I'm a board member of the Friends Of Sasaul Creek, also an ornithologist and geography instructor at Laney College.

I'd like to address as a citizen-led environmental group managing a watershed, we've worked for 14 years trying to control invasive plants. In principle, we support your plans for alien vegetation control on a large scale in order to minimize fire risk in principle.

We also in principle support judicious use of herbicides to control re-sprouting of stumps. We say this from 14 years of experience of trying to manage vegetation in Oakland where herbicide is illegal in public lands without using herbicide. We cannot simply keep up. We've tried using all types of experimental techniques. We cannot keep up. And if you're coming out with 900 acres you'll never be able to manually remove re-sprouts without Glyphosate tools. And I could also submit pest management information on other perspectives of Glyphosate.

What is so interesting to us is how inconsistent land use is throughout this region. We have East Bay Regional Park District is different than the East Bay MUD is different than the City of Oakland is different than the City of Berkeley. As a result, the City of Oakland and its fire management suffers the most. We're the least consistent with you all, especially state regional parks.

We need to become consistent in the land's use of fire throughout this entire hill region.

Finally, I'd like to specifically recommend that a so-called herbicide czar be appointed who is independent of you all or somebody who will be explicitly responsible for designating how much herbicide is used, where it is used and that person would be accountable and will be tracking specifically herbicide use. That way we can use it but it is going to be very closely monitored.

Thank you.

KEVIN SPESERT: Great. Thank you for your comment.

The next one I have is -- sorry if I butcher your name here -- Lech Naumovich. Am I close?

LECH NAUMOVICH: Pretty good. Good evening. Lech Naumovich. I'm a -- from the California Native Plant Society, the East Bay Chapter. I live in Alameda. I've worked throughout the hills for many years and actually I

am staffed there. I work as a contractor on various projects in the hills as a botanist. And also I worked on Mayor Dellums' Emergency Preparedness Task Force many years ago. I don't envy the work you do but I really appreciate it.

CMPS, California Native Plants Society, has been active in this area for some 45 years. Our organization started in the East Bay Hills. And these East Bay Hills are botanically very important both from the perspective of the unique vegetation, as well as plants, to -- federally protected plants that you'll bump into in the EIR are presidio clarkia and palid manzanita. In addition, there is serpentine resources. This is a very unique area to us and a very well-traveled area. We want to ensure the fuels work complies with a goal to maintain those resources and at least do no harm to them. That is a big concern with us.

We appreciate the fact that there are cumulative impacts and you're looking at the cumulative impacts of all of the projects throughout the area. We think there are going to be certainly very large impacts from invasive species. That is one of the EIR -- EIS requirements rather looking at invasive species. When you have a whole number of treatment projects going on throughout the area it opens up sites where invasive species tend to colonize and as

some previous speakers have said, those invasive species then can produce more of a risk of maybe the prior habitat you had there. The type of fuel is very different. It tends to be flashier. You tend to have what you call an early succession community rather than a climax community.

And that is also something we hope to see in the EIS is as you consider this project and as you consider funding these projects, one of the goals is to figure out what point -- what end point you are going to analyze for environmental impacts. When you do a fuel management -- when you do a fuels management project on a landscape, it looks very different in year one than it will year five after the project is completed and year ten after the project is completed. Maybe it's a mental exercise but I hope you will consider not only day one post project is what the EIS will consider but rather you look on down the line to year ten, year twenty even because that is going to have -- your actions are directly impacting vegetation. We don't believe they're indirect impacts. We believe they're direct.

And we have, as people brought up, a whole lot of knowledge in this community about what happened in Chabot, what happened on the Caldecott Tunnel where eucs have been cut over and over again and re-sprouted but also vegetation that is shrubby and vegetation that is grass oriented.

We're really excited about this. We've worked very closely with the East Bay Park District on their EIR. We worked with Oakland on improving what they're doing in the hills in terms of fuel management. We've worked indirectly with Claremont Canyon Conservancy.

We hope that when you consider these projects especially some of the competitive grants that you ensure there is a monitoring and follow-up written in every single proposal. That is where we're seeing the big shortfall in a lot of the projects. I think somebody -- Joanne brought it up where she called it cut-and-run. I think it is particularly illustrative of what we've seen in some areas where they've cut and chips have been thrown down up to six feet in depth and there has not been much done. There's no native recruitment plants going on there. The plants can't germinate through six feet of chips.

We certainly want to see projects -- the fuels management projects done by agencies, done by competent people. There are certainly a lot in this room. But we need to see the planning ten, twenty years in advance.

If we're going to remove the grove of eucalyptus trees, what is our goal in twenty years? Is it going to be something more of a fuel hazard or something that's going to be something sustainable and easier to manage?

So basically we're asking FEMA to consider and

prioritize projects that have those components, the monitoring and the follow-up.

And that is about it. Thank you. You'll probably get written comments from us.

KEVIN SPESERT: That is the last speaker I have for the night. With that, we'll go ahead and -- in case there is anybody at the last minute. Go ahead.

CAROL SCHEMMERLING: I just have one comment.

KEVIN SPESERT: Go up to the microphone. Can you state your name? I don't have a card for you.

CAROL SCHEMMERLING: Carol Schemmerling with the Strawberry Creek Watershed Council. I am also involved with the Urban Creeks Council.

So what happens in these places with the -- these chemicals will affect the water. And I'm not so sure that people are aware enough or pay enough attention to what goes into the water. My main concern is after the last fire in 1991 I was asked because of a horticulturist what shouldn't be done. And I said, "Do not re-seed with European annual rye grass. That is next year's fire fuel." So that is what they did. They re-seeded with European annual rye grass that carried the flames throughout the fire district, fire area.

You know, what the last speaker said is really important. If you don't have follow through and this sort

of thing keeps happening, you can forget it. The eucalyptus are one problem but it is the grass that starts the fires in most cases.

So it is what you shouldn't do that should be written and paid attention to as well.

KEVIN SPESERT: Great. Thank you. Thank you for your comment.

I think with that, we'll go ahead and close the public comment portion of our meeting.

Thank you all for being here this late evening. We appreciate your time and effort for coming out today. We'll have in the back by the poster boards FEMA staff as well as representatives from the cooperating agencies to answer your questions.

Have some cookies so we don't have to take them home and have a good evening.

(End of proceedings.)

CERTIFICATE

OF

CERTIFIED SHORTHAND REPORTER

The undersigned certified shorthand reporter of the state of California does hereby certify:

That the foregoing meeting was taken before me at the time and place therein set forth;

That the testimony of the public and all presentations made at the time of the meeting were recorded stenographically by me and thereafter transcribed, said transcript being a true copy of my shorthand notes thereof.

In witness whereof, I have subscribed my name this date August 26, 2010.

DC Tawney

Desiree C. Tawney

Certificate Number 12414

Appendix F:
Written Comments Received by E-mail, Websites, Fax, Mail, or Submitted at Scoping Meeting

E-mails and Comments Posted on the EIS Website[1]

EBH-EIS-FEMA-RIX

From: Llyana Landes [landesl@yahoo.com]
Sent: Thursday, August 19, 2010 9:31 AM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

My concern is related to the use of wide-spread herbicides in these areas. I suffer from chemical toxicity, and use of herbicides in these areas would mean that I would not be able to hike and spend time in these public parks. This would be a great loss to me, personally, and to many others who's health is also negatively impacted by such chemical applications. Please consider us in your consideration of these permits! Thank you.

EBH-EIS-FEMA-RIX

From: Esther Lerman [eslerm@earthlink.net]
Sent: Thursday, August 19, 2010 11:22 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

Please do not use herbicide when removing the trees in the East Bay hills area. My best friend ,and many like her, has MCS- Multiple Chemical Sensitivity- and will not be able to hike these areas anymore for years. Can there be at least one or 2 areas, maybe, that are herbicide free?? Thank you for your attention.

EBH-EIS-FEMA-RIX

From: Nancy M. Friedman [nmf123@pacbell.net]
Sent: Friday, August 20, 2010 3:31 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

I am very opposed to the use of herbicides in the East Bay Hills. I understand you are considering proposals to remove large amounts of trees in 4 different areas of the hills as part of a fire-prevention project (Eucalyptus and some conifers) which include wide-spread herbicide use. There are many people who have suffered irreparable chemical damage to their bodies but love the outdoors. Use of herbicides in this area would make it prohibitive for them to hike there, and put us all at even more risk than we are from a multitude of chemical usage.

[1] Comments submitted through the website generated an e-mail message to EBH-EIS-FEMA-RIX@dhs.gov.

EBH-EIS-FEMA-RIX

From: Robert Breuer [rbreuer@pacbell.net]
Sent: Friday, August 20, 2010 3:59 PM
To: EBH-EIS-FEMA-RIX,
Subject: Scoping comments: Hazardous Fire Risk Reduction, EIS, East Bay Hills

Re: Scoping for **Hazardous Fire Risk Reduction, Environmental Impact Statement, East Bay Hills, California**

As a resident of Panoramic Hill (Berkeley/Oakland) we live in a well known very risky neighborhood serviced by a single hundred year old very narrow access road. The potential for calamity here is enormous, every bit as much as in the worst areas hit by the 1991 Berkeley/Oakland firestorm where over 20 deaths were attributed to narrow access roads. I suggest that after much study, it is time to act in order to:
1. Broaden Panoramic Way
2. Open a second access route, most likely Dwight Way.

The long overlooked and weary 500+ residents of Panoramic Hill deserve a chance to survive an upcoming fire or earthquake calamity.

Thanks so much for your consideration.

ROBERT BREUER
29 Mosswood Road
Berkeley CA 94704
---
rbreuer@pacbell.net
tel: (510) 540-5880

EBH-EIS-FEMA-RIX

From: Debbi Thomas [DThomas@DekatoDesigns.net]
Sent: Monday, August 23, 2010 10:38 AM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

Please do not spray more herbicides/pesticides. These chemicals are affecting my nervous system & brain so much that I can no longer work. I can not ride my motorcycle. I have to drive with my windows closed. I have been going to Point Isabelle in El Cerrito because they do not spray, but now CostCo next door has sprayed so much that the air is burning my throat. I have to keep hard candy in my mouth all of the time. It makes me so disoriented that I have a difficult time just walking from my truck to the bathroom. I have tried going to Berkeley Marina, Tilden park, Rodeo Beach (Marine Mammal center), Point Reyes. All of these places use chemicals which I can not tolerate. I am sensitive to chemicals, not allergic so I am just much more sensitive that other folks. These chemicals are not going away so they just get worse with each spraying. They also get worse with watering, rain, etc.

EBH-EIS-FEMA-RIX

From: Howard Matis [hsmatis@gmail.com]
Sent: Wednesday, August 25, 2010 7:47 AM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

I support the proposed plan to reduce Fire Risk in the hills. We have already had one disastrous fire which killed people. Please do not listen to the extremists who prize their narrow concept of beauty against the safety of my family and my neighborhood. I support your plan. We do not want to burn again.

EBH-EIS-FEMA-RIX

From: lech naumovich [conservation@ebcnps.org]
Sent: Monday, August 23, 2010 12:24 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

Your documents listed as PDF's do not download as described. They were not correctly uploaded. Please send a copy to my email (of the PDFs). Browser: Firefox 3.5.11

EBH-EIS-FEMA-RIX

From: Jane Eiseley [jeiseley2@yahoo.com]
Sent: Wednesday, August 25, 2010 8:29 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

I am a senior citizen living in Berkeley. I have been active in the past with the Strawberry Canyon activists opposed to UCB's plans for construction in the Canyon. I urge you to adopt FEMA alternative 4 and to fund only some parts of the current application to reduce fire hazard in the East Bay hills. I very much oppose the use of herbicides and the wholesale cutting of trees, even eucalytus. The parks are important to my quality of life. I do not want to feel saddened by the knowledge that poisons have been applied, animals killed and landscape ruined. The vegetation on the hills is also an important air quality buffer in an area that is plagued by air pollution. Fire protection is important too but I feel that UCB's role in the application is not honest, since the University's view of the hills is that they are building sites ripe for development. They are deaf to objections based on the value of the hills as natural areas for recreation and ecological study. They have also shown that they are deaf to expert opinion that the soil in the hills is unstable and building there may well bring on floods and landslides. Wholesale destruction of the plant cover and application of poisons similarly endangers everything downhill!

EBH-EIS-FEMA-RIX

From: sydney carson [ascarson@berkeley.edu]
Sent: Wednesday, August 25, 2010 9:42 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

There must be better alternatives to preventing fire than cutting down trees so extensively and afterwards spraying the ground with herbicides which will prevent regreening of our hillsides. Use goats. Use anything but the devastation that is being considered.

EBH-EIS-FEMA-RIX

From: Richard Montgomery [rmont@ucsc.edu]
Sent: Wednesday, August 25, 2010 11:00 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

The plan as I understand it: to cut down 100s to 1000s of trees in the Strawberry Canyon area of the Berkeley Hills is a ridiculous one. I understand the possible need to cut out some of the Eucalyptus groves, and if the plan can be changed to be selective: (Eucalyptus, no native trees) then it would be acceptable.

EBH-EIS-FEMA-RIX

From: Linda Richards [lindarichards2004@yahoo.com]
Sent: Monday, August 30, 2010 1:35 PM
To: EBH-EIS-FEMA-RIX,
Subject: Trees

There is no real logical reason to cut the trees in Oakland and Berkeley. Ca There can always be some off-the-wall to justify this, just like in the rain Forests of our planet.
Please do not fall into this cut-at-will mentality. We need the trees more than we might need to have them removed.
One might ask : Who benefits from the the destruction of these trees? It certainly isn't the citizenry.
Linda Richards
lindarichards2004@yahoo.com

EBH-EIS-FEMA-RIX

From: Tom Klatt [tklatt@berkeley.edu]
Sent: Friday, August 27, 2010 2:09 PM
To: 'EBH-EIS-FEMA-RIX'
Cc: jmcdougall@cp.berkeley.edu
Subject: FW: East Bay Hills EIS - Comments
Attachments: EBH.EIS.docx

FEMA-URS:

Berkeley City councilmember Capitelli sent me his comments, attached.

Tom

Tom Klatt
Environmental Projects Manager
Vice Provost - Teaching, Learning, Academic Planning & Facilities
and
Capital Projects - Physical and Environmental Planning
510-847-7575

From: Capitelli, Laurie [mailto:LCapitelli@ci.berkeley.ca.us]
Sent: Thursday, August 26, 2010 4:39 PM
To: Tom Klatt
Subject: East Bay Hills EIS

Tom,

Councilmember Capitelli regrets he is not available to personally comment on the East Bay Hills fire safety project. Please see his comment attached.

Thank you.

Jill A. Martinucci

aide to Laurie Capitelli

Berkeley City Council, District 5

510-981-7150

<<EBH.EIS.docx>>

LAURIE CAPITELLI

Berkeley City Council
District 5

August 26, 2010

EBH – EIS
P.O. BOX 72391
Oakland, CA 94612

Comment Re: EIS for Fire Risk Reduction, East Bay Hills, California

I write to conditionally support the fire risk reduction plan as outlined in the grant application submitted by the University of California, the Easy Bay Regional Parks District and the City of Oakland.

In the spring of this year, I had the pleasure of touring areas of the East Bay Hills that have already benefited from previous fire risk reduction efforts. Eradicating fast-growing invasives and allowing native trees to reclaim the area is key to the long term risk-reduction strategy.

But, as a representative of the City of Berkeley, I am sensitive to implications of herbicide use for the watershed areas downstream in Berkeley. Therefore I request that any project include a study of the short term and long term implications of the use of herbicides and any necessary mitigation, if necessary, to prevent adverse effects, downstream.

Thank you for this opportunity to comment on the plan.

Regards,

Laurie Capitelli

CC: Tom Klatt, Environmental Projects Manager

2180 Milvia Street, Berkeley, CA 94704 Tel: 510.981-7150 Fax: 510.981-7155 lcapitelli@ci.berkeley.ca.us

EBH-EIS-FEMA-RIX

From: tko661gmail.com [tko661@gmail.com]
Sent: Monday, August 30, 2010 1:41 PM
To: EBH-EIS-FEMA-RIX,
Subject: no tree cutting!!!

Not only has the East Bay Regional Park District, the City of Oakland and UC Berkeley all put in grant requests to the Dept of Homeland Security and FEMA to cut down over 1000 trees and apply pesticides on a continual basis; due to Measure CC, an innocuous sounding Measure that many innocent people approved, 500,000 trees are also on the chopping block. One might ask the question, Why Now? We've had an incredibly wet year and a summer so cold its in the record books. It isn't as if wildfires are something new to California and its been 20 years since the Oakland Hills firestorm. The pretext that it's to prevent fires and reduce fuel load doesn't compute.
When they cut down all the big trees, Pines, Eucalyptus and Acacias, we will be left with an Oak and Bay landscape, similar to Los Angeles where fires are always raging. Cutting down tall trees, which may scar but do not burn down in a fire is counterproductive. Contrary to popular propaganda, Eucalyptus trees do not "explode". They have saps and oils that, when heated, run and they flare, but wildfires start in grass. Yearly requirements to cut grasses, clear brush, trim low hanging tree limbs up 6 feet or so from the bottom of large trees and make sure branches don't overhang roofs, in addition to more inspections by Oakland Fire trucks, have resulted in no repeats of the Hills fire in two decades.
So, why now? Maybe because state funding has dried up due to the economy and public agencies are scrambling for money to avoid layoffs or salary reductions? Maybe because cutting trees on ridges clears the way for more housing development? Whatever the monetary reasons,we have to find a better way for finding funding than destroying the natural beauty of our local parklands. To those so opposed to non native, illegal "alien" trees, landscapes can not be static. They are continually changing. Those native trees were once not natives.
Refer to the writings of Dr. Daniel Harder, head of UC Santa Cruz Arboretum. We don't want our tax dollars used to destroy our Regional Parks. They are in the process of doing an environmental impact statement and will be receiving comments until October 1. Thanks.

--
Thanks,
Tracy

EBH-EIS-FEMA-RIX

From: Ray Johnston [rayjsham@gmail.com]
Sent: Monday, August 30, 2010 4:37 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

Re: Claremont Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-003) Public Scoping Meeting of August 26, 2010 I would like to express my support for the efforts to reduce the hazardous fire risk in the Claremont Canyon located in the East Bay Hills, California. I attended the evening meeting of August 26 and was pleased to hear almost unanimous support from the attendees making public comments, regarding the need to reduce non-native vegetation. Most wanted the removal process done in such a way that it would not have to be totally repeated several years down the road. The use of herbicides seemed to be the biggest concern for some speakers. I do not know about the other herbicides mentioned for use but do have some experience with garlon. I am the president of a small condo association that had an arborist remove six eucalyptus trees eight years ago, and had garlon applied to the cambium layer at the time of cutting. With no followup applications required, there has been no re-sprouting from the stumps and the surrounding vegetation does not appear to have suffered any bad side effects. This the same technique to be used in the action plan for Claremont Canyon. To address the concerns about the use of garlon, may I suggest a water sample test of the streams that result from runoff in other parts of Claremont Canyon. Some of those areas have previously been cut and had garlon applied. Is there any trace of garlon in the water? If not, I would strongly recommend it's use by proper application in the proposed Claremont Canyon Vegetation Management Project. Ray Johnston 2723 Ashby Pl, Apt F Berkeley, CA 94705

EBH-EIS-FEMA-RIX

From: Shani Heckman [shaniheckman@gmail.com]
Sent: Monday, August 30, 2010 5:20 PM
To: EBH-EIS-FEMA-RIX,
Subject: concern over tree harvesting

Dear East Bay Regional Park Representative.
I am writing b/c I am very concerned about the trees you are suggesting to cut down in East Bay Regional Parks.

Especially, I am concerned about the Pine and Buckeye trees. My concern stems from the fact that many of these trees are old and provide much needed shade and shelter for both humans and wildlife. If these trees were being replanted with Oaks, Redwoods and Douglas Firs I wouldn't be so concerned but when I hear they are to be replaced with flammable grasslands--I have to wonder, why chop any trees down at all?

Before any trees are removed, there should be a plan of action to increase the existing level of trees through replanting. It is well known that a variety of California's trees are threatened by both the beetle and a hotter climate--now is not the time to remove our trees.

thank you for listening and recording my request.

Shani Heckman

--
shani heckman

shanestar productions
www.shanestar.org
New: www.mostunwantedfilm.org
415-206-9392

EBH-EIS-FEMA-RIX

From: Desire3160@aol.com
Sent: Monday, August 30, 2010 6:46 PM
To: EBH-EIS-FEMA-RIX,
Subject: PLEASE...

...don't cut down trees in the SF Bay area! STOP the continued destruction of our natural resources.

thank you

EBH-EIS-FEMA-RIX

From: tko661gmail.com [tko661@gmail.com]
Sent: Tuesday, August 31, 2010 2:21 PM
To: EBH-EIS-FEMA-RIX,
Subject: who would approve this????

1000 acres, not trees are to be cut in the project not funded by Measure CC and awaiting the EIS and FEMA approval. I believe it's
500,000 trees to be cut in regard to Measure CC. The gist of it is,
our current parklands will be greatly changed. Deforestation also
causes climate change. Peter Scott, whose house burned down in the
1991 Hills Fire quotes from an article "Australia's Dry Run" in the April 2009 National Geographic (after the cutting down of red gum eucalyptus to plant rice and cotton) that the eucs had "captured moisture and helped drive cycles of rainfall." A drought ensued. As Scott writes in the Hills Conservation Network Newsletter, "Do they imagine there will be no impact on the humidity in the environment of our wooded hills, after the shading and moisture-capturing canopy of tall trees is gone?" Scott concludes, "The Australian example is of a larger scale, but it is relevant." and, "Cutting large numbers of trees in our hills will only contribute to climate change and to a less fire-safe environment."

Please do not endorse this measure. After what Oakland has been
through in the past, anyone in their right mind would know this is walking a very
dangerous path for fire and climate destruction.
--
Thanks,
Tracy

EBH-EIS-FEMA-RIX

From: janet moore [apricotjan2009@att.net]
Sent: Tuesday, August 31, 2010 8:52 PM
To: EBH-EIS-FEMA-RIX,
Subject: Parklands in the Oakland, California area and East Bay Hills

To whom it may concern:
I am a resident of Oakland, California. I oppose any extensive cutting of trees in the East Bay Regional Parks. Instead, I urge you to approve of mowing grass lands, trimming tress of branches that are within 6 feet of the ground, and keeping brush cleared from around houses. These measures seem to be effective fire prevention, and allow habitat for birds, wildlife and hikers to enjoy and thrive in. Please do not remove healthy trees, when trimming weeds will do the trick!
Respectfully submitted,
Janet Moore
3006 Courtland Avenue
Oakland, CA 94619

EBH-EIS-FEMA-RIX

From: mike rogers [rogers88@comcast.net]
Sent: Wednesday, September 01, 2010 10:42 AM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

PLEASE do no remove all the trees and vegetation you are proposing. We live in the hills and we live there because we want to live near nature - and we understand the risks. There are a multitude of problems you could cause with this massive destruction of nature. Just one recent example is a similar project taken on down in Monterey which has now destroyed the Monarch Butterfly population. This is our neighborhood and you have no right to come in and destroy it!

EBH-EIS-FEMA-RIX

From: Linda Giannoni [lindgia@att.net]
Sent: Thursday, September 02, 2010 12:14 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

This project would be a waste of hard-earned taxpayers' money for environmental devastation that would increase fire hazard instead of reducing it, lead to erosion and landslides, and poison our soil, air and water for years to come. Tree removal would increase heat and dryness in surrounding areas and remove wind breaks, as well as causing soil erosion. All trees provide cooling shade and a moisture-capturing canopy, along with soil-holding roots. Native birds and animals have adapted to introduced trees and need them for nesting and cover. This project would kill thousands of animals outright and destroy their habitat far into the future. Applying herbicide will intensify and prolong the death toll. We humans would also be poisoned and sickened (with cancer, asthma, COPD and other illnesses), especially those who live nearby and those who use the parks for what should be healthy recreation. This poisoning would become more widespread when rains wash the chemicals into watersheds and when the Santa Anna winds blow the dusty eroded soil into our air for miles around. It would be better to continue and increase existing fire prevention, which is working, and to creatively institute a variety of other measures, including: 1. Create and enforce strict regulations about building materials used in the hills area, in particular outlawing wood roofs. 2. Require sprinkling systems in those areas. It is a high-income area, where homeowners can afford it. 3. Hire unemployed citizens of Oakland to remove dead tree litter from the ground and remove low-hanging dead tree limbs. Though this is a slower and labor intensive method, it would work, and it would help deal with the emergency of joblessness, hunger and homelessness that already exists in Oakland without poisoning anyone and without devastating the beautiful green belt that we are so fortunate to have and that many Bay Area people have lovingly worked to preserve and maintain. A question: Would developers be allowed to build on any of the cleared land? I would hope not, but if so, this should be made public knowledge.

EBH-EIS-FEMA-RIX

From: Marg Hall [sismhall1@aol.com]
Sent: Monday, September 13, 2010 4:03 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

Is this how I submit comments for scoping considerations for these proposals?? I have comments but am not sure this is the way to submit them. Thanks Marg Hall Berkeley, Ca 510-654-1366

EBH-EIS-FEMA-RIX

From: Mary McAllister [marymcallister@comcast.net]
Sent: Wednesday, September 15, 2010 7:05 AM
To: EBH-EIS-FEMA-RIX,
Subject: Comment for "public scoping" for Environmental Impact Study of FEMA grant applications
Attachments: Appendix A - RTAs in FEMA Grants.xlsx; Public Scoping for EIS.docx

My comments and an appendix to those comments for the "public scoping" for the Environmental Impact Study of FEMA grant projects in the East Bay Hills are attached. Please let me know if you have any difficult opening these documents.

Thank you for this opportunity to comment and for your consideration.

Mary McAllister
Oakland, CA

Appendix A: Recommended Treatment Areas (RTAs/ Polygons) in East Bay Regional Park District FEMA grant applications(1)

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
3	*	CC	Coastal Scrub (xeric) Annual Grassland Broom Scrub Coyote Brush Scrub Eucalyptus Forest	Perennial and annual grassland, oak-bay woodland	Invasive plant species of high concern in this RTA. Mow in spring to create a safety zone along East-West fire trail. Remove pine trees on ridgeline to prevent widespread distribution of embers. Chemical treatment and prescribed burns may also be considered. Successful treatment requires a commitment to carefully timed rotation of mowing-burning-grazing to control or reduce broom invasion.	13.8	0.2			yes 80%	p
6		CC	oak-bay woodland Coastal Scrub (xeric)	oak woodland w/ understory of oak little and/or herbs/ferns, grasses w/ short, scattered or low volume scrub [sic]	Potential whipsnake habitat present. Suggest goat grazing during appropriate seasons to avoid impact to snakes. Limb up mature oaks after goat grazing. Mechanical treatments likely precluded by steep slopes.	3.3	0			yes 93%	p
7		CC	Coastal scrub (xeric) Annual Grassland	Perennial and annual grassland	Invasives are a concern in this RTA due to existing seedbed. Mow in spring to create a safety zone along the East-West fire trail. Consider grazing. Chemical treatment and prescribed burning may also be considered. Successful treatment requires a commitment to carefully-timed rotation of mowing-burning-grazing to control or reduce broom invasion.	1.7	0		yes	yes 83%	
8		CC	Oak-Bay Woodland Coastal Scrub (xeric) Developed Coyote Brush Scrub Eucalyptus Forest	Landscaping, scrub and oak woodlands, reduced proportion of bays in understory	Consider hand-labor treatments to create and maintain spacing between shrubs, and prune lower branches according to defensible space performance standards. Suggest mowing grasses, and removal of two-thirds of small (less than 4 inches) bay trees in understory, if feasible.	4	0.3			yes 72%	EBRPD

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
10		CC	Oak-Bay Woodland Coastal Scrub (xeric) Coyote Brush Scrub Eucalyptus Forest	North coastal scrub, oak woodland, eucalyptus forest	French broom and invasive plant species a concern. Consider goat grazing, mechanical treatment or hand labor to remove woodland understory and reduce scrub between woodlands. Recommend limbing up oak woodlands and removing two-thirds of small bay trees and one-third of medium sized (4-8" diameter) bay trees. Thin eucalyptus.	6.2	0.8		yes	yes 79%	P
1		SR	oak-bay woodland non-native coniferous forest coyote brush scrub	Oak-bay woodland. Monterey pine with sparse understory	Invasives are a concern in this RTA due to existing seedbed. Remove understory shrubs and young pine beneath mature pines; also remove structurally weak mature pines. Small RTA size limits mechanical treatment unless combined with other areas; all other treatment methods are suitable.	7.9	0	2.6		yes 78%	P
4		SR	Oak-bay woodland coastal scrub (xeric) Annual Grassland	oak-bay woodland, scattered north coastal scrub, annual grassland	Presence of steep slopes likely preclude off-road mechanical treatments. Remove shrubs emerging oak-bay trees to speed succession to oak-bay woodland within 100 feet of road. Shortening grasses (mowing/grazing) may be necessary.	12.9	0			yes 75%	

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
6	*	SR	Eucalyptus forest	Thinned eucalyptus. Monterey pine, oak-bay woodland and scattered north coastal scrub	Communication tower located in RTA is vital infrastructure, consider the screening value of pines for the tower as it is located on a prominent ridgeline. Create defensible space around tower. Above trail, thin eucalyptus and pines to 25-foot spacing, selecting for removal those trees above well-developed oak-bay woodlands and elsewhere remove those trees that are smaller, unhealthy or have multiple trunks. Emphasize surface fuel reduction under retained trees, prune trees to 8-foot height in thinned areas. Mechanical treatments are most suitable for tree removal, but all treatment methods are suitable for surface fuel treatment. Conduct nest surveys when appropriate to avoid impacts to nesting raptors.	38.4	38.4			yes 63%	
1		HP	Eucalyptus forest	Oak-bay woodland near road, thinned eucalyptus below.	Conduct nest surveys when appropriate to avoid potential adverse affects on nesting raptors. Steep slopes require erosion control measures for mechanical treatments. Remove eucalyptus to w/in 100 feet of ridgeline, thin trees below ridgeline to 25-foot spacing, selecting for removal smaller trees, unhealthy trees to those with multiple trunks. Prune all retained trees to 8 feet. Emphasize surface fuel reduction in follow-on treatments. Mechanical treatment is suitable for tree removal, all methods are suitable for surface fuel reduction.	1.7	1.7			99%	

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
2		HP	Oak-Bay woodland Northern Maritime Chaparral Pallid Manzanita	Oak-bay woodland, pallid manzanita, scattered north coastal scrub	Presence of Pallid Manzanita requires hand labor treatments to avoid impacts. Remove non-manzanita shrubs to reduce fuel volume, and prune retained trees. Consider pile burning to reduce fuel load.	13.6	0			yes 97%	P
3		HP	Northern Maritime Chaparral Pallid Manzanita	Oak-bay woodland, pallid manzanita, scattered north coastal scrub	Presence of Pallid Manzanita requires hand labor treatments to avoid impacts. Remove non-manzanita shrubs to reduce fuel volume, and prune retained trees. Consider pile burning to reduce fuel load.	1.1	0			100%	P
4		HP	Oak-Bay woodland Coastal Scrub (mesic) Pallid Manzanita	Oak-bay woodland, pallid manzanita, scattered north coastal scrub	Potential presence of Pallid Manzanita requires hand labor treatments to avoid impacts. Remove non-manzanita shrubs to reduce fuel volume, and prune retained trees. Consider pile burning to reduce fuel load.	1.6	0			100%	P
2		RD	Eucalyptus Forest	Oak-bay woodland near road, thinned red gum below.	Conduct nest surveys when appropriate to avoid potential adverse affects on nesting raptors. Steep slopes require additional mitigation measures for treatments using heavy machinery Remove eucalyptus to w/in 100 feet of ridgeline, thin trees below ridgeline to 25-foot spacing, selecting for removal smaller trees, unhealthy trees to those with multiple trunks. Prune all retained trees to 8 feet. Emphasize surface fuel reduction in following initial treatment by removing forest litter, dead bark and branches, and understory shrubs. Mechanical treatment is suitable for tree removal, all methods are suitable for surface fuel reduction.	5	5			yes 74%	

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
3		RD	Eucalyptus Forest Riparian Woodland Coyote Brush Scrub Oak-Bay Woodland Redwood Forest Developed	Red-gum eucalyptus w/ sparse understory	Treatment of this RTA is low priority. Reduce shrub under eucalyptus trees through grazing. Dense tree spacing not conducive to mechanical treatment, and hand-labor not likely suitable due to large size of the treatment area. Avoid treatments in all willow areas.	27.6	10.2			yes 38%	
4		RD	Non-native coniferous forest Oak-Bay woodland Coyote Brush Scrub Developed Eucalyptus Forest	Annual grassland, scattered Monterey Pine, oak-bay woodland	Long history of treatments in this RTA. Emphasize understory and surface fuel treatments by removing forest litter. dead bark and branches, and understory shrubs. All treatments are suitable. Enhance conditions for Oakland star tulip and western leatherwood where appropriate.	28.4	0.4		yes	yes 62%	P
5a		RD	Eucalyptus Forest	Annual grassland safety zone	Installation of firefighter safety zone is a high priority; installation of safety zone would require removal of all eucalyptus trees w/in the RTA. Use of mechanical treatments best for tree removal.	1.1	1.1			yes 65%	
5b		RD	Non-native coniferous forest Redwood forest Coyote Brush Scrub Annual Grassland Oak-Bay woodland	Scattered Monterey pine, oak-bay woodland, annual grassland, redwoods, landscaping	High priority is to create defensible space around Chabot Space and Science Center. Remove structurally unsound mature pine trees and those and those above well developed oak-bay woodlands. Prune all retained trees and emphasize fuel treatments by removing shrubs under trees. Also consider removing young pines and keeping shrub cover to less than 30%.	8.4	0	4.5		9%	P

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
9		RD	Eucalyptus Forest Developed Coastal Scrub (xeric) Oak-Bay woodland	Oak-bay woodland near road, perennial grassland under eucalyptus further up road	Creating and maintaining defensible space around fire station is a high priority. Remove coyote brush to restore annual grasslands within 200 feet of fire station, or where feasible. Remove all shrubs under eucalyptus and oak-bay trees to 8 feet.	9.6	5.8			yes 68%	EBRPD
1		AC	Oak-Bay Woodland Annual Grassland Eucalyptus Forest Coastal Scrub (xeric) Developed Non-native coniferous forest	Oak woodland w/ herbaceous understory, patches of shrubs, occasional eucalyptus trees and pines	Steep slopes may preclude use of machinery. Use hand labor or goat grazing to remove understory of shrubs for oak woodlands and create grassy openings in shrub patches to reduce fuel volume.	9.6	1.3	0.2		88%	P
4	*	AC	Coastal scrub (xeric) Oak-Bay Woodland Coyote Brush Scrub Non-native coniferous forest	Oak savannah with grassland on east, oak woodland on western slope below houses, scattered north coastal scrub	Invasive species present (especially hemlock); control and monitor annually for species composition. On eastern slope, maintain patches of shrubs and isolated trees w/ a combination of goat grazing and prescribed burns. Recommend mowing hemlock and managing for invasives. On western slope use hand labor or goat grazing to reduce shrub volume and provide growing space for emerging trees. Prune all trees of lower branches. Consider burn piles on western slope to remove dead material.	23.5	0	0.4		yes 71%	P
6	*	AC	Coyote Brush Scrub Oak-Bay Woodland Coastal Scrub (xeric) Non-native Coniferous Forest Eucalyptus forest Annual Grassland	Oak-bay woodlands, scattered eucalyptus and pines, all w/ minimal understory vegetation	Steep slopes and lack of access behind homes limit treatment access. Prune mature trees 100-150 feet below property boundaries; pack out cut debris into depressions on slope away from homes.	30.8	1.2	1.3		yes 54%	P

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
7	*	AC	Coyote Brush Scrub Eucalyptus Forest Coastal Scrub (xeric) Annual Grassland Non-native coniferous forest Oak-bay woodland Developed Redwood forest Broom Scrub	In south and west areas annual grassland. On east and north area, oak woodland w/ understory of herbs and scattered north scrub, redwood forest	Steep slopes on east side of RTA limit the types of tree cutting and removal operations possible. Consider annual control and monitoring of invasive species; proximity to homes limits herbicide application to hand applied methods. On eastern edge remove eucalyptus to minimize ember production and distribution. Prune all trees retained. On western side of RTA graze to limit shrub encroachment and apply herbicides to invasives.	97.6	21.9	6.3		yes 31%	P
11	*	AC	Eucalyptus Forest Coyote Brush Scrub Oak-Bay Woodland Developed Annual Grassland	Mature eucalyptus stands, grassland w/ scattered shrubs in fuelbreaks, oak-bay woodlands	Steep slopes may preclude machinery or require specific logging techniques to minimize soil disturbance. Consider maintaining fuelbreaks and thinning eucalyptus stand using prescribed burns and mechanical treatments according to performance standards. In areas of well-developed native understory, consider removing eucalyptus from over-story	112.1	86			45%	
12		AC	Coyote Brush Scrub Eucalyptus Forest	Oak-Bay woodland, mature eucalyptus stands	Steep slopes may preclude machinery or require specific logging techniques to minimize soil disturbance. Consider thinning eucalyptus to expand fuel break and all eucalyptus where oak-bay woodland understory is well developed	28.4	9.5			42%	

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
13	*	AC	Eucalyptus Forest Annual Grassland Coyote Brush Scrub Developed	Mature eucalyptus, mowed grass, shrubs nearest campgrounds, landscaping	Manage vegetation to allow screening for privacy in campground. Ensuring public safety and ability to evacuate campers and visitors in an emergency is top priority. Thin selected areas of eucalyptus to reduce fuel volume and retain screening around campground by establishing shrubs between campgrounds. Select for removal those that provide screening and still avoid creation of ladder fuels. Protect trees and areas used by great blue heron for rookery.	209.4	183.2			49%	
14		AC	Coyote Brush Scrub Annual Grassland Oak Bay Woodland Coastal Scrub (xeric) Eucalyptus Forest Riparian Woodland	Short grass	Potential Alameda whipsnake habitat. Install safety zone for campers by alternating between grazing and mowing shrubs. Size of wildfire refuge or shelter in place area needs to be large to protect all park visitors/campers.	93	0.4		yes	32%	
9		LC	Annual Grassland Coastal Scrub (xeric) Coyote Brush Scrub Developed Oak-Bay Woodland	Grassland, oak-bay woodland	Maintain short grass height through grazing, mowing or prescribed burns. In 2008 the Fire Dept conducted some treatment activities in this RTA that may change some portions of RD001 from Initial Treatment to Maintenance. Changes in the designation and vegetation types will be reflected in future Fire Action Plans.	281	0		yes	9%	P
10		LC	Annual Grassland Coastal Scrub (xeric) Oak-Bay Woodland	Oak-Bay woodland w/ minimal understory vegetation	Maintain minimal understory through goat grazing or hand labor treatments.	4.8	0			6%	P

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
5		LE	Coastal Scrub (xeric) Annual Grassland Non-native coniferous forest Oak-Bay Woodland	Perennial grasses, scattered coastal scrub, oak-bay woodland	Steep slopes and lack of access behind homes limits use of mechanical equipment. Access off Lexford Place is possible, but riparian corridor limits travel to south. Reduce shrub volume and dead material to performance standards.	4.6	0	0.2		yes 75%	P
6		TI	Oak-Bay woodland Eucalyptus Forest Broom Scrub Developed Coyote Brush Scrub	Emerging oak-bay woodland	Due to presence of steep topography and mapped landslides, potential for soil movement may preclude use of heavy machinery. Keep deep-rooted plants where feasible to stabilize soil. Potential for French broom spread is high if ground disturbance occurs. Removal French broom, eucalyptus trees and sprouts as well as north coastal scrub to speed succession to oak woodland, prune trees according to oak woodland performance standards. Retain any willows, but remove deadwood and prune lower branches. Enhance conditions for western leatherwood.	10.7	1.4			yes 52%	P
12	*brown	TI	Eucalyptus Forest Annual Grassland Non-native coniferous forest oak-bay woodland coastal scrub (xeric) coyote brush scrub redwood forest developed coastal scrub (mesic)	Thinned eucalyptus, redwood oak-bay woodland, annual grassland, north coastal scrub	Reduce surface fuel volume by removing forest litter, dead bark and branches, and understory shrubs. Thin eucalyptus to 25-foot spacing, selecting for removal those eucalyptus around oak-bay woodlands and elsewhere emphasize removal of small or unhealthy trees, or those with multiple stalks. Prune lower branches of trees.	90.8	35.4		yes	42%	P
12	*	TI									

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
13	brown	TI	Eucalyptus Forest Annual Grassland Non-native coniferous forest oak-bay woodland coastal scrub (xeric) coyote brush scrub Riparian woodland	Existing forest canopy, including oak-bay woodland, scattered north coastal scrub	Reduce surface fuel volume by removing forest litter, dead bark and branches, and understory shrubs, Thin eucalyptus to 25-foot spacing, selecting for removal those eucalyptus around oak-bay woodlands and elsewhere emphasize removal of small or unhealthy trees, or those with multiple stalks. Prune lower branches of trees. All treatment methods are possible.	15.7	1.4			87%	
14	brown	TI	Eucalyptus Forest	oak-bay woodland, scattered north coastal scrub	Conduct nest surveys when appropriate to avoid potential adverse effects on nesting raptors. Consider removing eucalyptus within 100 feet of ridgeline. Mechanical treatments are possible, but others may be less disruptive due to slope conditions.	3.5	3.5			71%	
15		TI	Annual Grassland Non-native coniferous forest oak-bay woodland coastal scrub (xeric) coyote brush scrub Redwood Forest Developed	oak-bay woodland, redwoods, scattered north coastal scrub	Consider aesthetic resources and screening for Little Steam Train area. Consider enhancing defensible space around Little Steam Train and Corporation Yard. Prescribed burns may be facilitated by trails surrounding the RTA. All treatment methods are suitable when protective measures for Little Steam Train and Corporation Yard are included. Enhance condition for western leatherwood.	54	0	3	yes	yes 37%	EBRPD

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
16	brown	TI	Eucalyptus Forest	Emerging oak-bay woodland, north coastal scrub, annual grass	Conduct nest surveys when appropriate to avoid potential adverse effects on nesting raptors. Remove eucalyptus within 100 feet of ridgeline. Mechanical treatments likely precluded due to steep slopes and small size of RTA. Based on GIS mapping provided by District, this polygon was included because it was part of the historic fuel break however it may not be land owned by the District. Further study is needed.	1.4	1.4			75%	
17	brown	TI	Non-native coniferous forest	Emerging oak-bay woodland, north coastal scrub, annual grass	Conduct nest surveys when appropriate to avoid potential adverse effects on nesting raptors. Remove eucalyptus within 100 feet of ridgeline. Mechanical treatments likely precluded due to steep slopes and small size of RTA.	0.9	0	0.9		51%	
19	?	TI	Eucalyptus forest	annual grassland, scattered north coastal scrub, or thinned eucalyptus	Conduct nest surveys when appropriate to avoid potential adverse effects on nesting raptors. Remove eucalyptus or thin and maintain with prescribed burns those grassy fuels under trees where lower branches have been limbed.	2	2			yes 77%	
22		TI	Annual Grassland Non-native coniferous forest coyote brush scrub Developed	Annual grassland, scattered pines	Communication tower located in RTA is vital infrastructure, consider the screening value of pines for the tower. Prune lower pine branches up to 10 feet. Create and maintain low fuel volume surface fuels, such as grasses. Mechanical treatments are limited here due to steep slopes, small RTA and nearby fenceline.	6.4	0	2.9		60%	EBRPD

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
9		WC	Coyote Brush Scrub	Speed succession to oak woodland by removing shrubs that limit growing conditions for trees	Riparian plants (willows) are present, assess for possible riparian/wetland located in this area. Remove all deadwood in willows and prune lower branches to retain willow thickets. Retain coffeeberry and prune shrubs similar to trees; create defensible space according to performance standards	1.7	0			yes 97%	P
4		WC	Annual Grassland Oak Bay Woodland Coastal Scrub (xeric)	Annual grassland and north costal scrub, scattered oaks and eucalyptus	Willows exist on eastern edge of southern portion of polygon; except for debris removal and pruning, treatments should be avoided where possible in these willows. To the east of nearby homes annually graze or mow grasslands to performance standards. South of water tank mowing should continue as treatment option, as should pruning eucalyptus and removing short pines and small eucalyptus.	8	0		yes	yes 33%	P
9		WC	Oak-Bay Woodland Coastal Scrub (mesic) Riparian Woodland Coastal Scrub (xeric)	Emerging oak woodland with ferns, oak litter, no understory shrubs, patches of north coastal scrub	Riparian plants (willows) are present, assess for possible wetlands. Remove all deadwood in willows and prune lower branches of willows. French broom may become established on bare ground, so chipping and distributing cut material should be done. Removal north coastal scrub by hand if cost-effective, and prune trees according to performance standards.	11.5	0		yes	yes 33%	P

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
10		WC	oak-bay woodland coastal scrub (mesic) coastal scrub (xeric)	Oak woodland w/ willows, emerging oak woodland	Due to presence of steep topography and mapped landsides, potential for soil movement may preclude use of heavy machinery. Consider keeping deep-rooted plants onsite where feasible to stabilize soil. Potential for spread of French broom is high if ground disturbance occurs due to existing seedbed. Consider removing north coastal scrub to speed succession to oak woodland and pruning trees according to oak-woodland performance standards.	10.8	0			yes 70%	P
11		WC	coastal scrub (mesic) oak-bay woodland riparian woodland annual grassland eucalyptus forest developed coastal scrub (xeric)	Emerging and established oak woodland, grasslands where no trees exist	Steep slopes, high soil moisture and landslide history may preclude use of heavy machinery; keep deep rooted plants where feasible to stabilize soil. Potential for French broom spread is high if ground disturbance occurs due to existing seedbed. Consider removing north coastal scrub to speed succession to oak woodland and prune trees according to oak woodlands performance standards, or remove dead material and shrubs and prune willows to promote a shift to grassland (which lends itself to mowing as future management action).	34.8	1.1			yes 71%	P

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
1		MK	broom scrub coastal prairie annual grassland coastal scrub (mesic) coastal scrub (xeric) non-native coniferous forest	Same types as currently there with increasing proportion of oak-bay woodland and grass, less scrub and pine. Grass w/ scattered shrubs on south aspect of hillside, scattered north coastal scrub on north aspect of hillside. Manage areas to stop pine seedling growth.	Consider visual resources as there is a view from top of hill; consider retaining pine trees that frame the view. Hi levels of recreation use in this area. Consider mechanical treatments to reduce shrubs and hand labor treatments to limb up trees of lower branches, if feasible. Remove all small pines of less than 12 inches in diameter to approximately 20 ft minimum spacing. Remove all dead pines, and selectively remove shrubs on north aspect. Retain all oaks and bays on north aspect.	5.9	0.5			yes 70%	P
3		MK	coastal prairie annual grassland	Landscaping, annual grassland, scattered shrubs, pruned oaks and pines	Create and maintain spacing according to defensible space performance standards. Consider using hand labor.	2.7				56%	P/EBRPD
4		MK	non-native coniferous forest coastal scrub (xeric)	Open pine stand	Thin pine stand to 50% canopy using mechanical treatment. Select for removal smaller, unhealthy pine trees, and remove all trees below the ridgeline for a distance equal to the height of the tree to prevent ember spread across the ridgeline under a westerly wind. Remove all understory.	3.2		2.9		yes 72%	

RTA	Partial (2)	Park	Vegetation Type	Vegetation Management Goal	Considerations and Guidelines	Total Acres	Eucs Acres (3)	Pine Acres (3)	Main-ten-ance	Slope > 30% (4)	w/in 200 ft of structure (5)
5		MK	coastal prairie annual grassland coastal scrub (mesic) coastal scrub (xeric) non-native coniferous forest	Scattered scrub and grass w/in 50 ft of road. No pines w/in 40 ft of ridgetop. Lower on north-facing slope, north coastal scrub on north aspect, incipient oak-bay woodland, emerging pine stand	Need to coordinate w/ private property owner at entry of trail to manage fuels. Removal of invasive weeds will likely necessitate continued management. Cut French broom and then manage w/ subsequent chemical treatment, if feasible. Control measures for other invasive weed species (e.g., sourgrass, ivy) will likely require a specific plan. Thin shrubs and prune trees according to scrub vegetation performance standards. Suggest treatments extend on both sides of road to create a fuel break. Recommend avoiding thinning or pruning buckeye trees. Cut pines w/in 50 ft of the ridgetop and scatter cut branch pieces on site; boles should be located and oriented to minimize erosion and prevent their rolling downhill.	10		0.1		yes 41%	

(1) Source: Table III-2, "Wildfire Plan" EBRPD
(2) * = portion of RTA in grant, brown = PDM-PJ-09-CA-2006-04
(3) Source: Appendix F, "Wildfire Plan"
(4) yes = USGS designated slide area
(5) P = private structure; EBRPD = EBRPD structure; Source: Appendix E, "Wildfire Plan"

Comments on Public Scoping for Environmental Impact Statement
FEMA Grant Applications in the East Bay Hills

This public comment is divided into the following sections:

Part I: These grants should not be funded because they do not comply with FEMA Wildfire Mitigation Policy MRR-2-08-1, "Wildfire Mitigation Policy for HMGP and PDM Program"

Part II: How can these grant applications be revised to mitigate fire hazard and comply with grant policy?

Part III: If any or all of these projects are funded in full or in part, these are the environmental issues that must be analyzed and mitigated by the Environmental Impact Statement

Part I: These grant applications do not comply with FEMA's "Wildfire Mitigation Policy for HMGP and PDM Program"

FEMA's policy MRR-2-08-1 for Hazard and Pre-Disaster Mitigation Grants states that FEMA grant funding is available for the following purposes:

- Creating defensible space
- Structural protection through the application of ignition-resistant construction, and
- Limited hazardous fuels reduction to protect life and property

The overall goal of these actions is defined by the policy as follows:

> **"FEMA hazard mitigation assistance for wildfires is ONLY focused on long-term and cost-effective actions taken to reduce the risk to specific property or structures from future wildfires."**

With a few exceptions that will be identified later in this comment, all of the applicants' projects are for the purpose of hazardous fuels reduction. Unfortunately these projects will reduce fuel without reducing fire risk "to specific property or structures." Therefore they should not be funded.

None of the projects of UC Berkeley and the City of Oakland will achieve the objective of reducing risk of future wildfires because they propose to eradicate all non-native vegetation, leaving all native vegetation intact. Since non-native vegetation is not uniformly more flammable than all native vegetation, overall fire risk will not be reduced by these projects.

California native ecology is adapted to and sustained by fire[1]. The native landscape is not uniformly less flammable than non-native plants and trees. Most firestorms in California are wind-driven fires[2] in which everything burns, including native and non-native trees and plants as well as any buildings in the path of the fire[3].

The projects of the East Bay Regional Park District are less uniform in their approach, using a range of methods from the removal of all non-native trees in some areas at one extreme to thinning of both native and non-native vegetation at the opposite end of the spectrum. We will critique the most frequently cited "vegetation management goal" in the projects of the East Bay Regional Park District (EBRPD) with respect to its effectiveness as a means of reducing fire hazard.

There are 47 "Recommended Treatment Areas" (RTAs or portions of them) in the FEMA grant applications of EBRPD. These RTAs (AKA polygons) are described in Appendix A of this document. The source of the information in Appendix A is the "Wildfire Hazard Reduction and Resource Management Plan" of the East Bay Regional Park District. John

[1] Sugihara, Neil and Barbour, Michael G, "Fire and California Vegetation," in Sugihara, Fire in California's Ecosystems, UC Press, 2006.
[2] Keeley, Jon, "Fire Management of California Shrublands," in Proceedings of the California's 2001 Wildfire Conference: 10 Years after the 1991 East Bay Hills Fire, UC Berkeley, 2001
[3] "East Bay Hills Fire Oakland-Berkeley, California," United States Fire Administration, Technical Report Series, FEMA

Swanson, Assistant Fire Chief of the East Bay Regional Park District, informed us at the "scoping meetings" on August 26, 2010 that EBRPD's FEMA application is based on its "Wildfire Plan."

The "vegetation management goals" for the RTAs in EBRPD's FEMA applications are predominantly oak-bay woodland. Thirty-seven of the 47 (80%) RTAs in the FEMA grants are destined to be oak or oak-bay woodland if this project is implemented. Therefore, we will evaluate EBRPD's assumption that oak-bay woodland will be less flammable than the existing landscape. We will cite the scientific and experiential evidence that oaks and bays are not less flammable than the non-native trees and shrubs that will be removed or thinned by the proposed FEMA projects.

First, the evidence regarding the flammability of oaks and bays:

Moisture The moisture content of vegetation is a factor in how easily it will ignite. Other conditions being equal, **the more moisture within the vegetation the less likely it is to ignite**. A study done locally in native vegetation reports that, "...**the [moisture] of the live oak was fairly constant throughout the fire season and at a lower moisture content than the other species**...the lowest moisture content was [47%] on September 30th..."[4] We don't have comparable information regarding moisture for eucalyptus because moisture content varies by specific location and climate conditions. However, the literature[5] generalizes the moisture content of the eucalyptus leaf as roughly 50%, which suggests that the **eucalyptus leaf probably does not contain less moisture than an oak leaf.**

Sudden Oak Death Since all dead vegetation contains less moisture than any living vegetation and is therefore more flammable, Sudden Oak Death is a related issue. The pathogen (*Phytophthora ramorum)* that causes Sudden Oak Death (SOD) was reported on the UC Berkeley campus in 2002.[6] At that time it also existed at the UC Botanical Garden, which is proximate to UC Berkeley's FEMA projects. By 2008, the SF Chronicle reported that the infestation of SOD existed in several parks in the East Bay, including several that are included in the project areas for the FEMA applications of EBRPD. **The researcher who is quoted in the Chronicle article estimated that about 20% of all coast live oaks in the East Bay are infected with the pathogen that will eventually kill them because there is no known cure.**[7]

In February 2008, the California Oak Mortality Task Force estimated that "**millions of tanoak and coast live oak" have been killed by SOD in California.**[8] Thirty four other species of trees and shrubs are also infected with the pathogen, including bay laurels and redwoods. Although these species are not usually killed by the pathogen they are vectors of the disease. **The bay laurel is singled out by the scientific literature as being particularly effective at transmitting the pathogen to the oaks that are then killed by it.**[9]

If SOD continues to spread in the East Bay hills and substantial numbers of oaks are killed by the disease, the resulting landscape will be far more flammable than the existing landscape. Therefore, projects such as those proposed by the applicants for FEMA grants, which promote a transition to oak-bay woodland have the potential to greatly increase the risk of fire in the future. Unless a cure is found for SOD, that can be economically administered, or the spread of the pathogen abates, these projects should not be funded, particularly by a fund source designated for the specific purpose of reducing fire hazard.

Embers Laboratory tests conducted by the USDA Forest Service on four species of native plants and trees found that native chamise and oaks loft embers absent any wind. In the case of oaks, the scientists report that "Many of the oak

[4] Rice, Carol, "Live Fuel Moisture, Fuel Bed Characteristics, and Fire Vegetation in the Berkeley/Oakland Hills," Master's dissertation, UC Berkeley, 1987.
[5] http://www.buzzle.com/articles/what-do-koala-bears-eat.html
[6] http://www.universityofcalifornia.edu/news/article/3880
[7] http://articles.sfgate.com/2008-11-26/home-and-garden/17127003_1_sudden-oak-death-tan-oaks-infected
[8] http://nature.berkeley.edu/comtf/pdf/HomeownersGuide2-08.pdf
[9] http://en.wikipedia.org/wiki/Sudden_oak_death

2

leaves had sharp points (i.e., spines) around the outer edge. **The oak leaves would ignite at these points, sometimes accompanied by small explosions of the points that led to the ejection of small brands."**[10]

A park ranger on Angel Island reported that embers from the burning oaks were responsible for nearly igniting the historical buildings on the island during the wildfire of 2008: **"'All the oaks up there were burning," said the 28-year veteran of the department. "It was an ember shower** that just rained on the entire building, and all the vegetation around us was burning.'"[11] Most of the eucalypts (80 acres) had been removed from the island about 12 years before the 2008 fire. The fire stopped at the edge of the remaining 6 acres of eucalyptus.

Volatile Oils Volatile oils are said to increase the likelihood of ignition, particularly by those who advocate for the destruction of eucalypts, which contain volatile oils. Native bay laurel also contains volatile oils: "In the fruit, there are essential oils and fatty oils present. The fruit is pressed and water extracted to obtain these products. The fruit contains up to 30% fatty oils and about 1% essential oils...The leaves contain about 1.3% essential oils (*Ol. Lauri folii*), consisting of **45% eucalyptol..."**[12] **In other words, the predominant oil in the leaf of bay laurel is the same oil in the leaf of eucalypts.**

The "Wildfire Plan" of the East Bay Regional Park District acknowledges the flammability of bay laurels: "Consider selecting young bay trees for removal, as bay trees tend to produce ladder fuels and are known for their oil content. This species also is known to be a vector of sudden oak death and may prevent oak regeneration." (page 190)

Fire Ladders The likelihood of a fire reaching the canopy of a tree, causing a crown fire which is more likely to disperse embers into the surrounding vegetation is increased by the existence of the tree's "fire ladder" to its crown. The fire ladder is composed of low-hanging branches that enable a fire traveling on the ground to move from the ground into the tree, via the "ladder." Both oaks and bays have low fire ladders, in many cases extending to the ground. It is not uncommon for the multiple trunks of the bay to actually lie on the ground, sending new stems vertically from its horizontal position. The coast live oak, which is the locally predominant species of oak, has a prostrate growth habit. Particularly in windy conditions, its canopy will "kneel" into the wind, putting its canopy up as an umbrella against the wind. **Both oaks and bays have much lower fire ladders than any of the non-native trees that are proposed for destruction by the FEMA grant projects**: eucalypts, Monterey pines, and acacias.

Duff and Leaf Litter The amount and composition of leaf litter are factors in ignition. The more likely the leaf litter is to ignite, the more likely the fire is to spread into the tree, causing a crown fire that disperses embers. Here is a description of the flammability of oak leaf litter from a website about the oak savannah:

"•Oak leaves and litter burn much more readily than the litter and leaves of other hardwoods.
• Oak leaves are much thicker than those of other hardwoods, giving them greater resistance to decomposition and longer life spans in the leaf litter.
• Oak leaves tend to be drier (more xerophytic) than other hardwood species, making them more flammable.
• Oak leaves curl more than other hardwoods. This puts the fire up off the ground, making it capable of spreading more effectively. Thus, oak leaves are more flammable and more capable of "carrying" a fire.
• Oak leaves contain tannins which make them more resistant to decay, so that it may be several years before all the leaf material has been turned into compost. Thus, the amount of burnable material on the oak forest floor is greater than that with other tree species."[13]

[10] Smith, Steven., et al. "Ignition Behavior of Live California Chaparral Leaves," USDA Forest Service, Riverside, CA
[11] "Tiburon battalion chief and Larkspur fire crew save historic Angel Island structure," Marin Independent Journal, 10/18/08
[12] http://en.wikipedia.org/wiki/Bay_laurel
[13] http://oaksavannas.org/fire-fuel.html

3

This description is consistent with my personal experience with the coast live oak tree in my front yard (which I love). I must rake the leaves weekly most of the year. The leaves are hard and brittle. Therefore, they do not compact and there is much oxygen in the leaf litter between the leaves, which promotes burning if ignition occurs.

These observations are confirmed by the plant and tree database of the US Forest Service, which says of the coast live oak: "Flammability of coast live oak and chaparral communities with a coast live oak component is of particular concern because of their high fuel loading and proximity to urban areas. Some fire-excluded chaparral habitats have fuel accumulations of 30 to 40 tons per acre."[14]

Secondly, the evidence regarding the flammability of eucalypts:

Moisture The tall, non-native trees condense the year-round fog in the San Francisco Bay Area: "Eucalyptus and pine groves planted there [Berkeley hills] long ago intercept large amounts of fog and cause a rainlike deposit of moisture. The fog drip during the summer months has been measured at a surprising 10 inches, an amount nearly half as great as the total rainfall..."[15] Average rainfall in the East Bay is 22 inches per year, so this fog precipitation adds nearly 50% to total precipitation. **By contributing moisture to the forest floor during the otherwise dry time of the year, tall non-native trees reduce fire danger. The moisture content of the duff and leaf litter diminishes the likelihood of ignition.[16] If the duff and leaf litter do not ignite, the fire is less likely to spread into the canopy of the tree.**

Because oaks and bays are not as tall as the non-native trees, they do not precipitate as much fog drip. The only tall native tree in the East Bay hills is the redwood. However, there aren't many redwoods in the East Bay hills because they do not tolerate wind and they require much more water than the non-native trees.[17] They are therefore not a suitable replacement for existing non-native trees.

Combustibility Scientists at the University of Tasmania conducted laboratory experiments on the plants and trees in the Tasmanian forest to determine the relative flammability of their native species. The predominant eucalyptus species in the San Francisco Bay Area, the Blue Gum eucalyptus (*E. globulus*), is native to Tasmania and was therefore included in this study. The study reports that, "*E. globulus* leaves, both juvenile and adult, presented the greatest resistance [to ignition] of all the eucalypts studied. In this case, leaf thickness was important as well as the presence of a waxy cuticle." Also, in a table entitled "Rate of flame front movement, the comment for *E. globulus* leaves is "resistant to combustion."[18] In other words, despite the oil content in the leaf, its physical properties protect the leaf from ignition.

These findings are corroborated by local wildfire experience. The National Park Service is one of many managers of public lands that are engaged in massive restorations of native plants that frequently result in the destruction of non-native trees. In support of that effort, NPS has published a brochure about eucalyptus. Deeply embedded in the fine print of that brochure, the park service admits that live eucalyptus leaves are resistant to fire: "The live foliage [of eucalypts] proved fire resistant [during a fire on Mt Tamalpais], so a potentially catastrophic crown fire was avoided."[19]

This brochure also contains a table comparing the fuel loads of eucalyptus with native oaks and bays. We find that the table has been carefully constructed to support their belief that eucalypts are more flammable than native

[14] http://www.fs.fed.us/database/feis/plants/tree/queagr/all.html
[15] Gilliam, Harold, Weather in the San Francisco Bay Area, UC Press, 2002.
[16] Schroeder, Robert, et. al., "Ember Ignitability of Pinus radiata and Sequoia sempervirens Litter: Methodology and Results," in Proceedings of the California Wildfire Conference: 10 Years after the 1991 East Bay Hills Fire, UC Press, 2001.
[17] http://www.fs.fed.us/database/feis/plants/tree/seqsem/all.html
[18] Dickinson, K.J.M. and Kirkpatrick, J.B., "The flammability and energy content of some important plant species and fuel components in the forests of southeastern Tasmania," Journal of Biogeography, 1985, 12: 121-134.
[19] http://home.nps.gov/pore/parkmgmt/upload/firemanagement_fireeducation_newsletter_eucalyptus_p2.pdf

4

trees. If logs–which would take 1,000 hours to ignite[20]–are removed from this table, **the available fuel load of eucalyptus is not greater than that of native oaks**.

The flammability of eucalyptus leaves is important to an evaluation of the grant applications of EBRPD because their projects propose to remove all eucalypts from ridgelines (RTAs HP001, RD002, AC007, RI014, TI016, TI017), based on their conjecture that they will loft embers and thereby spread fire from one side of the ridge to the other. **If the leaves do not ignite, they will not become embers.**

Furthermore, the tall trees on the ridgeline form a wind break, which has the potential to stop a wind-driven fire when it reaches the eucalypts which are resistant to ignition. This principle is best illustrated with a photo[21] of a wildfire in 2003 in San Diego County which destroyed an entire neighborhood of homes without spreading into the eucalyptus forest which surrounded them.

Destroying the windbreak by removing all tall trees from the ridgeline of the East Bay Regional Parks will change wind patterns in the East Bay hills. Wind-driven fire will be able to move unobstructed from one side of the ridge to the other if all the tall trees on the ridgeline are removed.

We cannot say with certainty that non-native trees are less flammable than native trees because we cannot find a study that compares them directly. However, we <u>can</u> say with certainty that there is considerable evidence that they are not <u>more</u> flammable than trees that are native to the San Francisco Bay Area.

---

[20] *For a technical explanation of timelag, we quote from Sugihara's <u>Fire in California Ecosystems</u>: "The proportion of a fuel particle that contains moisture is a primary determinant of fire behavior…Timelag is the amount of time necessary for a fuel component to reach 63% of its equilibrium moisture content at a given temperature and relative humidity [the point at which ignition occurs]. 1,000-hour fuels reflect seasonal changes in moisture…"*

[21] Source: New York Times, 10/27/03

The principles of evolutionary theory suggest that trees that evolved in similar climates will have similar properties. Most of our non-native trees are from a Mediterranean climate, much like our own climate. As the scientists at the University of Tasmania observed in their study of their native flora, "The range of energy values recorded in this study is...similar to documented levels in Mediterranean plant species."[22]

Therefore, the destruction of exclusively non-native trees in order to promote the growth of native species will not reduce fire hazard. In fact, it may increase fire hazard if SOD kills the natives or the windbreak is compromised by the removal of all tall trees or fog drip is significantly reduced, etc. Therefore these grant applications should not be funded.

There is one important caveat to this conclusion. FEMA's technical report on the 1991 fire does not single out eucalypts as the cause of that fire. The fire started in grass—as do most fires in California because grass ignites easily—and spread to predominantly native scrub and chaparral. The only specific mention of the role of eucalypts in the 1991 fire in the FEMA report is related to the deep freeze that occurred the winter preceding that fire: "The unprecedented drought was accompanied by an unusual period of freezing weather, in December 1990, which killed massive quantities of the lighter brush and eucalyptus. Dead fuel accumulated on the ground in many areas and combined with dropped pine needles and other natural debris to create a highly combustible blanket. Due to the fiscal cutbacks, governmental programs to thin these fuels and create fuel breaks were severely curtailed, so the fuel load was much greater than normal by the second half of 1991."[23] Such freezes, sufficiently deep and sustained, causing eucalypts (and other plants) to die back are very rare in the Bay Area. In fact, there has not been such a freeze in 20 years. Since they are rare, they can be easily mitigated by clearing the dead debris after such a freeze, a significantly more cost-effective and less destructive measure than destroying hundreds of thousands of trees.

Once again, FEMA's policy MRR-2-08-1 governing these grants is relevant: "FEMA hazard mitigation assistance for wildfires is ONLY focused on long-term and **cost-effective actions** taken to reduce the risk to specific property or structures from future wildfires." It is not cost-effective to remove hundreds of thousands of trees that are only a fire hazard in the unlikely event that a freeze causes those trees to die back. If such a freeze causes a flammable die back in the future, the dead leaf litter can be removed at significantly less cost as well as less impact on the environment. Removing die back will not require the repeated use of herbicides to kill the roots of the trees. And if the trees continue to live, they will continue to perform their function in the environment, absorbing carbon, retaining moisture and stabilizing soil with their living roots, providing a windbreak, and precipitating fog from the air.

Nor is it cost-effective to clear-cut hundreds of thousands of trees for the purpose of protecting property and lives when the surrounding homes have not cleared defensible space, as required by law of the City of Oakland. The City of Oakland passed an ordinance in 2006, requiring home owners to manage the vegetation on their properties for fire safety. The voters of Oakland also voted to tax themselves to enforce this law. Yet, many of the homes in the Oakland hills have not complied with this requirement.

[22] Dickinson, K.J.M. and Kirkpatrick, J.B., "The flammability and energy content of some important plant species and fuel components in the forests of southeastern Tasmania," Journal of Biogeography, 1985, 12: 121-134.
[23] Page 6, "East Bay Hills Fire Oakland-Berkeley, California," United States Fire Administration, Technical Report Series, FEMA

These homes in the City of Oakland are particularly vulnerable because of the steep slope. The National Fire Protection Association informs us on the Firewise website that a 30% slope will accelerate the rate of spread of fire to twice the speed of fire on flat ground.

We could provide a similar analysis for most of the non-native plants and trees that these projects propose to destroy. Although every project proposes to eradicate non-native vegetation, in several cases the native vegetation that will remain is considered more flammable by the East Bay Regional Park District "Wildfire Plan."

For example, the project proposes to eradicate non-native broom (classified by the plan as non-native scrub) from the Recommended Treatment Areas, but retain native coyote bush. Yet the "Wildfire Plan" reports in Chapter V much greater flame lengths for coyote bush (14-32 feet) than for non-native scrub (15-18 feet). Both coyote bush and broom have small leaves, classified as "fine fuels" which ignite more readily than larger diameter fuels. However, given that coyote bush usually contains much dead wood, while the branches of broom are green and therefore contain more moisture, we should not be surprised that coyote bush has much greater flame lengths, predicting that a fire would spread more rapidly in coyote bush scrub.

The "Wildfire Plan" also assigned an "Extreme" Fire Hazard rating to North Coastal Scrub (xeric), but proposes to retain North Coastal Scrub (xeric) in 21 of 47 RTAs (45%) in the FEMA grant projects. Fire Hazard Rating is described by the "Wildfire Plan" as a rating that "determines the potential of different vegetation types to burn, the potential flame length from these vegetation types, and their anticipated heat output when burning." (page 112) The "Wildfire Plan" assigns this Extreme Fire Hazard rating—the highest rating--to only two types of vegetation: North Coastal Scrub (xeric) and Maritime Chaparral. Both vegetation types are native. In other words, EBRPD apparently considers native vegetation more flammable than any type of non-native vegetation yet it proposes to eradicate non-natives considered less flammable.

These are all indications that the FEMA grant projects of the East Bay Regional Park District are first and foremost native plant restorations and only secondarily fire hazard mitigation projects.

Another way in which the projects increase rather than decrease fire hazard is by chipping all trees that are removed and distributing those chips on the bare ground. All of the applicants' projects propose this disposition of the remains of the trees they cut down. Here is a photo example[24] of this process from one of the many completed projects on the property of UC Berkeley:

[24] Available here: http://oep.berkeley.edu/pdf/FireProjects/CH1_rpt_USFW.pdf

Are the wood chips on the ground less flammable than the living trees in the background?

The City of Oakland ordinance for creating defensible space limits wood chips on the ground to a depth of 6 inches. Can Oakland distribute the chips from tens of thousands of eucalypts at the North Oakland Sports Center without exceeding the limits of its own law?

FEMA's policy MRR-2-08-1 governing the hazard and pre-disaster mitigation grants also requires that applicants provide "a draft operations and maintenance plan at the time of the application, including **information demonstrating that the requested wildfire project will be maintained to achieve the proposed hazard mitigation.**" UC Berkeley and the City of Oakland have not satisfied this requirement, to my knowledge. (I have read these grant applications, obtained by public records request.)

In the case of the grant applications of UC Berkeley and the City of Oakland, the projects apparently do not indicate any follow-up treatment other than the repeated poisoning of eucalyptus stumps required to kill the roots of those trees. These applicants apparently do not intend to replant these areas. However, UC Berkeley has completed many similar projects[25] in the past 10 years which enables us to visit those projects to determine the result of eradicating every non-native plant and tree. UC Berkeley describes on its website 17 completed "vegetation management" projects since 2000. Not all of the descriptions include acreage and number of trees. Those projects that are quantified report the removal of nearly 18,000 non-native trees on over 150 acres.

[25] Available here: http://oep.berkeley.edu/programs/fire_mitigation/index.html

As these photos illustrate, the areas in which non-native trees have been removed are now occupied by non-native weeds and grass:

This UC Berkeley "vegetation management" project completed in August 2002 is now populated by non-native annual grass. Claremont Canyon Headslope Fire Fuels Mitigation Project – Phase 2.

9

The same project is on the left side of the fence. On the right side of the fence is private property in which eucalypts remain. There is less non-native grass on the private property. Perhaps it is being mowed. Also the shade of the eucalypts retards the growth of the grasses.

These photos illustrate a general principle about fuels management projects. One of the reasons why native plant advocates want to destroy all the non-native trees is that most native plants do not tolerate shade. Native plant advocates are under the mistaken impression that native plants will occupy the space presently shaded by tall non-native trees. Unfortunately, the bare ground is more likely to be occupied by weeds because they are more competitive than native vegetation.[26] Today's higher temperatures and CO_2 levels favor non-native weeds over the native plants that existed 250 years ago in a very different environment.

This principle is also illustrated by experiments conducted in the field. Environmental scientists at UC Berkeley removed native chaparral from experimental plots in Northern California to test fuel reduction techniques using two different methods (prescribed burns and mechanical), in different seasons, over a period of several years. In every test, the result was on average from 23% (for prescribed burns) to 61% (for mechanical methods) non-native plants where they had not previously existed.[27]

Jon E. Keeley (USGS) finds the same tendency for non-natives to replace natives in forests when natives are removed for the purpose of reducing fuel loads: "Forest fuel reduction programs have the potential for greatly enhancing forest vulnerability to alien invasions."[28]

Why should we care if non-native trees are replaced by non-native weeds and grass? Within the context of fire hazard mitigation, we should care because ignition occurs most frequently and spreads most quickly in grass because it is a "fine fuel." Although trees ultimately provide more fuel, they are rarely fully engaged in a wildfire. Unless the fire is driven by hot wind, it will travel quickly through grass without igniting trees, particularly if the trees do not provide a fuel ladder to their canopy. And in a wind-driven fire, the fire is indiscriminate, destroying all forms of fuel whether native or non-native. In the Wildland-Urban Interface the best way to prevent wildfires is to prevent ignition.

Returning to the question of whether or not the FEMA grant applications have provided adequate maintenance plans as required by policy governing the grant program, we will turn to the grant applications of the East Bay Regional Park District. The "Wildfire Plan" of EBRPD is very explicit in describing elaborate maintenance of their projects. The question is whether or not their follow-up plans are realistic. EBRPD's track record of follow-up maintenance after the destruction of trees is not good: "One to 5-year eucalyptus forest consists of stump-sprouts from trees that were cut in the last 5 years." (page 132 of EIR for "Wildfire Plan") In other words, EBRPD cut down eucalypts, but did not follow-up with the required periodic poisoning of resprouts and so the eucalypts have returned.

FEMA's policy regarding hazard and pre-disaster mitigation grants also explicitly prohibits specific purposes and management methods: **"Certain project activities and their associated costs are not eligible for funding:"**

The grant applications in question use many of the methods prohibited by the grant policy:

<u>Projects to address ecological issues related to land management and</u>
<u>Projects to protect the environment are prohibited</u>

[26] "Can Weeds Help Solve the Climate Crisis?," New York Times, June 29, 2008
[27] Potts, Jennifer and Stephens, Scott, "Invasive and native plant responses to shrubland fuel reduction: comparing prescribed fire, mastication, and treatment season," Biological Conservation, 2009, 142: 1657-1664.
[28] Keeley, Jon, "Fire Management Impacts on Invasive Plants," USGS, April 2006.

Many of the "considerations and guidelines" for the Recommended Treatment Areas in the FEMA grant application of the East Bay Regional Park District imply that they are intended to address ecological and/or environmental issues. Here are a few examples:

- CC3: "Invasive species of high concern in this RTA"
- HP2, H P3, HP4: "Presence of Pallid Manzanita requires hand labor treatments...Remove non-manzanita shrubs and prune retained trees."
- RD4, TI6, TI15: "Enhance conditions for Oakland star tulip and western leatherwood..."
- AC4: "Invasive species present (especially hemlock); control and monitor annually for species composition."
- MK 5: "Avoid pruning or thinning buckeye trees."

The following are a few examples of management actions in EBRPD's "Wildfire Plan" that are intended to roll back biological time to sustain native landscapes from an earlier period.

- "[Native] Grasslands and Herbaceous Vegetation...**these widely-spaced trees will not cause an active crown fire** because of the discontinuity of tree crowns. They could, however, provide a seed source for invasion of grassland habitats by woodland species **and should be considered for removal to maintain desirable and declining grassland habitat**." (page 131)
- "[Native] Maritime Chaparral...Favor chaparral community by removing oak, bay, madrone buckeye, and other trees under 8 inches diameter at breast height that are encroaching upon the maritime chaparral." (page 136)
- "[Native] North Coastal Scrub...Shift species composition towards native scrub species or consider conversion to grasslands, where appropriate on historic grassland sites..." (page 140)
- "[Native] Coyote Brush Scrub...In most treatment areas, encourage conversion to grasslands by reseeding with native grasses...after brush removal." (page 149)

This is more evidence that EBRPD's "Wildfire Plan" is primarily a native plant restoration, which has little to do with fire hazard mitigation.

Projects for prescribed burning are prohibited

The following RTAs expressly mention prescribed burning as one of the management methods: CC3, 7, HP2, HP3, HP4, AC4, AC11, LC9, TI15, TI19.

Projects for clear-cutting are prohibited

The projects of UC Berkeley and the City of Oakland are essentially clear-cuts in areas where non-native trees are the predominant vegetation. This is best illustrated by one of UC's vegetation management projects that was done in 2004. This project used the same methods proposed in UC's grant applications, i.e., the removal of all non-native trees and shrubs.

BEFORE

AFTER

Frowning Ridge Project – Phase 4[29]

[29] These photos were copied from UC Berkeley's website: http://oep.berkeley.edu/pdf/FireProjects/FR4_Summary.pdf

And here is a photo of one of the areas in UC Berkeley's proposal for FEMA grant funding:

In the foreground, are the stumps left by one of UC Berkeley's completed projects (Claremont Canyon Headslope Fire Fuel Mitigation Project – Phase 4). To the west of that completed project, farther down the road in this picture, is one of the areas in their FEMA grant application PDM-PJ-09-CA-2005-003. It is forested exclusively with eucalypts. Therefore, it will be clear-cut.

Likewise, one of the areas in the FEMA grant application of the City of Oakland will be clear-cut because it is exclusively eucalypts:

In the foreground we see a portion of the vast, irrigated lawn of the sports fields at the North Oakland Sports Center. Ignition is unlikely in such an irrigated setting. In the middle-ground, below the tall eucalypts, we see the evidence of previous attempts to eradicate eucalypts that have resprouted because they have not been repeatedly poisoned as

required to kill the roots. In the background we see the tens of thousands of eucalypts that will be clear-cut from this hill if this project is funded.

Many of the "considerations and guidelines" (see Appendix A) for the Recommended Treatment Areas in the FEMA grant application of the East Bay Regional Park District imply clear-cutting of eucalypts and Monterey pine from the ridgelines: CC3, HP1, RD2, RD5a, AC7, TI14, TI16, TI17, MK4.

Projects for maintenance activities are prohibited

The "Wildfire Plan" of the EBRPD specifically identifies which Recommended Treatment Areas are "initial treatment" and which are "maintenance" (see Appendix A). Eight of the RTAs included in the grant application are identified as "maintenance": CC7, CC10, RD4, AC14, LC9, TI12, TI15, and WC4.

Projects for creation and maintenance of fire breaks, access roads, staging areas are prohibited

Many of the "considerations and guidelines" for the Recommended Treatment Areas in the FEMA grant application of EBRPD imply creation and maintenance of fire breaks, access roads, and staging areas:

- AC11: "...maintaining fuelbreaks..."
- AC 12: "...expand fuel break..."
- RD5a: "installation of firefighter safety zone..."

In conclusion, the projects of the applicants for FEMA hazard and pre-disaster mitigation grants, as presently defined, violate FEMA's policy governing these grants and should therefore be denied funding.

Part II: How can these grant projects be revised to comply with grant policy?

I began this comment with an acknowledgement that there were a few exceptions to our general observation that the projects will not mitigate fire hazards to "protect life and property," as required by the policy governing these grants. There are a handful of Recommended Treatment Areas in the grant applications of the East Bay Regional Park District that will create defensible space around specific buildings, such as the Chabot Space and Science Center (RD5b). If the treatments proposed by EBRPD will indeed create defensible space around important buildings such as this, they may be appropriately funded by FEMA. This is, of course, FEMA's prerogative. I am only acknowledging that the creation of defensible space is a legitimate use of FEMA hazard and pre-disaster mitigation grant funding.

More ambiguous are the 27 Recommended Treatment Areas in EBRPD's grant application which are identified by EBRPD as being within 200 feet of a building (see Appendix A). "Firewise"[30] and other reputable sources of information regarding the creation of defensible space such as CAL Fire, recommend that defensible space around homes be from 30 to 100 feet, depending upon the degree of fire hazard. In other words, 200 feet is roughly twice the maximum recommended range for creating defensible space, according to experts on fire safety. However, it is possible that EBRPD's designation includes a range from 0 to 200 feet, in which case, some of these RTAs could be appropriately funded by a FEMA grant. We aren't in a position to make such a determination, but applicants can probably do so if they were asked to revise their applications accordingly.

However, if these applications were to be revised, their methods of creating defensible space would have to be revised as well. Their plans for tree removal would have to be species-neutral because fire safety cannot be achieved by eradicating exclusively non-native trees. The UC Berkeley Fire Center in their brochure "Home Landscaping for Fire"[31] says, **"It is important to remember that given certain conditions, all plants can burn...how your plants are maintained and where they are placed is as important as the species of plants that you choose...landscape**

[30] http://www.firewise.org/fw_youcanuse/learningcenter/course_info.htm#landscaping
[31] http://firecenter.berkeley.edu/docs/CE_homelandscaping.pdf

management (e.g., pruning, irrigation, and cleanup) have a greater impact on whether or not a plant ignites than does the species." It is ironic that UC Berkeley is engaged in the destruction of every non-native tree and plant on its property, despite the advice on its own website about fire safety, which was obviously ignored in the writing of its grant application.

Likewise, there may be opportunities for the City of Oakland to revise its grant application so that it reduces the risk of fire to homes in Oakland. Although the City of Oakland passed a law in 2006[32], which theoretically obligates residents to create defensible space around their homes, and residents voted to tax themselves to pay for enforcement of that law, many homeowners have not complied with this law. The Oakland ordinance regarding the creation of defensible space, like other government websites already cited, states that "all plants can burn" and that pruning and maintaining **all** trees and plants are the means of reducing fuel loads most effectively. Like UC Berkeley, the City of Oakland appears to be ignoring its own advice about reducing fire hazards on the Wildland-Urban Interface.

Here is photograph of a home in Oakland which is adjacent to one of the project areas in Oakland's FEMA grant application.

This photo was taken from Skyline Blvd, east of the North Oakland Sports Center. All the eucalypts in the distance, surrounding the irrigated sports field at the bottom of the canyon would be destroyed if the grant project were funded, but all the trees surrounding this house and down the hill from it would not be thinned, pruned, or limbed up to remove the fire ladder because they are not in the project area.

The City of Oakland's application for FEMA funding does not make the best use of Oakland's limited resources. The City's shared cost for this grant would be in excess of $662,000. This money would be put to better use if it benefited home owners more directly. And more importantly, fire hazard to life and property would be reduced. I hope that FEMA will encourage the City of Oakland to revise its grant application so that it will reduce fire hazard and benefit home owners, as their current application does not.

I am unaware of any way to revise the grant application of UC Berkeley so that it mitigates fire hazard to life and property. Unless there are specific structures within their grant project area, they may not have opportunities to provide defensible space. I assume FEMA will advise UC Berkeley if there is such an opportunity.

[32] http://www.oaklandnet.com/wildfireprevention/docs/OFDNewsletterWeb.pdf

Part III: These are the environmental issues that must be analyzed and mitigated by the EIS if these grants are funded

Air Quality/Greenhouse Gases Carbon Dioxide (CO_2) is the predominant greenhouse gas and carbon is an element of CO_2. **As trees grow, they absorb carbon and store it throughout their lives.** When they die and decay they release their stored carbon back into the air as CO_2. Therefore, **when we destroy trees, we are contributing to climate change by releasing CO_2** and by permanently ending the trees' ability to absorb CO_2 in the future.

The grant applications in question do not quantify the loss of sequestered carbon resulting from the destruction of hundreds of thousands of trees. Nor do they mitigate for this loss and its consequent impact on climate change. The EIR for EBRPD's "Wildfire Plan" uses absurd arguments to claim mitigation for the loss of carbon. For example, it claims that if the trees are not destroyed, they will burn. It also claims that the drastically thinned forest of non-native trees will be healthier and will therefore absorb more carbon. I hope the EIS for the FEMA grants will make more credible arguments for mitigation of this serious environmental issue.

If the projects of the East Bay Regional Park District are funded without being revised, the prescribed burns they intend to conduct must also be evaluated by the EIS. Prescribed burns have an extensive track record of causing wildfires. The most recent local example is a fire in October 2009 in Santa Cruz that burned 485 acres, 8 buildings, 5 vehicles and injured 4 firefighters.[33] Even if prescribed burns do not cause wildfires, they release harmful particulates into the air and reduce air quality. Since prescribed burns violate the terms of FEMA's grant policy, they should be deleted from EBRPD's plans, but if they are not the EIS must evaluate the impact they will have on air quality as well as the probability that they will cause a wildfire.

The EIS must also consider other possible sources of greenhouse gases resulting from these projects, such as the use of heavy equipment required for tree removal and the emission of methane, as well as CO_2 as the chips of the dead trees decay on the ground.

Herbicides Most non-native plants and trees cannot be eradicated without repeated use of herbicides. In the case of eucalypts, the stumps are sprayed with Garlon within minutes of cutting down the tree. UC Berkeley's grant application states that resprouts must be cut and poisoned twice per year for 10 years.

The grant applications of all three applicants state that they use Garlon 4 for this purpose. The Material Safety Data Sheet for Garlon 4 reports that 30% of Garlon 4 is kerosene. It therefore has a high fire hazard rating. Although East Bay Regional Park District reported use of Garlon 4 in its "Wildfire Plan" it subsequently reported using Garlon 4 Ultra in its response to comments on the EIR for the "Wildfire Plan." The EIS for these FEMA grant applications should determine what formulation of Garlon will be used by the City of Oakland and UC Berkeley. If they are using Garlon 4, the EIS should determine if fire hazard is increased by the use of a flammable chemical in proximity of the chain saws and other heavy equipment used to destroy the trees. Whatever formulation is used, scientific studies based on laboratory experiments indicate that the active ingredient, triclopyr, is a toxic chemical.[34]

Roundup is used to eradicate many non-native plants, most notably broom. Since broom seeds can live in the ground for as long as 60 years, it is a long-term commitment to eradicate broom with herbicides. Studies on Roundup indicate that one of its inert ingredients may be harmful to human cells.[35]

---

[33] http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/05/27/BAPC1DL48T.DTL
[34] http://www.marinwater.org/documents/Chap4_Triclopyr_8_27_08.pdf
[35] http://www.scientificamerican.com/article.cfm?id=weed-whacking-herbicide-p

The requirements for herbicide use by the grant projects should be quantified, analyzed, and mitigated. The likelihood of herbicides entering the watershed must also be determined. Here is an example of this concern:

This photo was taken at the North Oakland Sports Center where the City of Oakland's FEMA grant application proposes to destroy all the eucalypts. The eucalypts in this photo are along a steam bed, now dry in September. When these eucalypts are destroyed, what is the likelihood that the Garlon needed to kill the roots of the trees will end up in the creek?

Several of the Recommended Treatment Areas in the grant application of the East Bay Regional Park District are described as "riparian woodland" (RD3, AC14, TI13, WC9, WC11). The EIS should consider the impact of herbicide use in such areas described as "riparian woodland." Is it a watershed? If so, what is the likelihood of contamination of that watershed by toxic herbicides? (And incidentally, what is the likelihood that "riparian woodland" is a high fire-hazard area?)

Erosion, Flood Consequences Another function performed by our non-native trees is that their roots absorb water and stabilize soil. These are particularly important functions on steep hills. Most of the proposed grant projects are located on steep hills. In fact, in the case of the projects of the East Bay Regional Park District, some portion of all 47 Recommended Treatment Areas have slopes of at least 30% and 29 RTAs (42%) have been mapped as landslide areas by the US Geological Service. (See Appendix A)

The roots of the trees that will be destroyed will decay slowly. According to Ray Moritz, certified forester, it will take from 3 to 5 years for the roots to decay (private communication). So, we will turn to one of UC Berkeley's projects completed in 2002 to witness the erosion that has resulted from tree removals:

Claremont Canyon Headslope Project – Phase 2

Grizzly Peak Blvd is being undermined by erosion

Where tree removal is proposed on steep slopes, particularly along or above roads, the EIS must evaluate and analyze the likelihood of erosion and require mitigation if necessary.

As the tree roots decay, they will be unable to absorb the water that runs down the hillsides during rains. Since none of these projects intend to replant these areas, what will happen to this water? Will the water cause flooding at the base of the hills, where it will accumulate? Will creeks overflow? The EIS must evaluate and analyze the consequences of losing the water-absorbing properties of trees when they are removed.

Windbreak Tall trees provide a windbreak. They develop their defenses against the wind in a specific location. That is, the more wind they are exposed to as they grow, the better able they are to withstand the wind. When their neighbors are destroyed, they are suddenly exposed to more wind than they are able to withstand.

This is a particularly important issue for the projects of the East Bay Regional Park District because they propose to radically thin the tall non-native trees in many Recommended Treatment Areas. If the trees that remain are suddenly

exposed to wind from which they had been previously protected by neighboring trees, what is the likelihood that they will fall, that is, fall down? This question is not addressed by the "Wildfire Plan." Therefore, the EIS must analyze the potential for windthrow resulting from drastic thinning of the tall trees. Because wind accelerates as it travels up hill, trees on steep hills are probably more vulnerable to windthrow if they lose their protection from the wind.

A related issue is that windbreaks are also a visual screen and a sound barrier. In those areas in which trees will be removed or drastically thinned, what will be the visual and sound effects on the surrounding neighborhoods?

A windbreak also has the potential to stop the progression of a fire. Since wind is the primary driver of most firestorms, if the trees are capable of stopping the wind, they are potentially capable of stopping the fire. The EIS must analyze the potential for increasing fire risk by destroying the windbreak, particularly on the ridgeline where the existing trees have the potential to prevent the spread of the fire from one side of the ridgeline to the other.

Wildlife Certain types of birds, such as raptors and owls, use the tall trees to nest, to roost, and to hunt from. If the proposed grant applications are implemented, a significant portion of tall trees will be eliminated from the East Bay. The East Bay Regional Park District reports in its "Carbon Sequestration Evaluation"[36] that there are 503 acres of pine and 1,633 acres of eucalyptus on their properties. Their "Wildfire Plan" proposes to eradicate most pines from 144 acres and most eucalypts from 1,368 acres. (N.B., Not all of these trees are within the FEMA grant project area, however, from the standpoint of cumulative impacts, they are relevant to the EIS.)

Since the only native tall tree in the East Bay is the redwood and East Bay Regional Park District contains only 475 acres of redwoods according to the "Carbon Sequestration Evaluation," it is reasonable to conclude that the majority of tall trees will be eliminated from its properties if the "Wildfire Plan" is implemented.

Will we lose raptors and owls in the East Bay if these plans are implemented? What other species of birds, and perhaps animals, will be impacted by this massive destruction of tall trees? Will there be a glut of the animals upon which these birds prey, such as mice and rats? What diseases do these rodents carry that may become more difficult to control? These are just some of the many questions the EIS should address if these grants are funded.

Cumulative Impacts This is perhaps the most important topic that must be considered by the EIS if these grant applications are funded because such massive native plant restorations, requiring the destruction of millions of trees, are occurring everywhere. Particularly when considering the impact of carbon loss and its consequences for climate change, all of the projects at least in the San Francisco Bay Area must be taken into consideration because our air does not stop neatly at political borders. Climate change is a regional, statewide, national, and international issue.

The Response to Comments on the EIR[37] for the "Wildfire Plan" of the East Bay Regional Park District is a starting point for identifying the many projects in the Bay Area that are destroying non-native trees and plants and in so doing, contributing to greenhouse gases:

- "*Annual Vegetation Management Plan for the Wildfire Prevention Assessment District, 2006.* City of Oakland, Oakland Fire Department, Fire Prevention Bureau.
- *2020 Hill Area Fire Fuel Management Program, 2003.* University of California, Berkeley.
- *2006 Long Range Development Plan.* Lawrence Berkeley National Laboratory. *East Bay Watershed Master Plan, 1996.* East Bay Municipal Utility District.
- *Fire Management Plan, 2000.* East Bay Municipal Utility District. *Low Effect East Bay Habitat Conservation Plan, 2008.* East Bay Municipal Utility District.
- *2003 Final Environmental Assessment for the East Bay Regional Park District Vegetation, Management Projects.* East Bay Regional Park District."

[36] http://www.ebparks.org/files/ebrpd_carbon_seq_study_2008.pdf
[37] http://www.ebparks.org/files/EBRPD_WHRRMP_Final_RTCr.pdf

Obviously, the projects for which FEMA grant applications have been submitted must be added to this list, as well as EBRPD's entire "Wildfire Plan," including those portions of that plan that are not included in the grant project area.

The following are other projects in the San Francisco Bay Area of which I am aware. This list should **not** be considered exhaustive. I am not necessarily aware of every similar project, and given the strength and influence of the native plant movement in the Bay Area, I assume there are similar projects in every jurisdiction that is responsible for public land.

- The **San Leandro Creek Tree Management Project of the Alameda County Flood Control & Water Conservation District** proposes to destroy 33 eucalypts in the short run and 910 more in the long run. All eucalypts will be removed. All other species of trees will remain.
- The **Natural Areas Program of the City of San Francisco** has destroyed thousands of trees in the city's parks since the program began in 1998. The management plan for the Natural Areas Program was approved in 2006. The plan proposes to destroy an additional 18,500 trees over 15 feet tall and untold numbers of smaller trees that the plan chooses not to define as trees. These trees will be destroyed on approximately 1,000 acres of parkland in San Francisco and Pacifica that have been designated as "natural areas."
- **UC San Francisco** has announced its intention to destroy approximately 3,000 non-native trees on Mount Sutro in the short run. This initial destruction is considered a "demonstration project" on 7.5 acres. It is UCSF's intention to destroy a corresponding number of trees (20,000-30,000 trees) on the remaining 40 acres, assuming that it decides that its "demonstration" is successful.
- The **federal government** is one of the largest landowners in the Bay Area. In addition to Golden Gate National Recreation Area (75,500 acres), Point Reyes National Seashore (28,800 acres), and Muir Woods National Monument which are managed by federal agencies, the Presidio in San Francisco is presently controlled by a non-profit trust. These entities have engaged in extensive tree-removal on the public lands they control. Information available on their websites does not enable us to quantify the acres or trees that have been removed or are planned for removal in the future. Therefore, we will describe those projects in the broad terms available to us.
    - There are large-scale restoration efforts that have required the removal of all non-native vegetation, including trees. The restoration of Redwood Creek in Marin County is an example of such a project. There are many others.
    - The other, larger category of tree-removal projects on these federal lands are the so-called "fuel management projects" which remove exclusively non-native trees and vegetation. We count 8 of these "fuel management" projects on GGNRA property and 8 in the Pt Reyes National Seashore, but the acreage of these projects is not reported, so we can't estimate the number of trees that will be removed. Projects along roads will apparently remove all trees within 30 feet of the roads. Further from roads, all trees with trunks less than 18" in diameter will be removed. The sole example[38] of such thinning we could find on the websites, says that the **density of trees was reduced from 1,600 trees per acre to 256 trees per acre, a loss of over 1,300 trees per acre.**

The EIS for the FEMA grant applications must make a good faith effort to identify, quantify, and analyze the cumulative impact of all the tree destruction projects in the San Francisco Bay Area which will release tons of carbon into the atmosphere thereby contributing to climate change. Since none of the FEMA projects intend to replant the areas from which trees and plants will be removed, it will be challenging to mitigate for such a loss. However, if FEMA decides to fund these grants, it must also propose suitable mitigation for the carbon loss resulting from the implementation of these projects. If "replacement" trees are proposed, the fact that non-native trees grow in many places in which native trees will not grow. Generally speaking, native trees do not tolerate as much wind and require more water than the non-native trees that will be destroyed.

[38] http://www.nps.gov/goga/parkmgmt/upload/thinning_example.pdf

In Conclusion

With few exceptions for small portions of the proposed projects that will create defensible space for specific buildings, the applications for FEMA hazard and pre-disaster mitigation grants should be denied because they do not conform to FEMA policy governing these grants.

If the applicants can be advised to revise their projects so that they conform to FEMA's grant policy and actually reduce fire hazard, they should be considered for funding.

If any of these projects are funded by FEMA, whether revised or not, the EIS must address many serious issues about their potential impact on the environment. The EIS must also consider the question of cumulative impacts broadly to include projects like these that are occurring all over the Bay Area, because air quality and greenhouse gases are not local issues.

Mary McAllister
Oakland, California
September 15, 2010

EBH-EIS-FEMA-RIX

From: Rk Bose [fk94131@yahoo.com]
Sent: Saturday, September 18, 2010 5:22 PM
To: EBH-EIS-FEMA-RIX,
Subject: Public Scoping Comments

This is in response to the Public Scoping for Environmental Impact Statement for the FEMA Grant Applications in the East Bay Hills.

This Grant Application seems part of a pattern of activity across the Bay Area to get FEMA funding for native plant restoration projects under the pretext of "fire hazard." In fact, some of the planned actions may increase the danger.

Since much of the popular "knowledge" – even from expert sources - about eucalyptus is factually incorrect on observation, the EIS should require physical study of actual conditions at the project sites.

1. Changing wind patterns.

The projects as stated will fell trees along ridge-lines and elsewhere. Live eucalyptus trees act as wind-breaks, decreasing wind velocity across hillsides; that may in fact have been the intent of some of the plantings a century or so ago. The flexibility of eucalyptus crowns – evident in considerable movement in windy conditions – may have the effect of causing turbulence that breaks up wind flows, thus having an even stronger effect than a more rigid wind-break.

With the huge number of trees to be felled, wind patterns will be affected. Since the greatest risk in the East Bay is from wind-driven flames, this may potentially increase fire hazard.

A detailed study of changes to wind patterns and wind-velocities at the micro-climate level would be an essential part of any EIS.

2. Is eucalyptus more flammable than the alternatives?

Eucalyptus, by using moisture efficiently, and in some places by fog-harvesting, remains green and alive through summer conditions that dry out shrubs, chaparral and grassland. Felling trees will result in drier vegetation conditions that are more prone to ignition. "Native" plants are no more fire-resistant than non-native ones.

Though popular thinking equates eucalyptus with fire-hazard, many of these beliefs are at best urban legends. Actual tests have not shown eucalyptus to be particularly flammable. Indeed, there is anecdotal evidence in at least two instances where eucalyptus has acted as a fire break: The Scripps Ranch fire in Southern California; and the 2008 Angel Island fire which reportedly burned grassland on half the island, but stopped at the eucalyptus grove.

Eucalyptus can be killed during the East Bay's rare freezes, and like other dead trees, then becomes more combustible. The less expensive and dangerous solution would be to remove freeze-killed trees – of whatever species – from around homes and structures.

3. What will replace the eucalyptus groves that are to be felled?

If it is oak/ bay-laurel woodland, it is particularly prone to Sudden Oak Death, the disease that is spreading around the Bay Area with no end in sight. Quite aside from the potential flammability of such forests in live conditions, they will almost certainly be more flammable if they contain a large percentage of dead trees.

If it is chaparral or grassland, both are more flammable and liable to ignite than trees are. If they are close to homes, they are more likely to cause damage since wood-framed houses (as most homes in the Bay area are) are more flammable than trees.

The EIS should evaluate this for each project site, based on site conditions and plans for vegetation management.

4. Habitat impacts.

Eucalyptus forests – contrary to the myths disseminated about the tree – support a wide variety of bird and animal life. Removal of hundreds of thousands of trees will have a huge impact on existing habitats for a wide range of wildlife, from mammals and reptiles to birds and insects. The EIS should detail these impacts based on actual studies and not surmises.

5. Microclimate impacts

Tree removal and the activities associated with them will affect soil compaction, water flows, and of course wind patterns, with the potential to alter microclimates at sites distant from the actual worksites. This is particularly true if the project areas are on hillsides, where the impacts may occur in downhill areas. The EIS should evaluate and detail these impacts.

6. Carbon sequestration

The projects propose to remove huge amounts of biomass, allowing them to decay and thus return their carbon to the atmosphere. This is a concern in terms of climate change overall as well as the environs of the project areas. The EIS should get a robust quantification of net carbon release over the project life and the next 30-50 years.

In summary: The planned projects appear to be ill-conceived in terms of reducing fire-hazard, and in fact, through a change of wind-patterns, moisture conditions, and vegetation-type, may actually make it worse. It may also have unintended consequences on micro-climates, habitats, and the environment. The EIS should address these issues.

Sincerely,

RK Bose
San Francisco

EBH-EIS-FEMA-RIX

From: Morley [mzinger1@comcast.net]
Sent: Tuesday, September 21, 2010 9:31 PM
To: EBH-EIS-FEMA-RIX,
Subject: Public comment on pending FEMA Grant requests

Dear Sirs,

This communication is to object strongly to pending FEMA grant applications:

Claremont Canyon Vegetation Management project Strawberry Canyon Vegetation Management Project Oakland Regional Fuel Management project.

These projects are thinly disguised efforts by native plant enthusiasts to kill Eucalyptus trees.
The proposals have little to do with fire prevention and would in fact INCREASE the risk of fire.

In this day, where the entire world is talking 'GREEN" it would be laughable (if it was not so serious) to attempt to remove hundreds of thousands of trees around a spectacularly beautiful Bay Area location.

I would think it would elicit a huge public outcry against FEMA for allowing this.

I am an ex-faculty member of UCSF and an admirer of UCSF and UCB academic functions, but am also aware of their irrational bureaucratic functions. UCSF has tried to obtain FEMA funds and has used deceptive misleading propaganda in their efforts and it appears UCB does the same.

I expect that you are familiar with the deceptive arguments advanced about fire risk.

So, lets focus on the economics: UC generally is laying people off, limiting classes, begging the legislature for more funding, raising student fees, etc.
Our State and Federal governments are also struggling with serious deficits.
For FEMA and the University and the City of Oakland to be spending vast sums on destroying forests.....defies all common sense!

These projects have not come to widespread public attention, yet.
They have been opposed by a relatively small group of concerned, responsible, intelligent residents of the area. some of whom lost their homes in the 1991 Oakland fire. Imagine the public outrage when the projects do come to widespread public attention!

Does UCB want the land for expansion? Are they indifferent to global warming? Are they indifferent to widespread use of Herbicides?

I urge FEMA to use objective reason, scientific evidence, and be aware of less disruptive methods of decreasing fire risk.
I believe FEMA's response to UCSF grant request was rational and responsible and hope you will continue such.

Morley M. Singer M.D.

Professor Emeritus, UCSF
177 Belgrave Ave
San Francisco, Ca 94117

EBH-EIS-FEMA-RIX

From: Phil Price [pnprice@creekcats.com]
Sent: Friday, September 24, 2010 8:45 AM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

The document links all seem to be broken, or at least that is true of the three or four that I clicked on. I would like to get copies of the discussion of the planned project and the project alternatives. Also, I can't find any timeline or calendar. I have heard that the EIS process is under way now, and that scoping comments are due by October 1. But from the document titles, it looks like the project might be farther along than that. What is the status of the EIS process, and what does the timeline look like going forward? Thanks.

EBH-EIS-FEMA-RIX

From: SLAKEWINGS@aol.com
Sent: Friday, September 24, 2010 3:46 PM
To: EBH-EIS-FEMA-RIX,
Subject: About the scoping plan for the East Bay hills
Attachments: Dear FEMA.doc

Let me know if you can open and read my letter.

Thank you,
Bev Von Dohre

Dear FEMA,

I went to the first scoping meeting and it was clear to me that those asking for money for this project are simply interested in conning FEMA for money, and are not interested in the safety of people or the environment. I believe that the well-intentioned people who support the project don't know the details of what will happen if it is implemented. (This won't be the first time that many people supported something in good faith that was the opposite of what they were told.)

Not only will this plan not prevent fire danger, but it will make the East Bay far more vulnerable to devastating fires.

The tall exotic Monterey pines, Eucalyptus, Acacias, etc., precipitate inches of water from the fog during the dry season -- preventing, not causing fires, and providing moisture for native animals and plants. (Go under these trees even in the summer and see how green the ground is with plants supported by the non-native trees.) One woman at the meeting said she'd seen the Nineties firestorm come right up to her home and surround her old enormous Eucalyptus, yet the tree didn't even begin to catch fire, disproving the myth of Eucalyptus' flammability.

Fires typically begin in grasslands, which is where the 1991 Firestorm started. This project will result in extensive new dry grasslands in the East Bay hills, once the 1000 acres of beautiful trees are destroyed. These grasses are also not native and are far more flammable than the trees. The erosion and resulting landslides will be catastrophic. At that point, FEMA money will REALLY be needed.

We have an established eco-system that our native animals have adapted to. Once the trees are destroyed, the already-burdened wildlife will die, from hunger and loss of habitat. I'm also not seeing any mention of the harm done to the environment from eliminating so many oxygen-producing trees, and how much carbon will be released by their corpses. Also, are they planning to chip and mulch the hills, effectively eliminating the bare ground needed by native bees? I'm not only horrified by the plan to kill 1000 acres of trees in an environment that desperately needs more trees, but also by the apparent lack of awareness of our local eco-system.

Do people not understand what the plan is or do they really not care? Everyone I've spoken with believes that only a few dead or dying trees will be eliminated, and do not know the actual plan to clear cut much of our beautiful wilderness, so close to our cities in the East Bay hills, stretching from Richmond to Castro Valley. The devastation from the heavy equipment that will be used is being ignored also.

Most people also don't seem to know the plants involved or the local environment. They haven't seen how raptors, woodpeckers, and other birds use the dead trees for their survival. They haven't watched how young pines are growing up from the base of their dead mothers, keeping the hills green with new trees. They also are not remembering that many native trees are dying from Sudden Oak Death and that we should be grateful for having these resistant, beautiful exotic trees.

The people who are not going to monetarily benefit from this plan believe the myths and have no idea the devastation that will result. Most people don't know that large sections of our parks in the East Bay hills are almost entirely exotic trees and that their clear-cutting will leave bare, ugly hillsides with poisoned stumps, impending erosion and landslides, the wildlife left homeless, many native plants destroyed, the topsoil damaged, and the beauty gone forever. Few urban areas have such amazing wilderness. What a tragedy to mindlessly destroy it.

I've seen re-planting of native trees in parks, but have yet to see these trees doing very well. Many die, wasting more money and creating more habitat for exotic broom that people so hate.

I believe most people would object to this clear-cutting plan as well as the plan to continuously apply herbicide to the stumps of the butchered trees, if they knew the details. Eucalyptus will take an enormous amount of poison to stop its attempts to stay alive and resprout. And what about the acacias? You cut one down, and you have dozens sprouting along the ground, yards away from the original tree. They continue to try to live years after their mother tree was killed.

I do not believe any herbicide or the other petrochemicals added to it are safe. Every banned pesticide was once declared safe from studies funded by the pesticide industry. Some Bay Area counties refuse to use herbicides, while others still do, ignoring the hazards. I've seen California Newts dying horrible deaths after crawling through roadside areas sprayed with "safe" herbicides. I believe that "applying" herbicides across the hills will result in incalculable deaths of native animals, including protected species, as well as contaminating the earth, reservoirs, groundwater, streams, and bay. Some of the poison will evaporate into the air, adding to our air pollution problem. How many cases of cancer, auto-immune and other illnesses will result from the use of these poisons? I also believe this plan won't work, knowing the amazing regenerative capabilities of these magnificent trees. So the use of poison will be far more continuous than planned.

It's also being ignored that many native species have become dependent on and prefer non-native trees, shrubs, herbs, etc.

I want to ask, "Why the selective logging?" For those who want our parks and UC Berkeley lands clear-cut, I suggest they start with the expensive ornamental non-

natives that are the majority of trees at the UC Botanical Gardens, Oakland Zoo, and people's private gardens and yards – which, like in the hills, would leave almost no vegetation since most of the green we see are from non-natives. Why the inconsistency – why are those businesses being spared? At the East Bay Regional Park headquarters where the scoping meeting was held, there were many introduced ornamentals.Those olive trees, Arbutus Unedo, etc, aren't going to be eliminated, so why destroy the trees on trails that many of us know personally and love? Why doesn't the plan include annihilating all the non-native trees in people's yards in the hills, or even elsewhere? Let's be fair and cut down every non-native plant, including all street trees, and the expensive landscaping at federal, state, county, and city areas, city parks, etc. Why should only the native animals suffer?

There will be many persuasive arguments for committing this irreparable environmental devastation, but please don't believe them. I've seen terrible harm already done in the name of environmentalism, such as the boardwalk constructed in the middle of the endangered clapper rail habitat at Abbott's Lagoon, Pt. Reyes, which was supposedly for the rail, but I don't see them there any longer. (The previous trail was along the edge of the habitat). "Experts" told Audubon to cut down every plant (they didn't know native from non-native) in the tiny Burrowing Owl habitat at Cesar Chavez Park in Berkeley. Those of us who had been watching the owls for years knew that was the opposite of what the owls need and want. When the owls arrived after the cutting, one left immediately, while the other two stood forlornly by the stumps of their shrubs from the previous year. (Audubon later apologized and admitted their mistake, which I appreciate.) Weeding the water plants in the Japanese pool at the UC Botanical Gardens several years ago resulted in almost the entire year's eggs of California Newts being killed. I go to the pond every year and have never seen the numbers of newts there as there were previously. A few hours of well-intentioned work can result in permanent ecological damage.

For those in the hills who do want the trees cut, I suggest we trade houses and they live in the tree-denuded wasteland that is much of the East Bay.

For those who insist on eliminating non-native plants, I suggest we start with the humans, dogs, and cats. (Each cat is capable of killing 800 small animals a year, which is why many species of small animals are missing from neighborhoods and even the parks where cats hunt.) And why not kill all the honeybees as well since they're from Europe?

The animals, as well as the trees, are not just "things" in humans' territory. We are planning the killing of living, feeling beings. When people are often depressed from the dark and rain in winter, the gorgeous acacias bloom brilliant golden for two months. The broom with their yellow, exquisitely fragrant blossoms bloom for months during winter and spring.

Please learn who this project will actually benefit. Find out the details before it's too late.

Please know that if this "project" begins, it will be far more destructive than they have told anyone. Expect the worst.

Expect to look up into the hills and see burnt grass where we now see extensive woodlands. Recognize the trees in the parks you love and realize some parks will be completely empty of trees. Expect catastrophic fires and terrible landslides when the trees are gone. Expect damage to the waterways from the erosion.

The FEMA money is desperately needed elsewhere. Please don't waste this money by making a few people rich at the expense of the people, animals, environment, and beauty of our parks. Please don't create a new environmental disaster under the guise of preventing one.

Bev Von Dohre

510-482-9494
510-967-5069

Slakewings@aol.com

EBH-EIS-FEMA-RIX

From: Marg Hall [sismhall1@aol.com]
Sent: Friday, September 24, 2010 6:03 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

Thank you for requiring a careful environmental review of this proposal. I suggest you require inclusion of the following in the scope of the review: 1. Consider the impact of all herbicide ingredients, including "inert" ones, which by themselves may have significant negative consequences. 2. Follow the recommendations of the 2008-9 Annual Report of the President's Cancer Panel, especially with respect to implementation of the precautionary principle. 3. Consider the evidence from the East Bay Hills Fire regarding the relative contribution of eucalyptus trees vs structures to the fire hazard in the hills 4. Consider the long term fire hazard of clear cutting vs responsible thinning and management 5. Take into account the economic benefit of wildland management programs that are labor intensive and will provide employment to local residents 6. Evaluate the long term risk of 10 years of herbicide application

EBH-EIS-FEMA-RIX

From: jbrobit@aol.com
Sent: Sunday, September 26, 2010 9:06 PM
To: EBH-EIS-FEMA-RIX,
Subject: RE SAVE THE TREES

I am writing in deep concern over the plan to clear-cut a large number of trees in the area of Strawberry Canyon. The recent experience of seeing trees removed at the site of the UC Stadium renovation was heartbreaking and has served no good purpose other than to make the whole area hotter and uglier. Planting new trees there will not solve any problems for at least another fifty years--long after we are gone. I understand that it may be important to remove some Eucalyptus trees--not native to California--but there must be better ways to do it than clear-cutting and using herbicides which are known to increase the risk for several diseases including Parkinson's. Please also consider the following:

-- Approximately 8 years ago a part of the same hill area was proposed for tree clearance to develop a University housing complex. At that time Grizzly Peak/Olympus area neighbors organized and stopped the project.

-- These grants call for clearcutting which is in direct opposition to the FEMA guidelines which specifically prohibits clearcutting.

-- Chipping the clearcut trees and scattering the chips (leaving them at a depth of several feet) would potentially increase the fire hazard. Note: chips degrade the wildlife for creatures nesting in ground, snakes, etc., they release CO2 and stimulate weeds.

-- Applying toxic pesticides is dangerous to the environment, to wildlife, and possibly to people.

-- It is important to the environment to keep as many tall trees as possible. Note: large trees sequester CO2 and are important for the survival of several species of birds, especially raptors, and they serve as windbreaks and help to keep the local climate cool and moist.

For these and many other reasons, I ask you to reconsider this plan and find a more ecological alternative.

Jan Robitscher
Berkeley, CA

EBH-EIS-FEMA-RIX

From: sdinkc@aol.com
Sent: Sunday, September 26, 2010 9:47 PM
To: EBH-EIS-FEMA-RIX,
Subject: UC/EBRDP/Oakland projects

To Whom it may concern,

I am writing to object to the "reduce fire hazard" proposals by the University of California — for *Strawberry Canyon and Claremont Canyon; the City of Oakland; and the East Bay Regional Park District in the East Bay Hills to essentially clear cut, or retard the growth of trees using herbicides.

*The proposed UC Strawberry Canyon Vegetation Management Project involves felling all eucalyptus, Monterey pine, acacia trees and exotic
- non native trees on approx. 60 acres of UC property, chipping the downed trees and scattering the chips in portions of the cleared area, and then semi-annually applying herbicides to eradicate eucalyptus tree sprouts.

-- These grants call for clear cutting which is in direct opposition to the FEMA guidelines which specifically prohibits clear cutting.

-- Chipping the clearcut trees and scattering the chips (leaving them at a depth of several feet) would potentially increase the fire hazard.
Note: chips degrade the wildlife for creatures nesting in ground, snakes, etc., they release CO2 and stimulate weeds.

-- Applying toxic pesticides is dangerous to the environment, to wildlife, and possibly to people.

-- It is important to the environment to keep as many tall trees as possible. Note: large trees sequester CO2 and are important for the survival of several species of birds, especially raptors, and they serve as windbreaks and help to keep the local climate cool and moist.

Judicious thinning and brush clean up would be be the best course of action to reduce the threat of fire, and protect wildlife.

Susan Cerny
860 Keeler Ave.
Berkeley, CA 94708

EBH-EIS-FEMA-RIX

From: Matthew Taylor [matthew@matthewtaylor.net]
Sent: Sunday, September 26, 2010 10:09 PM
To: EBH-EIS-FEMA-RIX,
Subject: comments on EBH EIS

My comments are below on the project that's discussed at this website:

– Approximately 8 years ago a part of the same hill area was proposed for tree clearance to develop a University housing complex. At that time Grizzly Peak/Olympus area neighbors organized and stopped the project.

– These grants call for clearcutting which is in direct opposition to the FEMA guidelines which specifically prohibits clearcutting.

– Chipping the clearcut trees and scattering the chips (leaving them at a depth of several feet) would potentially *increase the fire hazard.* Note: chips degrade the wildlife for creatures nesting in ground, snakes, etc., they release CO_2 and stimulate weeds.

– Applying toxic pesticides is dangerous to the environment, to wildlife, and possibly to people.

– It is important to the environment to keep as many tall trees as possible. Note: large trees sequester CO_2 and are important for the survival of several species of birds, especially raptors, and they serve as windbreaks and help to keep the local climate cool and moist.

Matthew Taylor
Wordsmith. Mediator.
http://matthewtaylor.net

land 510-841-4061 (try first)
cell 510-684-7233

"Conflict work is the art of the impossible." - Johan Galtung

2135 Cedar St.
Berkeley CA 94709

please send all notifications via email not via snail mail if possible

EBH-EIS-FEMA-RIX

From: isis feral [isisferal@yahoo.com]
Sent: Monday, September 27, 2010 1:34 AM
To: EBH-EIS-FEMA-RIX,
Cc: Amaglio, Alessandro
Subject: EBH EIS documents inaccessible to public

I contacted your agency through your website at www.ebheisforca.ursdcmetro.com several weeks ago, because the links in the document section were broken. While those two initial links have been fixed, not a single other link, to the eleven documents that were added since, works.

The documents listed appear to be relevant details about the project for which public comment is being solicited. It is not reasonable to expect the public to comment on projects for which details are being withheld. Considering that your agency knew several weeks ago that the first two links were broken, it should not be too much to expect that additional links are checked for functionality.

Please let me know when the links to the documents are repaired and accessible to the public, and extend the public comment period to assure the public has the proper time to review these documents. Please also confirm receipt of this email and the agency's intent to remedy this situation.

Thank you.

Isis Feral
isisferal@yahoo.com

EBH-EIS-FEMA-RIX

From: Drwolff98@aol.com

Sent: Monday, September 27, 2010 8:05 AM

To: EBH-EIS-FEMA-RIX,

Subject: No Subject

I oppose ANY funding of the 2 UC PDM grants for the following reasons:
! -These grants call for clearcutting of all eucalyptus, pines, and acacia trees, ! which is in direct opposition to the FEMA guidelines which specifically prohibit ! clearcutting.
! -These grants call for the removal of trees that are far away from any structures, ! which is in direct opposition to the FEMA guidelines which clearly state that the ! purpose of these grants is to protect structures and associated lives.
! -The methods being proposed for these grants includes the chipping and ! spreading of the cut trees on site, leaving up to 24" of wood chips. There is a ! substantial concern that this practice will CREATE a fire hazard in that these ! dried wood chips are highly flammable, and if a fire were to start it would be all ! but impossible to extinguish.
! -There is no evidence that targeting 3 species of trees while leaving other ! vegetation will reduce the fire risk. There are vague assertions made that native ! species are somehow less of a fire risk than non-native species, but these ! assertions are unsubstantiated. In fact, if the experience on Angel Island and ! Southern California is any indicator, migrating a landscape from one with large, ! tall trees to one with grasses and chaparral (which is what is being proposed) ! will likely INCREASE the risk of fire.
! -The FEMA Inspector General?s Office has been made aware that there are ! allegations of fraud in these grant applications, allegations that if proven, would ! likely have caused these projects to be discarded in favor of other more ! deserving projects.
We oppose ANY funding of the EBRPD grant for the following reasons:
! -These grants call for the removal of trees that are far away from any structures, ! which is in direct opposition to the FEMA guidelines which clearly state that the ! purpose of these grants is to protect structures and associated lives.
! -These grants are targeted at 3 species, eucalyptus, pines, and acacia trees. ! There is no evidence that targeting 3 species of trees while leaving other ! vegetation will reduce the fire risk. There are vague assertions made that native ! species are somehow less of a fire risk than non-native species, but these ! assertions are unsubstantiated. In fact, if the experience on Angel Island and ! Southern California is any indicator, migrating a landscape from one with large, ! tall trees to one with grasses and chaparral (which is what is being proposed) ! will likely INCREASE the risk of fire.-There is currently a lawsuit pending that challenges the adequacy of the EBRPD EIR that forms the basis for the CEQA clearance for significant portions of this project. Until this lawsuit is resolved it is impossible to know what vegetation management actions will be acceptable. Given this reality, it would be inappropriate to allow further progress on this grant at this time.
We partially support the funding of the City of Oakland grant as follows:
! -We oppose the portion of this grant that the City proposed to transfer to UC for ! their proposed project in the Frowning Ridge area. The reasons for this are the ! same as described in the section above that discusses the UC PDM grants.
! -We support funding ONLY the portion of this project that addresses the threat to ! residential structures in the area immediately above Caldecott Field. In this case, ! as is the case with the UC projects, fuels should be removed in a SPECIES- ! NEUTRAL manner. That is to say that ALL fuels that pose a threat should be
! addressed, with a vegetation-free buffer zone of at least 100? below the homes ! at the top of the canyon, with underbrush clearing and limbing off ALL trees at ! the site.

Dr. Anne //Wolff
64 Bayview Ave.
Larkspur,CA 94939

EBH-EIS-FEMA-RIX

From: Peter Wegner [pw.pw.pw.pw@gmail.com]
Sent: Monday, September 27, 2010 9:35 AM
To: EBH-EIS-FEMA-RIX,
Cc: savestrawberrycanyon@gmail.com; Robin Olesen
Subject: re: UC Strawberry Canyon Vegetation Management Project

Dear FEMA:

We live with our family of five in Strawberry Canyon on land that abuts UC property.

We are writing to express **my strong opposition** to the current plan to clear-cut all eucalyptus, Monterey pine, acacia trees and exotic non-native trees.

We object on the following grounds:
-clear cutting savages a wooded area that is heavily used by recreational walker and hikers
-it contravenes a provision of FEMA guidelines that expressly prohibits clear-cutting
-chipping and depositing the chipped debris onto the ground destroys habitat for native species of animal
-therefore your attempt to remove so-called "non-native" flora actually harms native fauna
-"non-native" is itself a relative term, since the forest is entirely composed of trees that came from somewhere else at some point in time ... designating eucalyptus as non-native therefore arbitrarily and indefensibly draws a line in time before which trees are said to be native and after which they are not
-spraying with herbicide actually increases the risk of fire; this has already happened this year as dense vegetation along the fire trail through the canyon was killed then left standing, effectively lining the trail with tinder
-leaving chipped debris does the same
-the herbicide becomes run-off which flows into the creek at the base of the canyon, destroying animal habitat, contaminating the water table and polluting the bay

What you propose is therefore properly understood as a direct and imminent threat to public health.

Therefore, together with our family, we must **urge you to reconsider**.

Sincerely,
Peter Wegner & Robin Olesen
299 Panoramic Way
Berkeley CA
94704

EBH-EIS-FEMA-RIX

From: Renata Polt [rpfgs@earthlink.net]
Sent: Monday, September 27, 2010 9:57 AM
To: EBH-EIS-FEMA-RIX,
Subject: trees

To whom it may concern:

I am shocked by the proposal to clear-cut and poison thousands of trees in the UC/Oakland/Regional Park neighborhoods.

The trees are essential to climate control and to the existence of birds and other wildlife. And the idea of keeping the areas clear with the use of herbicides is outrageous. Mulching the chipped vegetation will *add to*, not *decrease* fire danger.

Please reconsider this ill-conceived plan.

Renata Polt Schmitt
196 Hillcrest Road
Berkeley 94705

EBH-EIS-FEMA-RIX

From: Mike Vandeman [mjvande@pacbell.net]
Sent: Sunday, September 26, 2010 10:09 PM
To: EBH-EIS-FEMA-RIX,
Subject: Strawberry Canyon Clearcutting

Gentlepersons:

Eucalyptus removal is okay, because they are exotic, but eucalyptus exudes chemicals that inhibit the growth of other species, so their chips should NOT be left on site.

Monterey pine is allegedly nonnative, but in actuality, that depends on time scale. It is extremely unlikely, given that it is native to the Monterey area, that they have NEVER grown in Berkeley.
Therefore, they should be given the benefit of the doubt, and not cut. If you want to remove exotics, you should start with French broom, which is relatively easy to remove -- IF you are consistent in cutting it each spring.

The hill property above campus is important habitat (for, among others, the federally Threatened Alameda whipsnake), and should not be used for building. Due to the difficulty of serving it via public transit (it is off the beaten path and up a hill), its use is unwise.

Sincerely yours,

Michael J. Vandeman, Ph.D.
2600 Camino Ramon # 3e4001
San Ramon, CA 94583-5099
925-866-2325

--

I am working on creating wildlife habitat that is off-limits to humans ("pure habitat"). Want to help? (I spent the previous 8 years fighting auto dependence and road construction.)

Please don't put a cell phone next to any part of your body that you are fond of!

http://home.pacbell.net/mjvande

EBH-EIS-FEMA-RIX

From: isis feral [isisferal@yahoo.com]
Sent: Monday, September 27, 2010 6:56 PM
To: AlessandroAmaglio; EBH-EIS-FEMA-RIX
Subject: RE: EBH EIS documents inaccessible to public

Thank you very much. The links now work.

Since these documents outline the proposed actions, and have not been available for public viewing during the public comment period, I do think that the public deserves an extension on the comment period.

Thank you.

Isis Feral

--- On **Mon, 27/9/10, Amaglio, Alessandro** <***alessandro.amaglio@dhs.gov***> wrote:

From: Amaglio, Alessandro <alessandro.amaglio@dhs.gov>
Subject: RE: EBH EIS documents inaccessible to public
To: "isis feral" <isisferal@yahoo.com>, "EBH-EIS-FEMA-RIX," <Ebh-EIS-FEMA-RIX@dhs.gov>
Date: Monday, 27 September, 2010, 10:11 AM

Please check the site again. I have been told that the technical problem has been resolved. Feel free to let me know should you still encounter any difficulties in opening the links/attachments. Thank you.

Alessandro Amaglio
Regional Environmental Officer
FEMA R IX-U.S Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, California 94607-4052
Phone: 510-627-7284
Fax: 510-627-7270
Cell phone: 510-610-1587
Email: alessandro.amaglio@dhs.gov

From: isis feral [mailto:isisferal@yahoo.com]
Sent: Monday, September 27, 2010 01:34
To: EBH-EIS-FEMA-RIX,
Cc: Amaglio, Alessandro
Subject: EBH EIS documents inaccessible to public

I contacted your agency through your website at www.ebheisforca.ursdcmetro.com several weeks ago, because the links in the document section were broken. While those

two initial links have been fixed, not a single other link, to the eleven documents that were added since, works.

The documents listed appear to be relevant details about the project for which public comment is being solicited. It is not reasonable to expect the public to comment on projects for which details are being withheld. Considering that your agency knew several weeks ago that the first two links were broken, it should not be too much to expect that additional links are checked for functionality.

Please let me know when the links to the documents are repaired and accessible to the public, and extend the public comment period to assure the public has the proper time to review these documents. Please also confirm receipt of this email and the agency's intent to remedy this situation.

Thank you.

Isis Feral
isisferal@yahoo.com

EBH-EIS-FEMA-RIX

From: Max Ventura [beneficialbug@netzero.net]
Sent: Monday, September 27, 2010 10:56 PM
To: EBH-EIS-FEMA-RIX,
Subject: Comment on "public scoping" for EIS of FEMA grant applications
Attachments: image001.jpg; image003.jpg; EBPA,DSC FEMA response, EBRPD, UC, Oak.doc

Same comments as below appear in the attached document. Please acknowledge receipt.
Thank you.
Sincerely,
Maxina Ventura
EBPA/DSC
27 September, 2010

To Whom It May Concern:

East Bay Pesticide Alert, also known as Don't Spray California, is taking this opportunity to respond jointly to FEM. requests from the University of California (UC); the East Bay Regional Park District (EBRPD); a Oakland for what the agencies refer to as 'wildfire prevention projects' in the East Bay Hills. For we actively have opposed these entities' attempts to continue various and related wildfire projects include the use of pesticides, and in the case of tree fellings which for these agencies is paired wit use, cause increased fire danger to people, wildlife, structures. These plans violate at least two ou parameters of FEMA's Wildfire Mitigation Policy, MRR-2-08-1, "Wildfire Mitigation Policy for and PDM Program".

PESTICIDES, TOXICITY, and FIRE DANGER DUE TO MISMANAGEMENT

UC, EBRPD, and the city of Oakland amply have demonstrated their wildfire prevention protocols in the past and have, in the EIR process of EBRPD quite recently, shown their intentions to continue what has caused fire danger in the hills. Each of these entities' practices, irregardless whether people support more tree fellings or pesticide use, routinely have included spraying pesticides and leaving dead vegetation throughout the hills, a clear fire danger adding to grossly mismanaged understories throughout the hills. These agencies each have acted in negligence, continuing practices which abetted the '91 fire. For this reason alone, they should not be granted FEMA wildfire prevention monies. They have demonstrated incompetence in the past and their future plans would jeopardize the health and wellbeing of people, pets, wildlife, insects, soil, and vegetation, as well as structures, a misuse of public funds. For a flammability study conducted in the East Bay, near Claremont Canyon, please see http://pesticides.intown.biz/Cheriel%20Response.html.

Perhaps an example of intention would be enlightening. The only specific general management practices mentioned in the EBRPD's Draft EIR were an inadequate requirement for notification signs, and reference to the size and smoothness of cut tree stumps. EBRPD appears to have no

interest in serious notification which might allow people plans to avoid treated areas or better yet make arrangements to stay away from nearby homes for a time period, and seems to be more concerned about the potential for splinters from logged trees than about chemical poisoning from contact, drift, and other mobility of pesticides applied to and around the stumps and other vegetation, a subject they avoid. Please see http://twnside.org.sg/title/service76.htm on Denmark's ban on RoundUp because it was found in groundwater.

ALTERNATIVES to PESTICIDES

These agencies' plans are to cut trees and use pesticides. There is no safe use of pesticides. By nature they kill, cause genetic mutations, neurological problems, hormonal disruption and disfunction. They translocate and endanger water supplies. We offered them alternatives, most absolutely standard practices, focusing on fuel reduction by employing people who need jobs to do manual labor of understory removal without the use of chemicals. And in the case of any tree fellings, solarization of tree stumps, a standard practice relying on elementary school and backyard bulb gardeners' basic principles of starving plant life of the photosynthesis process. No photosynthesis, no sugars to feed the plant (read: resprouts). A sheet of plastic stapled down is a standard practice, but it is possible to use a natural tar (as opposed to a petrochemically-derived product) instead. Alternatives to pesticides abound, as we made clear in 2005; yet, just days after our presentation, Tom Klatt of UC put out his 10 year plan for Strawberry Canyon and Claremont Canyon, which is enlightening. It says labor and chemicals are about $100 per acre each of two times per year, expecting it to take 1-1/2 hours per acre. That's probably a crew of several working to apply pesticides (it's only the Licensed Pesticide Applicators overseeing spray projects who make huge salaries; people doing the dangerous work rarely make much above minimum wage). The $4000 management for $6716 in labor and $1125 in chemicals for 45 acres for Claremont Canyon for 10 years may well be part of the Licensed Pesticide Applicator salary of $125,000 common in 2005. So in the event of tree fellings, a crew going in with weed wrenches for baby trees or weed whackers for resprouts should be able to be paid if instead applying most or all of that "management" $4000 for their wages, an assertion we have made all these years. Additionally, what is not outlined in Klatt's plan, nor in any of the agencies' project plans or grant requests is who covers the costs of lost productivity for those sickened by pesticide exposures, whether workers applying pesticides or otherwise working in the hills, residents, or visitors to the hills. Without such plans specified it appears that the burden is shifted to individuals, cities, or counties.

SCARE TACTICS

The issue we brought up in 2005 remains today; mismanagement. Even in the few cases of diseased trees which legitimately should be felled if they would be likely to fall in an area where people or homes would be damaged, after fellings these agencies could be cutting back resprouts, solarizing, or employing one of the many other alternatives we offered as examples. But the city of Oakland is a prime example of mismanagement creating fire danger. Eucalypts cut down in Montclair were left to resprout and in 2005, after this resprout museum had grown tall once more, but with multiple sprouts creating fire ladders everywhere, the city council woman who wanted to join in the hills pesticide use pushed by UC and EBRPD used these resprouts as an example to scare people. What scared us was the city's irresponsible behavior in cutting the trees in the first place if they didn't plan to cut them back after, or dig out the stumps. City representatives kept talking about the massive danger of that stand of resprouts but never bothered in that time period to have the sprouts cut back down.

TOXICOLOGICAL PROFILES OF PESTICIDES

In January of 2005, EBPA/ DSC handed representatives of each of these entities toxicology of

2

the pesticides UC and EBRPD already were using, and pushing Oakland to use in the hills. We offered many quite standard alternatives to pesticide use while pointing out the danger to other species of removing Eucalyptus from the hills (Eucalyptus was the only tree being discussed at public hearings at

that time). Please see http://dontspraycalifornia.org/wpad.html for more info on our opposition in that time period. Also, please see the toxicology of Monsanto's RoundUp (http://www.alternatives2toxics.org/catsoldsite/round.htm), the toxicology of glyphosate, the "active" ingredient of the product called RoundUp (http://www.pesticide.org/glyphosate.pdf), and that of Garlon's triclopyr (http://www.pesticide.org/triclopyr.pdf), at least the formulation used at that time. Formulations are changed routinely due to pesticide resistance. In fact, part of the danger of a pesticide approach is that when a pesticide stops performing as expected, use of a new formulation is planned. What about environmental oversight of new formulations? Is that part of FEMA's oversight when granting monies for wildfire prevention projects? Does FEMA plan to leave oversight around product and formulation use to these agencies if FEMA should grant them public monies to fund their requests? Please see http://pesticides.intown.biz/wildfire.html for details of the other pesticides UC uses in the hills.

LOW DOSE and the NON-MONOTONIC DOSE RESPONSE

New formulations cannot be expected to be "less toxic", though that phrase also has absolutely no legal meaning, which may be why we have seen these agencies use such language trying to assuage the public throughout time as people have opposed pesticide use. In fact, pesticides can hit hardest in small, repeated, cumulative doses which build up in the body, and by the 'non-monotonic dose response'. The NMDR results in a larger response with less of a dose. This is the theory and basis of the practice of the healthcare modality, Homeopathy, practiced around the world; less can be more. Researchers long have described the cumulative effects of low doses of chemicals, which they consider more dangerous than the occasional major exposure in otherwise-healthy individuals. For more detail on low-dose chemical responses, please see http://web72345.ntx.net/article/gulfwar.shtml. Endocrine disruptors are one example of chemicals that cause a non-monotonic dose response (http://citybelt.typepad.com/LowDownLowDoseEDs.PDF). Or, as the body is secreting what it can of the toxin, toxic effects can increase as well. An example dating back to 1888 is that of fungicidal chemicals such as mercuric chloride increasing fermentation in yeast (http://toxsci.oxfordjournals.org/cgi/content/full/77/1/151). This kind of process was demonstrated in Sonoma and Napa Wine Country, where health surveying revealed common, overwhelming, systemic yeast overgrowth in people (animal testing was not done to ascertain statistics on farm or domestic animals). Fungicides such as Copper Hydroxide, and Sulfur scraped from industrial smokestacks, are used everywhere in the vineyards and inversion layers in the valleys trap people and animals in a chemical soup. Another fairly common example shows itself around varied responses to coffee. While the general expectation is that a cup of caffeinated coffee will give people energy and a "pick up", for many caffeinated coffee has a physically relaxing effect while decaffeinated coffee, containing much less caffeine, gives them alertness and a burst of energy.

RESPONSE TIME AFTER EXPOSURE

In the case of pesticide applications, people might not have their primary reactions at the time of highest as the exposure tapers off, they can have even fatal responses. In the case of carbamate and

3

organophosphate pesticides, commonly people don't experience any significant response until 8-12 hour exposure, and responses to pesticides can last weeks to years, in the case of a response taking someone p her/his body's ability to metabolize the toxins in question. Just as one person can metabolize a 6-pack of another can be asleep, or otherwise affected, after a sip or two. We, and wildlife and pets, are individual l beings which variously are damaged by pesticides, as is soil and vegetation. The medical establishment h taught to recognize even the most common symptoms of exposure to even the most commonly-found pes typically is not familiar with appropriate tests such as the cholinesterase test which looks for depressed le enzyme, seen with carbamate and organophosphate poisoning, but must be checked within a few hours o provide an accurate assessment. Thus, when people die of heart attacks or asthma attacks due to pesticide their death certificates give no indication of the part pesticides have played. This results in any epidemiol

health studies and data kept by the Department of Pesticide Regulation (DPR) and other agencies being s doesn't help statistical understanding that undocumented workers, many who do the dirty work of applyi which can kill them, are not going to be showing up in OSHA (Occupational Safety and Health Administ DPR's source for records on work-related pesticide poisonings, as DPR's staff scientist, Louise Mehler, t to us in the latter 90's.

UNETHICAL ASPECTS of RISK ASSESSMENT

Risk Assessment is the game played by the pesticide industry, busily trying to keep people from thinking critically about pesticide use. Risk Assessment, the methodology used by the chemical industry and authors of Environmental Impact Reports and Statements and seekers of any number of grants for projects including pesticide use, or the downing of trees, for instance, theorizes which risks are "significant" or "acceptable" to those who are paid to evaluate the financial cost-effectiveness of a plan. First, do no harm, Hippocrates' motto, and that of healthcare workers and medical doctors everywhere, recognizes that it is not ethical to call anyone an Acceptable Risk, nor is it ethical, from a standpoint of environmental sustainability, to apply Risk Assessment to wildlife, pets, insects, vegetation, and soil. Biology is clear: neither humans nor wildlife, pets, insects, vegetation, nor soil exist in a vacuum. Each is part of an intricate web from which one cannot be spot-removed without endangering the others. In fact, the USDA's Light Brown Apple Moth debacle has been exposed for the danger eradication attempts represent to biological habitats, meaning any habitat. Trying to eradicate something naturalized can create a hole of unknown consequences which we cannot predict so could not possibly know how such potential damage might be mitigated.

Environmental reviews should be based on the Precautionary Principle, which in a nutshell states "better safe than sorry", with a particular view toward protecting vulnerable species and populations, and not on a theoretical risk assessment approach, which determines how much risk to the lives of others is acceptable to those who theorize about the potential impact of an action.

INFORMATION and FACTS IGNORED

Shocking to many is how much information these agencies have been given for years about the dangers of the use of pesticides, and abundant alternatives, but also that their plans for, and execution already, of tree fellings is actually a "native plant restoration" project, masked as a wildfire prevention project. Almost 6 years ago we were challenging the city of Oakland over what was very publicly being touted as a "native plant restoration" project alongside the more

4

formal 'wildfire prevention project' titling, pointing out the irony that, using pesticides in Sausal Creek or other hills areas would in fact serve to kill off the web of mycorrhizal fungi which nourish native plants and are an essential part of healthy soil which supports healthy vegetation. Pesticides damage immune systems of all biological beings. In spite of this fact, the city councilwoman, Jean Quan, and Friends of Sausal Creek, continued to push for pesticide use in the creek and on the 1,023 acres the city oversees in the hills, being actively pushed by UC's Tom Klatt and EBRPD's Nancy Brownfield, under whose tenure EBRPD has increased use of pesticides, even taking into consideration acreage added over the years.

ENDANGERED SPECIES in the HILLS

We countered that in fact there are endangered species in the hills, both animal and vegetation and that, pesticides would endanger them. Finally, the city attorney said to us, "Okay, you got us. This does fall under CEQA (the California Environmental Quality Act)." As we continued to attempt to follow up, to make sure plans were not continuing without formal environmental review, including more public, advertised hearings, we were stonewalled. No one contacted at city offices would talk. Later we discovered that apparently to do an end-run around our expose, the city quietly made an alliance with UC and has plowed ahead with plans to cut down healthy trees and use pesticides, in spite of the fact of

endangered species in the hills. While the endangered Pallid Manzanita, Alameda Whipsnake, Pallid Bat, and the Red-legged Frog all reside in the East Bay Hills we see no significant plans to protect them nor the raptors who depend on tall trees for their survival. Findings of 'no significant impact' abound in the EBRPD's EIR; yet it is scientifically-impossible for their plans to have 'no significant impact' when they plan to down between 500,000 and 1.2 million trees, then apply pesticides for the next 10 years. By virtue of the fact of this agency's arrogance in its statement that there would be 'no significant impact', we feel any assertion they make must be questioned and researched for facts. In light of this, their request for FEMA wildfire prevention grant funding should not be provided so that it is available for true emergency wildfire prevention work.

OAKLAND MISLEADS

Look at the city's website and you see talk of sustainability and environmental health, and the old pesticide industry line, "best management practices". The words 'pesticides' and 'herbicides' are nowhere to be seen. It would appear the city continues to try to pull the wool over people's eyes as in spite of having what the city attorney likes to call a 'ban' on pesticide use by the city, it uses herbicides citywide on medians, and in some parks, such as on the paths within a few feet of Children's Fairyland, and along narrow roads in the hills on Joaquin Miller Road, among others. In addition, subcontractors use pesticides without oversight by the city, as acknowledged to us by Noel Gallo early in 2005. This results in people not being able easily or accurately to track pesticide use in the city associated with city use as county agricultural records for the city's use do not reflect the subcontractors' use, and records for subcontractors do not have to specify as clearly what products they are using where and when, or in what amounts.

The Oakland city people behind plans to remove eucalyptus seem to miss the irony of the city Office of Parks and Recreation boasting photos in their marketing materials showcasing eucalyptus, probably because most people agree it is beautiful, and are acclimated to eucalyptus surrounding us in the hills and creek areas and all around the Bay Area.

5

UC ACQUIRES MONEY FROM PESTICIDE COMPANIES

People would like to believe that a public university system will be devoted to seeking truth in science. UC has contracts with pesticide companies such as Novartis and Syngenta, Dow, Bayer, and Monsanto. Suffice it to say, UC is not objective; it receives masses of money directly and indirectly from pesticide companies so of course it will push pesticides. At the same time, UC has been clearcutting areas of the East Bay Hills and we have pointed out that the reason UC may have set its sights so aggressively on Claremont Canyon's trees is that to get rid of them now clears the way more easily for their Lawrence Berkeley Lab extensions to proceed without getting bogged down later in the EIR process around: trees. UC seems to have a stronghold over the city of Berkeley but it also is apparent that, that stronghold is acquiring breadth with passing time. Oakland has latched on, and a series of agencies with oversight of one area or another in the hills (eg. EBMUD and PG&E) seem to tag along fairly quietly with whatever UC asserts.

EBRPD DISAPPOINTS, CONFUSES, and IGNORES

EBRPD is expected to be acting in the public and environment's best interest in work it does in the regio system and, indeed, its union employees sometimes have taken public stands in support of worker and vi safety, such as their strong resolution opposing the Light Brown Apple Moth pesticides program. See res http://www.dontspraycalifornia.org/AFSCME%202428%20resolution.pdf. Our experience with the unio rangers throughout the park system is frustration, almost uniformly, with Nancy Brownfield, at the cente controversy, who has a misleading title of "Integrated Pest Management Specialist". Ms. Brownfield has pesticide use, to the chagrin of many of the workers who understand that visitors, wildlife, vegetation, so are being endangered. They want money put into hiring more workers, not paying for chemicals.

To make matters worse, EBRPD has jumped headlong into the Spartina Project which uses pesticides in eradicate cordgrass in the Bay (brought in originally by the military). As would be expected, the state an listed California Clapper Rail population has significantly decreased. When reading minutes of the EBRI September 7, 2010 meeting, one might want to assume that this is due simply to the removal of habitat. E insight into the chemicals the Rails are ingesting, inhaling, and absorbing, please see http://pesticides.intown.biz/spartina.html. You might note that Imazapyr is being used by UC in the hill RoundUp is being used by EBRPD and Oakland. Still, the plan is to continue this pesticide use around t

WHAT IS NATIVE? WHO IS BEHIND 'INVASIVE SPECIES COUNCILS'?

We have seen repeatedly that 'native plant restoration' projects are being masqueraded as wildfire prevention projects and more insidiously, taxpayer self-assessments along with tax-supplied grants such as the FEMA grants requested by these agencies, are sold to taxpayers as necessary for wildfire safety. These scare tactics are unethical and, worse, will lead to an unwillingness in the future to supply money readily, when it might actually be needed, to fund manual removal of excess understory or grasslands vegetation, some of it ironically native and quite flammable as wildfire historically blazed through these hills bursting seedpods and covering them in what amounted to rich compost. These scare tactics could lead, therefore, to more fire danger in the future as threats continue to build due to mismanagement.

UC, EBRPD, and the city of Oakland have seemed fixated on getting rid of what they refer to as non-native plants. Invasion Biologists have differing scientific opinions on when species have

6

reached acclimation, at which point even trying to remove them can pose biological danger. Acclimation and naturalization are normal evolutionary processes and have resulted in monarch butterflies overwintering in the East Bay Hills, where they might not if most or all of the eucalyptus were cut down.

David Theodoropoulos, an Invasion Biologist who is deeply critical of his field, and points to the historic involvement of the pesticide industry in establishing invasive species councils to do their bidding (http://www.jlhudsonseeds.net/NativesVsExotics.htm), shows photos of eucalyptus in the Oakland Hills during the 1991 fire, in areas where the understory had been kept down (http://video.google.com/videoplay?docid=5437585345864241 76). The fire burnt out before igniting the trees in those areas. Just as we see with many trees in the neighborhood of the San Bruno PG&E gas pipeline explosion and resulting inferno. Many living trees surround burnt homes.

Where agencies mismanaged in the East Bay Hills and failed to cut back the understory since it hadn't been properly attended as an Urban-Wildlands interface or a Residential-Wildlands interface, the hills inferno flourished. But many eucalyptus trees acted as windbreaks that hot, windy day, and the moist, cool forest floor around these trees reduced the potential for ignition in some areas. What we see in photos of the 2003 Scripps Ranch fire in Southern California is classic; homes full of gas lines and gas appliances, and cars, exploded, completely surrounded by massive, unaffected eucalyptus trees. See photos: http://graphics7.nytimes.com/images/2003/10/27/national/28fire1.jpg and: http://www.scrippsranch.org/special/Fire2003/Ward/MVC-002F.jpg. The first shows a whole cul-de-sac of houses and cars exploded, completely surrounded by healthy eucalyptus, the second shows exploded cars and only a chimney of a house left (much like Broadway Terrace in '91), many healthy eucalyptus trees right there, unscathed.

WHO PROFITS IN THIS ATTACK ON "NON-NATIVES"?

The question is, who profits by manufacturing an emergency around getting rid of anything non-native? Pesticide companies, for one, and in the case of felling trees, there are many contracts to be written, much money changing hands already as consultants are sent in to do their studies and estimates, and years of work and money are assured if final decisions reflect taking down a million or more trees, some

of the lungs of the earth.

A history of mismanagement is no excuse for allowing further mismanagement, unleashing potent toxins upon us.

Landscape aesthetics are in the eye of the beholder and forcing nature into the aesthetic preferences of a 1 the expense of ecological health. Continued widespread removal of trees is leading to mudslides in the hi whole sections of habitat. As important, pesticides used on and around the stumps remain in the area and Innocent pedestrians or bicycle riders in some areas walk or ride through pesticide residues while inhalin (indoors, insecticides can take two weeks to stop floating around and begin to settle down onto furniture stuffed animals and dishes—source: Designer Poisons, Marion Moses). People track them and spray then further as they walk, jog, or bike. Wildlife in

7

the area is exposed through inhalation, absorption and ingestion. One of our considerable concerns is that in the Bay Area we have immigrant populations from Asia who use plants found in the hills medicinally as well as for food (blackberry shoots being popular in some cuisines), and people practicing Western Herbalism frequently gather herbs in the hills. They can unwittingly be sickened ironically as they are gathering Horsetail to aid respiratory distress, or other herbs for other medicinal purposes.

This plan brings to mind the county of Alameda's plan to remove all the century-old Eucalypts along San Leandro Creek, in fact the only wild corridor for miles which links the flatlands and hills. As another story of deception has been revealed, tree by tree, parcel by parcel, we find that the purpose of the county's removal plans is, once again, according the county's chief arborist, Jim Brown, a "native restoration project". The grand plan was to quickly clearcut three areas to provide the easiest access/removal areas and spend the next few years chopping down one tree after another, dragging them up the creek further to ruin remaining habitat, then nicely (maybe) replanting some trees. Among those considered by the county is willow, a fine choice if you want to end up with no water at all in the creek. Oh, yes, and pesticide use on the banks of the creek, too, though no one has yet revealed which products after months of requests. And when you read the fine print on their documents, you see that a primary "Reason for Action" to remove the trees again and again is listed as: Tree will require substantial on-going resources to evaluate and maintain.

Money, time, the hassle factor. Not that they don't have money. In fact, the county hired a "very expensive" (according to a county person) p.r. firm, the same one the state hired to push their Light Brown Apple Moth pesticides program, and an arborist who has created her own ranking system for tree danger, at odds with that used by many certified arborists. One has to wonder why the county would want to rely on a new system while the arborists with her company keep saying they can't guarantee anything. Not that we are expecting many guarantees when dealing with nature. But there are some guarantees in this situation in the hills and the SL creek: down trees and you lose oxygen and gain carbon, increasing the numbers of people who will be sickened. Change the environment so drastically by removing these trees and you will have a hotter environment, not able to support life which has acclimated over a century. Use pesticides and you will ruin soil and water health and endanger people, wildlife, pets and insects.

WHAT WOULD AN HONEST LOGGER SAY ABOUT THESE PLANS?

As the author of this writing was at work assembling notes for this response she contacted a gentleman who comes from a logging family from the Central Coast area to hear his response to the general plans by these agencies. His response was swift and clear. He pointed out that in spite of herbicides which might be used, stumps are open wounds, attractive to insects and more so as they degrade. They are prone to disease which then endangers the trees nearby left standing. He put it this way, thinking of

clearcutting and replants he's seen in the logging world, "In the infant stage replants are attacked by insects gathering at the open wounds of cut stumps. They are still weak in their infant stages, and more so if exposed to herbicides. Disease can spread easily in that environment, building on the stronghold on a stump. The secondary militia creates infection on many standing trees, a disease ward for any trees in the area." He went on to give more

8

perspective. "If there's 300 tree stumps in one area and 500 are nearby if there are infantile trees nearby many are likely to become diseased. What can happen to the rest of the forest of 2000 surrounding that area? What are the chances of survival?"

CARBON SEQUESTRATION; WHY SHOULD PEOPLE OPPOSED TO PESTICIDE USE CARE?

The East Bay is home to a population considered to have 16.3% already somewhere on the continuum of chemically-sensitive. Those of us with Multiple Chemical Sensitivity (MCS), or concerned about becoming victims of this debilitating chronic disease which can bring with it myriad life-threatening problems such as high blood sugar, high blood pressure, high cholesterol, heart problems, kidney disease, asthma, and hormonal disruption, are concerned about the massive carbon releases which come with felling trees such as old eucalyptus. These trees are lungs for us. They have taken in carbon and given us oxygen. We cannot lose this oxygen and on top of it face yet more carbon.

It is ironic to know that UCSF, home of an acclaimed medical school, is behind plans to remove all the eucalyptus from Mt. Sutro in San Francisco. We were busy assembling our response to UCSF's requests for a FEMA grant for what was being called a 'wildfire prevention project' but was actually another 'native plant restoration' project. Happily, before we could send in our response, we got the good news that FEMA had realized the grant request was not legitimate and refused to grant it this money to UCSF without an EIR. It is ironic that the home of a medical school is not willing to go through that health and environmental process, and instead intends to march ahead, funding the felling of trees itself. A foggy mountain in the city, providing so much needed oxygen, to be decimated by UCSF.

OUR RECOMMENDATIONS

We want FEMA to be clear that these agencies have had information in their hands for many years clarifying dangers of pesticides and offering multiple standard alternatives, easily applied with the funds available through various pools of tax monies in addition to the regular streams of funding for maintenance. They have failed in their most basic maintenance duties.

Too, we want FEMA to remember that there is no emergency here other than the lack of proper maintenance over decades by agencies with lack of competence or interest. That is no reason to grant emergency monies which need to be available for emergencies that arise unexpectedly. What's going on here is entirely predictable and reversible with common sense oversight. FEMA's wildfire prevention project granting stream should not be used to make up for incompetence if it will result in that incompetence being allowed to remain, and continue, resulting in future wildfire dangers being created.

These agencies have been expected by people living in the hills to do reasonable understory management, a standard expectation in an Urban-Wildland interface. They have failed to act reasonably, and sensibly, to safeguard people and now are ready to release massive amounts of carbon into the environment, completely change habitats in the hills, and try to create native plant nurseries in pesticide-laden soils. The irony is that they seem completely unaware that

9

many native plants which used to thrive in the East Bay Hills are highly flammable. Perhaps it's time to stop assuming that if something is called native it's preferable, and if it's called non-native it's bad.

Time to move beyond that severely limited thinking.

Our climate has changed drastically, quickly, and we cannot assume that pulling down a million eucalyptus, acacia, and monterey pine, and planting native plants, or waiting for vegetation to fill in, will mean we will end up with anything actually resembling the East Bay Hills of a century ago. And as one man said some time ago about 'native plant restoration' projects, "Looks a lot like gardening to me." An ongoing maintenance project, exactly what these agencies all seem to want to avoid: maintenance.

What do you teach a toddler if you give her sweets? Don't fill up on healthy foods; leave room for the sugar.

What do you teach these agencies if you give them these FEMA grants? Don't bother with the regular maintenance with which you are charged; let it go and you'll get the spoils.

These agencies' histories of action have violated at least two of the three parameters of FEMA's Wildfire Mitigation Policy, MRR-2-08-1, in their not doing reasonable maintenance to create defensible space around homes, and their not limiting hazardous fuels, in fact increasing fuels by pesticiding and leaving behind dried out vegetation, as described above.

East Bay Pesticide Alert asks that you deny UC; UCRPD; and Oakland the FEMA 'wildfire prevention project' grants they have requested based on the above points, and on the fact that these are 'native plant restoration' projects being masqueraded as 'wildfire prevention projects', an old game it seems we must keep exposing.

Thank you for your attention to this matter.

Sincerely,

Maxina Ventura
Chronic Effects Researcher
East Bay Pesticide Alert

EBH-EIS-FEMA-RIX

From: Max Ventura [beneficialbug@netzero.net]
Sent: Tuesday, September 28, 2010 1:03 AM
To: EBH-EIS-FEMA-RIX,
Subject: resubmitting corrected links comment for "public scoping" for EIS of FEMA grant applications
Attachments: EBPA, DSC FEMA response, UC; EBRPD; Oak.doc

To Whom It May Concern:

I submitted our comments unfortunately having failed to check URL links first. We checked and found some broken links due to document name changes and in one case substituted an equally-important article from a scientific journal when one link failed and we could not find the original article in internet archives.

We are very sorry to inconvenience you in this way. Please accept the attached as the intended submission and please acknowledge receipt of this.

Thank you.

Sincerely,

Maxina Ventura
East Bay Pesticide Alert / Don't Spray California

East Bay Pesticide Alert
Don't Spray California
2399 E. 14th Street #24 San Leandro, CA 94577 (510) 895-2312 beneficialbug@netzero.net

To Whom It May Concern:

East Bay Pesticide Alert, also known as Don't Spray California, is taking this opportunity to respond jointly to FEMA grant requests from the University of California (UC); the East Bay Regional Park District (EBRPD); and the city of Oakland for what the agencies refer to as 'wildfire prevention projects' in the East Bay Hills. For nearly 6 years we actively have opposed these entities' attempts to continue various and related wildfire projects which often include the use of pesticides, and in the case of tree fellings which for these agencies is paired with pesticide use, cause increased fire danger to people, wildlife, structures. These plans violate at least two out of three parameters of FEMA's Wildfire Mitigation Policy, MRR-2-08-1, "Wildfire Mitigation Policy for the HMGP and PDM Program".

PESTICIDES, TOXICITY, and FIRE DANGER DUE TO MISMANAGEMENT

UC, EBRPD, and the city of Oakland amply have demonstrated their wildfire prevention protocols in the past and have, in the EIR process of EBRPD quite recently, shown their intentions to continue what has caused fire danger in the hills. Each of these entities' practices, irregardless whether people support more tree fellings or pesticide use, routinely have included spraying pesticides and leaving dead vegetation throughout the hills, a clear fire danger adding to grossly mismanaged understories throughout the hills. These agencies each have acted in negligence, continuing practices which abetted the '91 fire. For this reason alone, they should not be granted FEMA wildfire prevention monies. They have demonstrated incompetence in the past and their future plans would jeopardize the health and wellbeing of people, pets, wildlife, insects, soil, and vegetation, as well as structures, a misuse of public funds. For a flammability study conducted in the East Bay, near Claremont Canyon, please see http://pesticides.intown.biz/Cheriel%20Response.html .

Perhaps an example of intention would be enlightening. The only specific general management practices mentioned in the EBRPD's Draft EIR were an inadequate requirement for notification signs, and reference to the size and smoothness of cut tree stumps. EBRPD appears to have no interest in serious notification which might allow people plans to avoid treated areas or better yet make arrangements to stay away from nearby homes for a time period, and seems to be more concerned about the potential for splinters from logged trees than about chemical poisoning from contact, drift, and other mobility of pesticides applied to and around the stumps and other vegetation, a subject they avoid. Please see http://twnside.org.sg/title/service76.htm on Denmark's ban on RoundUp because it was found in groundwater.

ALTERNATIVES to PESTICIDES

These agencies' plans are to cut trees and use pesticides. There is no safe use of pesticides. By nature they kill, cause genetic mutations, neurological problems, hormonal disruption and disfunction. They translocate and endanger water supplies. We offered them alternatives, most absolutely standard practices, focusing on fuel reduction by employing people who need jobs to do manual labor of understory removal without the use of chemicals. And in the case of any tree fellings, solarization of tree stumps, a standard practice relying on elementary school and backyard bulb gardeners' basic principles of starving plant life of the photosynthesis

process. No photosynthesis, no sugars to feed the plant (read: resprouts). A sheet of plastic stapled down is a standard practice, but it is possible to use a natural tar (as opposed to a petrochemically-derived product) instead. Alternatives to pesticides abound, as we made clear in 2005; yet, just days after our presentation, Tom Klatt of UC put out his 10 year plan for Strawberry Canyon and Claremont Canyon, which is enlightening. It says labor and chemicals are about $100 per acre each of two times per year, expecting it to take 1-1/2 hours per acre. That's probably a crew of several working to apply pesticides (it's only the Licensed Pesticide Applicators overseeing spray projects who make huge salaries; people doing the dangerous work rarely make much above minimum wage). The $4000 management for $6716 in labor and $1125 in chemicals for 45 acres for Claremont Canyon for 10 years may well be part of the Licensed Pesticide Applicator salary of $125,000 common in 2005. So in the event of tree fellings, a crew going in with weed wrenches for baby trees or weed whackers for resprouts should be able to be paid if instead applying most or all of that "management" $4000 for their wages, an assertion we have made all these years. Additionally, what is not outlined in Klatt's plan, nor in any of the agencies' project plans or grant requests is who covers the costs of lost productivity for those sickened by pesticide exposures, whether workers applying pesticides or otherwise working in the hills, residents, or visitors to the hills. Without such plans specified it appears that the burden is shifted to individuals, cities, or counties.

SCARE TACTICS

The issue we brought up in 2005 remains today; mismanagement. Even in the few cases of diseased trees which legitimately should be felled if they would be likely to fall in an area where people or homes would be damaged, after fellings these agencies could be cutting back resprouts, solarizing, or employing one of the many other alternatives we offered as examples. But the city of Oakland is a prime example of mismanagement creating fire danger. Eucalypts cut down in Montclair were left to resprout and in 2005, after this resprout museum had grown tall once more, but with multiple sprouts creating fire ladders everywhere, the city council woman who wanted to join in the hills pesticide use pushed by UC and EBRPD used these resprouts as an example to scare people. What scared us was the city's irresponsible behavior in cutting the trees in the first place if they didn't plan to cut them back after, or dig out the stumps. City representatives kept talking about the massive danger of that stand of resprouts but never bothered in that time period to have the sprouts cut back down.

TOXICOLOGICAL PROFILES OF PESTICIDES

In January of 2005, EBPA/ DSC handed representatives of each of these entities toxicology of the pesticides UC and EBRPD already were using, and pushing Oakland to use in the hills. We offered many quite standard alternatives to pesticide use while pointing out the danger to other species of removing Eucalyptus from the hills (Eucalyptus was the only tree being discussed at public hearings at that time). Please see http://dontspraycalifornia.org/wpad.html for more info on our opposition in that time period. Also, please see the toxicology of Monsanto's RoundUp (http://www.alternatives2toxics.org/catsoldsite/roundup.htm), the toxicology of glyphosate, the "active" ingredient of the product called RoundUp (http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/glyphosate), and that of Garlon's triclopyr (http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/triclopyr), at least the formulation used at that time. Formulations are changed routinely due to pesticide resistance. In fact, part of the danger of a pesticide approach is that when a pesticide stops performing as expected, use of a new formulation is planned.

What about environmental oversight of new formulations? Is that part of FEMA's oversight when granting

monies for wildfire prevention projects? Does FEMA plan to leave oversight around product and formulation use to these agencies if FEMA should grant them public monies to fund their requests? Please see http://www.eastbaypesticidealert.org/wildfire.html for details of the other pesticides UC uses in the hills.

LOW DOSE and the NON-MONOTONIC DOSE RESPONSE

New formulations cannot be expected to be "less toxic", though that phrase also has absolutely no legal meaning, which may be why we have seen these agencies use such language trying to assuage the public throughout time as people have opposed pesticide use. In fact, pesticides can hit hardest in small, repeated, cumulative doses which build up in the body, and by the 'non-monotonic dose response'. The NMDR results in a larger response with less of a dose. This is the theory and basis of the practice of the healthcare modality, Homeopathy, practiced around the world; less can be more. Researchers long have described the cumulative effects of low doses of chemicals, which they consider more dangerous than the occasional major exposure in otherwise-healthy individuals. For more detail on low-dose chemical responses, please see http://web72345.ntx.net/article/gulfwar.shtml or http://toxsci.oxfordjournals.org/content/68/1/1.full . Endocrine disruptors are one example of chemicals that cause a non-monotonic dose response. Or, as the body is secreting what it can of the toxin, toxic effects can increase as well. An example dating back to 1888 is that of fungicidal chemicals such as mercuric chloride increasing fermentation in yeast (http://toxsci.oxfordjournals.org/cgi/content/full/77/1/151). This kind of process was demonstrated in Sonoma and Napa Wine Country, where health surveying revealed common, overwhelming, systemic yeast overgrowth in people (animal testing was not done to ascertain statistics on farm or domestic animals). Fungicides such as Copper Hydroxide, and Sulfur scraped from industrial smokestacks, are used everywhere in the vineyards and inversion layers in the valleys trap people and animals in a chemical soup. Another fairly common example shows itself around varied responses to coffee. While the general expectation is that a cup of caffeinated coffee will give people energy and a "pick up", for many caffeinated coffee has a physically relaxing effect while decaffeinated coffee, containing much less caffeine, gives them alertness and a burst of energy.

RESPONSE TIME AFTER EXPOSURE

In the case of pesticide applications, people might not have their primary reactions at the time of highest exposure but as the exposure tapers off, they can have even fatal responses. In the case of carbamate and organophosphate pesticides, commonly people don't experience any significant response until 8-12 hours after exposure, and responses to pesticides can last weeks to years, in the case of a response taking someone past a point of her/his body's ability to metabolize the toxins in question. Just as one person can metabolize a 6-pack of beer quickly, another can be asleep, or otherwise affected, after a sip or two. We, and wildlife and pets, are individual biological beings which variously are damaged by pesticides, as is soil and vegetation. The medical establishment has not been taught to recognize even the most common symptoms of exposure to even the most commonly-found pesticides, and typically is not familiar with appropriate tests such as the cholinesterase test which looks for depressed levels of this enzyme, seen with carbamate and organophosphate poisoning, but must be checked within a few hours of exposure to provide an accurate assessment. Thus, when people die of heart attacks or asthma attacks due to pesticide exposures, their death certificates give no indication of the part pesticides have played. This results in any epidemiological or other health studies and data kept by the Department of Pesticide Regulation (DPR) and other agencies being skewed. It doesn't help statistical understanding that undocumented workers, many who do the dirty work of applying chemicals which can kill them, are not going to be showing up in OSHA (Occupational Safety and Health Administration) files, DPR's source for records on work-related pesticide poisonings, as DPR's staff scientist, Louise Mehler, acknowledged to us in the latter 90's.

UNETHICAL ASPECTS of RISK ASSESSMENT

Risk Assessment is the game played by the pesticide industry, busily trying to keep people from thinking critically about pesticide use. Risk Assessment, the methodology used by the chemical industry and authors of Environmental Impact Reports and Statements and seekers of any number of grants for projects including pesticide use, or the downing of trees, for instance, theorizes which risks are "significant" or "acceptable" to those who are paid to evaluate the financial cost-effectiveness of a plan. First, do no harm, Hippocrates' motto, and that of healthcare workers and medical doctors everywhere, recognizes that it is not ethical to call anyone an Acceptable Risk, nor is it ethical, from a standpoint of environmental sustainability, to apply Risk Assessment to wildlife, pets, insects, vegetation, and soil. Biology is clear: neither humans nor wildlife, pets, insects, vegetation, nor soil exist in a vacuum. Each is part of an intricate web from which one cannot be spot-removed without endangering the others. In fact, the USDA's Light Brown Apple Moth debacle has been exposed for the danger eradication attempts represent to biological habitats, meaning any habitat. Trying to eradicate something naturalized can create a hole of unknown consequences which we cannot predict so could not possibly know how such potential damage might be mitigated.

Environmental reviews should be based on the Precautionary Principle, which in a nutshell states "better safe than sorry", with a particular view toward protecting vulnerable species and populations, and not on a theoretical risk assessment approach, which determines how much risk to the lives of others is acceptable to those who theorize about the potential impact of an action.

INFORMATION and FACTS IGNORED

Shocking to many is how much information these agencies have been given for years about the dangers of the use of pesticides, and abundant alternatives, but also that their plans for, and execution already, of tree fellings is actually a "native plant restoration" project, masked as a wildfire prevention project. Almost 6 years ago we were challenging the city of Oakland over what was very publicly being touted as a "native plant restoration" project alongside the more formal 'wildfire prevention project' titling, pointing out the irony that, using pesticides in Sausal Creek or other hills areas would in fact serve to kill off the web of mycorrhizal fungi which nourish native plants and are an essential part of healthy soil which supports healthy vegetation. Pesticides damage immune systems of all biological beings. In spite of this fact, the city councilwoman, Jean Quan, and Friends of Sausal Creek, continued to push for pesticide use in the creek and on the 1,023 acres the city oversees in the hills, being actively pushed by UC's Tom Klatt and EBRPD's Nancy Brownfield, under whose tenure EBRPD has increased use of pesticides, even taking into consideration acreage added over the years.

ENDANGERED SPECIES in the HILLS

We countered that in fact there are endangered species in the hills, both animal and vegetation and that, pesticides would endanger them. Finally, the city attorney said to us, "Okay, you got us. This does fall under CEQA (the California Environmental Quality Act)." As we continued to attempt to follow up, to make sure plans were not continuing without formal environmental review, including more public, advertised hearings, we were stonewalled. No one contacted at city offices would talk. Later we discovered that apparently to do an end-run around our expose, the city quietly made an alliance with UC and has plowed ahead with plans to cut down healthy trees and use pesticides, in spite of the fact of endangered species in the hills. While the endangered Pallid Manzanita, Alameda Whipsnake, Pallid Bat, and the Red-legged Frog all reside in the East Bay Hills we see no significant plans to protect them nor the raptors who depend on tall trees for their survival. Findings of 'no significant impact' abound in the EBRPD's EIR; yet it is scientifically-impossible for their plans to have 'no significant impact' when they plan to down between 500,000 and 1.2 million trees, then apply pesticides for

the next 10 years. By virtue of the fact of this agency's arrogance in its statement that there would be 'no significant impact', we feel any assertion they make must be questioned and researched for facts. In light of this, their request for FEMA wildfire prevention grant funding should not be provided so that it is available for true emergency wildfire prevention work.

OAKLAND MISLEADS

Look at the city's website and you see talk of sustainability and environmental health, and the old pesticide industry line, "best management practices". The words 'pesticides' and 'herbicides' are nowhere to be seen. It would appear the city continues to try to pull the wool over people's eyes as in spite of having what the city attorney likes to call a 'ban' on pesticide use by the city, it uses herbicides citywide on medians, and in some parks, such as on the paths within a few feet of Children's Fairyland, and along narrow roads in the hills on Joaquin Miller Road, among others. In addition, subcontractors use pesticides without oversight by the city, as acknowledged to us by Noel Gallo early in 2005. This results in people not being able easily or accurately to track pesticide use in the city associated with city use as county agricultural records for the city's use do not reflect the subcontractors' use, and records for subcontractors do not have to specify as clearly what products they are using where and when, or in what amounts.

The Oakland city people behind plans to remove eucalyptus seem to miss the irony of the city Office of Parks and Recreation boasting photos in their marketing materials showcasing eucalyptus, probably because most people agree it is beautiful, and are acclimated to eucalyptus surrounding us in the hills and creek areas and all around the Bay Area.

UC ACQUIRES MONEY FROM PESTICIDE COMPANIES

People would like to believe that a public university system will be devoted to seeking truth in science. UC has contracts with pesticide companies such as Novartis and Syngenta, Dow, Bayer, and Monsanto. Suffice it to say, UC is not objective; it receives masses of money directly and indirectly from pesticide companies so of course it will push pesticides. At the same time, UC has been clearcutting areas of the East Bay Hills and we have pointed out that the reason UC may have set its sights so aggressively on Claremont Canyon's trees is that to get rid of them now clears the way more easily for their Lawrence Berkeley Lab extensions to proceed without getting bogged down later in the EIR process around: trees. UC seems to have a stronghold over the city of Berkeley but it also is apparent that, that stronghold is acquiring breadth with passing time. Oakland has latched on, and a series of agencies with oversight of one area or another in the hills (eg. EBMUD and PG&E) seem to tag along fairly quietly with whatever UC asserts.

EBRPD DISAPPOINTS, CONFUSES, and IGNORES

EBRPD is expected to be acting in the public and environment's best interest in work it does in the regional park system and, indeed, its union employees sometimes have taken public stands in support of worker and visitor park safety, such as their strong resolution opposing the Light Brown Apple Moth pesticides program. See resolution: http://www.dontspraycalifornia.org/AFSCME%202428%20resolution.pdf. Our experience with the union and park rangers throughout the park system is frustration, almost uniformly, with Nancy Brownfield, at the center of controversy, who has a misleading title of "Integrated Pest Management Specialist". Ms. Brownfield has pushed pesticide use, to the chagrin of many of the workers who understand that visitors, wildlife, vegetation, soil, and they, are being endangered. They want money put into hiring more workers, not paying for chemicals.

To make matters worse, EBRPD has jumped headlong into the Spartina Project which uses pesticides in efforts to eradicate

cordgrass in the Bay (brought in originally by the military). As would be expected, the state and federally-listed California Clapper Rail population has significantly decreased. When reading minutes of the EBRPD's Board's September 7, 2010 meeting, one might want to assume that this is due simply to the removal of habitat. But for more insight into the chemicals the Rails are ingesting, inhaling, and absorbing, please see http://www.eastbaypesticidealert.org/spartina.html . You might note that Imazapyr is being used by UC in the hills and RoundUp is being used by EBRPD and Oakland. Still, the plan is to continue this pesticide use around the Bay.

WHAT IS NATIVE? WHO IS BEHIND 'INVASIVE SPECIES COUNCILS'?

We have seen repeatedly that 'native plant restoration' projects are being masqueraded as wildfire prevention projects and more insidiously, taxpayer self-assessments along with tax-supplied grants such as the FEMA grants requested by these agencies, are sold to taxpayers as necessary for wildfire safety. These scare tactics are unethical and, worse, will lead to an unwillingness in the future to supply money readily, when it might actually be needed, to fund manual removal of excess understory or grasslands vegetation, some of it ironically native and quite flammable as wildfire historically blazed through these hills bursting seedpods and covering them in what amounted to rich compost. These scare tactics could lead, therefore, to more fire danger in the future as threats continue to build due to mismanagement.

UC, EBRPD, and the city of Oakland have seemed fixated on getting rid of what they refer to as non-native plants. Invasion Biologists have differing scientific opinions on when species have reached acclimation, at which point even trying to remove them can pose biological danger. Acclimation and naturalization are normal evolutionary processes and have resulted in monarch butterflies overwintering in the East Bay Hills, where they might not if most or all of the eucalyptus were cut down.

David Theodoropoulos, an Invasion Biologist who is deeply critical of his field, and points to the historic involvement of the pesticide industry in establishing invasive species councils to do their bidding (http://www.jlhudsonseeds.net/NativesVsExotics.htm), shows photos of eucalyptus in the Oakland Hills during the 1991 fire, in areas where the understory had been kept down (http://video.google.com/videoplay?docid=5437585345864241 76). The fire burnt out before igniting the trees in those areas. Just as we see with many trees in the neighborhood of the San Bruno PG&E gas pipeline explosion and resulting inferno. Many living trees surround burnt homes.

Where agencies mismanaged in the East Bay Hills and failed to cut back the understory since it hadn't been properly attended as an Urban-Wildlands interface or a Residential-Wildlands interface, the hills inferno flourished. But many eucalyptus trees acted as windbreaks that hot, windy day, and the moist, cool forest floor around these trees reduced the potential for ignition in some areas. What we see in photos of the 2003 Scripps Ranch fire in Southern California is classic; homes full of gas lines and gas appliances, and cars, exploded, completely surrounded by massive, unaffected eucalyptus trees. See photos: http://graphics7.nytimes.com/images/2003/10/27/national/28fire.l.jpg and: http://www.scrippsranch.org/special/Fire2003/Ward/MVC-002F.jpg. The first shows a whole cul-de-sac of houses and cars exploded, completely surrounded by healthy eucalyptus, the second shows exploded cars and only a chimney of a house left (much like Broadway Terrace in '91), many healthy eucalyptus trees right there, unscathed.

WHO PROFITS IN THIS ATTACK ON "NON-NATIVES"?

The question is, who profits by manufacturing an emergency around getting rid of anything non-native?

6

Pesticide companies, for one, and in the case of felling trees, there are many contracts to be written, much money changing hands already as consultants are sent in to do their studies and estimates, and years of work and money are assured if final decisions reflect taking down a million or more trees, some of the lungs of the earth.

A history of mismanagement is no excuse for allowing further mismanagement, unleashing potent toxins upon us.

Landscape aesthetics are in the eye of the beholder and forcing nature into the aesthetic preferences of a few comes at the expense of ecological health. Continued widespread removal of trees is leading to mudslides in the hills, removing whole sections of habitat. As important, pesticides used on and around the stumps remain in the area and translocate. Innocent pedestrians or bicycle riders in some areas walk or ride through pesticide residues while inhaling residual drift (indoors, insecticides can take two weeks to stop floating around and begin to settle down onto furniture and floors, stuffed animals and dishes—source: Designer Poisons, Marion Moses). People track them and spray them around further as they walk, jog, or bike. Wildlife in the area is exposed through inhalation, absorption and ingestion. One of our considerable concerns is that in the Bay Area we have immigrant populations from Asia who use plants found in the hills medicinally as well as for food (blackberry shoots being popular in some cuisines), and people practicing Western Herbalism frequently gather herbs in the hills. They can unwittingly be sickened ironically as they are gathering Horsetail to aid respiratory distress, or other herbs for other medicinal purposes.

This plan brings to mind the county of Alameda's plan to remove all the century-old Eucalypts along San Leandro Creek, in fact the only wild corridor for miles which links the flatlands and hills. As another story of deception has been revealed, tree by tree, parcel by parcel, we find that the purpose of the county's removal plans is, once again, according the county's chief arborist, Jim Brown, a "native restoration project". The grand plan was to quickly clearcut three areas to provide the easiest access/removal areas and spend the next few years chopping down one tree after another, dragging them up the creek further to ruin remaining habitat, then nicely (maybe) replanting some trees. Among those considered by the county is willow, a fine choice if you want to end up with no water at all in the creek. Oh, yes, and pesticide use on the banks of the creek, too, though no one has yet revealed which products after months of requests. And when you read the fine print on their documents, you see that a primary "Reason for Action" to remove the trees again and again is listed as: Tree will require substantial on-going resources to evaluate and maintain.

Money, time, the hassle factor. Not that they don't have money. In fact, the county hired a "very expensive" (according to a county person) p.r. firm, the same one the state hired to push their Light Brown Apple Moth pesticides program, and an arborist who has created her own ranking system for tree danger, at odds with that used by many certified arborists. One has to wonder why the county would want to rely on a new system while the arborists with her company keep saying they can't guarantee anything. Not that we are expecting many guarantees when dealing with nature. But there are some guarantees in this situation in the hills and the SL creek: down trees and you lose oxygen and gain carbon, increasing the numbers of people who will be sickened. Change the environment so drastically by removing these trees and you will have a hotter environment, not able to support life which has acclimated over a century. Use pesticides and you will ruin soil and water health and endanger people, wildlife, pets and insects.

WHAT WOULD AN HONEST LOGGER SAY ABOUT THESE PLANS?

As the author of this writing was at work assembling notes for this response she contacted a gentleman who

7

comes from a logging family from the Central Coast area to hear his response to the general plans by these agencies. His response was swift and clear. He pointed out that in spite of herbicides which might be used, stumps are open wounds, attractive to insects and more so as they degrade. They are prone to disease which then endangers the trees nearby left standing. He put it this way, thinking of clearcutting and replants he's seen in the logging world, "In the infant stage replants are attacked by insects gathering at the open wounds of cut stumps. They are still weak in their infant stages, and more so if exposed to herbicides. Disease can spread easily in that environment, building on the stronghold on a stump. The secondary militia creates infection on many standing trees, a disease ward for any trees in the area." He went on to give more perspective. "If there's 300 tree stumps in one area and 500 are nearby if there are infantile trees nearby many are likely to become diseased. What can happen to the rest of the forest of 2000 surrounding that area? What are the chances of survival?"

CARBON SEQUESTRATION; WHY SHOULD PEOPLE OPPOSED TO PESTICIDE USE CARE?
The East Bay is home to a population considered to have 16.3% already somewhere on the continuum of chemically-sensitive. Those of us with Multiple Chemical Sensitivity (MCS), or concerned about becoming victims of this debilitating chronic disease which can bring with it myriad life-threatening problems such as high blood sugar, high blood pressure, high cholesterol, heart problems, kidney disease, asthma, and hormonal disruption, are concerned about the massive carbon releases which come with felling trees such as old eucalyptus. These trees are lungs for us. They have taken in carbon and given us oxygen. We cannot lose this oxygen and on top of it face yet more carbon.

It is ironic to know that UCSF, home of an acclaimed medical school, is behind plans to remove all the eucalyptus from Mt. Sutro in San Francisco. We were busy assembling our response to UCSF's requests for a FEMA grant for what was being called a 'wildfire prevention project' but was actually another 'native plant restoration' project. Happily, before we could send in our response, we got the good news that FEMA had realized the grant request was not legitimate and refused to grant it this money to UCSF without an EIR. It is ironic that the home of a medical school is not willing to go through that health and environmental process, and instead intends to march ahead, funding the felling of trees itself. A foggy mountain in the city, providing so much needed oxygen, to be decimated by UCSF.

OUR RECOMMENDATIONS
We want FEMA to be clear that these agencies have had information in their hands for many years clarifying dangers of pesticides and offering multiple standard alternatives, easily applied with the funds available through various pools of tax monies in addition to the regular streams of funding for maintenance. They have failed in their most basic maintenance duties.

Too, we want FEMA to remember that there is no emergency here other than the lack of proper maintenance over decades by agencies with lack of competence or interest. That is no reason to grant emergency monies which need to be available for emergencies that arise unexpectedly. What's going on here is entirely predictable and reversible with common sense oversight. FEMA's wildfire prevention project granting stream should not be used to make up for incompetence if it will result in that incompetence being allowed to remain, and continue, resulting in future wildfire dangers being created.

These agencies have been expected by people living in the hills to do reasonable understory management, a standard expectation in an Urban-Wildland interface. They have failed to act reasonably, and sensibly, to

safeguard people and now are ready to release massive amounts of carbon into the environment, completely change habitats in the hills, and try to create native plant nurseries in pesticide-laden soils. The irony is that they seem completely unaware that many native plants which used to thrive in the East Bay Hills are highly flammable. Perhaps it's time to stop assuming that if something is called native it's preferable, and if it's called non-native it's bad. Time to move beyond that severely limited thinking.

Our climate has changed drastically, quickly, and we cannot assume that pulling down a million eucalyptus, acacia, and monterey pine, and planting native plants, or waiting for vegetation to fill in, will mean we will end up with anything actually resembling the East Bay Hills of a century ago. And as one man said some time ago about 'native plant restoration' projects, "Looks a lot like gardening to me." An ongoing maintenance project, exactly what these agencies all seem to want to avoid: maintenance.

What do you teach a toddler if you give her sweets? Don't fill up on healthy foods; leave room for the sugar.

What do you teach these agencies if you give them these FEMA grants? Don't bother with the regular maintenance with which you are charged; let it go and you'll get the spoils.

These agencies' histories of action have violated at least two of the three parameters of FEMA's Wildfire Mitigation Policy, MRR-2-08-1, in their not doing reasonable maintenance to create defensible space around homes, and their not limiting hazardous fuels, in fact increasing fuels by pesticiding and leaving behind dried out vegetation, as described above.

East Bay Pesticide Alert asks that you deny UC; UCRPD; and Oakland the FEMA 'wildfire prevention project' grants they have requested based on the above points, and on the fact that these are 'native plant restoration' projects being masqueraded as 'wildfire prevention projects', an old game it seems we must keep exposing.

Thank you for your attention to this matter.

Sincerely,

Maxina Ventura
Chronic Effects Researcher
East Bay Pesticide Alert

From: gary.molitor@gamil.com [gary.molitor@gamil.com]
Sent: Tuesday, September 28, 2010 3:30 PM
To: Lane Powell; EBRPD - Public Affairs
Subject: [Website feedback] Eucalyptus tree lies

Gary Molitor sent a message using the contact form at
http://www.ebparks.org/contact.

LIE # 1
* The oil in dry leaves slows their decomposition and ignites readily and explosively,...
LIE # 2
* The bark and leaves of eucalyptus create thick flammable duff ...
LIE # 3
* Their height contributes to convenient fire spread and, when ignited, ...
LIE # 4
* Eucalyptus are called "widow makers" because of their limbs tendency to break easily ...
LIE # 5
* ... litter decays, creating an allelopathic effect that ...
LIE # 6
* Eucalyptus flowers are deep and filled with gum that clogs the beaks of the local short beaked birds ...
LIE # 7
* The trees create bird and butterfly sinks by giving them a false sense
of security for nesting.

There is ample scientific evidence that none of these lies have even a faint hint of truth to them

EBH-EIS-FEMA-RIX

From: helen kozoriz [helenkozoriz@sbcglobal.net]
Sent: Wednesday, September 29, 2010 11:26 AM
To: EBH-EIS-FEMA-RIX,
Cc: helen kozoriz
Subject: FEMA Mitigation Policy MRR-2-08-1

To Whom It May Concern:

I would like to submit the following article published in the July 2010 Hills Conservation Network Newsletter as a comment on the Claremont Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-003), Strawberry Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-011), Oakland Regional Fuel Management Project (PDM-PJ-09-CA-2006-004) and the EBRPD Brushland Fuels Management Project (HGMP 1731-16-34).

Alternatives to pesticide use must be considered and studied before embarking on projects which will have significant cumulative impacts on public health, the environment and ecology of the East Bay for years to come. Because these projects, as presently described, involve the controversial use of harmful pesticides, I urge that FEMA not fund any of these projects.

Sincerely,

Helen M. Kozoriz
Stop the Spray Alameda County
1 Rydal Court
Oakland, California 94611
(510) 336-0499
helenkozoriz@sbcglobal.net

Pesticide Risks in the Environment

You may have heard about the recent public outcry over a proposal by California's Department of Pesticide Regulation (DPR) to register cancer-causing methyl iodide as a soil fumigant for strawberries and other crops.

The *New York Times* quoted John Froines, chair of the scientific review panel commissioned by DPR and professor of environmental health sciences at UCLA, as saying, "This is without question one of the most toxic chemicals on earth."

If methyl iodide is approved, farm workers will suffer increased risk of cancer; neighboring residents will be exposed to pesticide drift; and surface and ground water

will be contaminated by a hazardous chemical.

Every pesticide has risks involved in its use. The East Bay Regional Park District (EBRPD), UC Berkeley and the City of Oakland regularly apply pesticides to prevent eucalyptus stumps from resprouting and to kill broom and other types of unwanted vegetation.

According to its own most recent Integrated Pest Management (IPM) report available online, in 2008 the Park District used 191 gallons of pesticides (Garlon, Roundup, Surflan and Banvel; the total does not include diphacinone, a rodenticide). See: http://www/ebparks.org/stewardship/ipm

Triclopyr (the active ingredient in Garlon 4 Ultra) and glyphosate (the active ingredient in Roundup) are used on non-native vegetation. EBRPD's Wildfire Plan/EIR, recently certified by EBRPD's Board of Directors, will result in increased applications of triclopyr to eucalyptus stumps and more spraying of glyphosate on broom.

Caroline Cox, now research director at the Center for Environmental Health in Oakland, reported extensively on triclopyr and glyphosate when she was editor of the *Journal of Pesticide Reform*. She said, "Triclopyr's carcinogenicity has been studied in rats and mice. In both species, feeding of triclopyr significantly increased the frequency of breast cancer (mammary adenocarcinomas)." See: http://www.pesticide.org/triclopyr.pdf

Cox described three separate studies which show "a link between glyphosate exposure and non-Hodgkin's lymphoma, a type of cancer." In a fourth study, "the incidence of another cancer, multiple myeloma, showed a 'suggestive association' with glyphosate exposure." See: http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/glyphosate

San Francisco's Department of the Environment classifies Garlon 4 Ultra as a "highest hazard" (Hazard Tier 1) pesticide in the "limited use, special concern" category. Roundup is listed as a Hazard Tier 2 pesticide; it is in the "limited use" category. See: http://www.SFEnvironment.org/IPMchecklist

According to the EPA, triclopyr is "very mobile" in soil and has the potential to leach to ground water. Glyphosate's persistence in soil varies widely, but drift is common. Both pesticides are known to contaminate rivers and streams; triclopyr has been found in drinking water in some places in the United States.

EPA currently does not require manufacturers to disclose so-called "inert" ingredients in commercial pesticide products, but tests reveal that some inerts are hazardous. See: http://www.epa.gov/opprd001/inerts/

What are the environmental impacts of pesticide applications in the East Bay hills? There is no doubt that triclopyr, applied to thousands of eucalyptus stumps, and glyphosate, sprayed on broom, may negatively impact the watershed and the health of humans and animals.

Pesticide use exposes workers, people of all ages, including children and pregnant women, pets, wildlife and the environment to harmful chemicals. Do we really need to use pesticides? This is what we want to know: How can projects that depend on pesticides claim to benefit the environment?

###

EBH-EIS-FEMA-RIX

From:	Gary Molitor [gary.molitor@gmail.com]
Sent:	Wednesday, September 29, 2010 3:21 PM
To:	EBH-EIS-FEMA-RIX,
Subject:	East Bay/Berkeley Regional Fuel Management Project
Attachments:	HMGP 731-16-34.pdf

HMGP
11-16-34.pdf (328 K

See attachment.

Dear FEMA,

This email is to register my opposition to a possible FEMA grant for these applications:
The Claremont Canyon Vegetation Management Project (PDM-PJ-09 CA 2005-003)
And
The Strawberry Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-011)
And
The Oakland Regional Fuel Management Project (PDM PJ-09-CA-2006-004)

These projects are designed to remove *only* eucalyptus, Monterey pine, and acacia trees.
It should be obvious that by singling out eucalyptus, Monterey pine, and acacia trees that these projects are an attempt by ~~the~~ native plant proponents to eradicate non-native trees and not about potential fire hazard management.

There is no scientific evidence that the removal of these trees will limit the fire danger and may potentially increase the fire danger as we all saw in the 2008 Angel Island fire. This fire was a result of the removal of 80% of the eucalyptus trees from the island by the State Park Service. That 2008 fire was the worse fire ever recorded on the island.

If eucalyptus trees are so flammable please explain why all the homes burned in the Scripps Ranch Fire and none of the Blue Gum Eucalyptus trees where burned (see photograph below). Actually, contrary to the opinions of the misinformed, Blue Gum Eucalyptus trees are fire resistant. Their branches are far enough off the ground to prevent fire-laddering.

I have lived in the Bay Area Most of my 70 years. As a kid growing up in San Leandro and before the East Bay hills were covered over with housing I can remember the Oak savanna hills erupting in fire almost yearly.

The only effective way to reduce fuel load is through brush removal, limbing, trimming, mowing and grazing.

I also oppose FEMA grant funding of the
Brushland Fuels Management Project (HMGP 731-16-34)

The East Bay Regional Park Distinct has been disingenuous in its supporting propaganda for this ill conceived project.
Here from the first page of their pamphlet, "Problems caused by Eucalyptus Trees" are the lies they have propagated.
LIE # 1
• The oil in dry leaves slows their decomposition and ignites readily and explosively,...
LIE # 2
• The bark and leaves of eucalyptus create thick flammable duff ...
LIE # 3
• Their height contributes to convenient fire spread and, when ignited, ...
LIE # 4
• Eucalyptus are called "widow makers" because of their limbs tendency to break easily ...
LIE # 5
• ... litter decays, creating an allelopathic effect that ...
LIE # 6
• Eucalyptus flowers are deep and filled with gum that clogs the beaks of the local short beaked birds ...
LIE # 7
• The trees create bird and butterfly sinks by giving them a false sense of security for nesting.

There is ample scientific evidence that none of these lies have even a faint hint of truth to them

The proposed EBRPD project will greatly increase the use of Garlon 4 Ultra (triclopyr) to spray these areas to control unwanted vegetation. This poisonous chemical has been classified by the San Francisco's Dept. of the Environment as a high hazard pesticide with the label of "limited use, special concern" and the EPA describes it as "very mobile in soil" with "the potential to leach to ground water."

Is FEMA really in the business of supporting the destruction a naturalized environment in the name of native species only "restoration?" I hope not.

Sincerely,
Gary Molitor
San Leandro, CA

EBH-EIS-FEMA-RIX

From: Tomiko Eya [hana_ko77777@yahoo.com]
Sent: Wednesday, September 29, 2010 10:57 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

I support Alternative 1, to approve the applications for financial assistance as submitted by California Emergency Management Agency. It is imperative for hazardous fire risk reduction to remove the highly flammable eucalyptus, Monterey pine, and acacia trees, and brush, and thin vegetation in the targeted areas.

EBH-EIS-FEMA-RIX

From: Max Ventura [beneficialbug@netzero.net]
Sent: Thursday, September 30, 2010 1:08 AM
To: EBH-EIS-FEMA-RIX,
Subject: Resubmitting FEMA grant opposition, URL's may not open in comments recently submitted
Attachments: EBPA,DSC FEMA, UC, EBRPD,Oak 2.doc

To Whom It May Concern:

Once again, I am submitting East Bay Pesticide Alert's comments as a colleague was not able to open links and wondered whether this was related to them being red in the document.

Since I am about to go out of town I will simply try again with the links in the typical blue color and hope these work. Please alert me if they do not and when I return Sunday I will see what can be done to remedy this problem.

I will paste in the document as well as attaching it.

Sincerely,

Maxina Ventura
Chronic Effects Researcher
EBPA

East Bay Pesticide Alert
Don't Spray California
2399 E. 14th Street #24 San Leandro, CA 94577 (510) 895-2512 beneficialbug@netzero.net

To Whom It May Concern:

East Bay Pesticide Alert, also known as Don't Spray California, is taking this opportunity to resp FEMA grant requests from the University of California (UC); the East Bay Regional Park Distric and the city of Oakland for what the agencies refer to as 'wildfire prevention projects' in the East For nearly 6 years we actively have opposed these entities' attempts to continue various and relat projects which often include the use of pesticides, and in the case of tree fellings which for these paired with pesticide use, cause increased fire danger to people, wildlife, structures. These plans two out of three parameters of FEMA's Wildfire Mitigation Policy, MRR-2-08-1, "Wildfire Miti for the HMGP and PDM Program".

PESTICIDES, TOXICITY, and FIRE DANGER DUE TO MISMANAGEMENT
UC, EBRPD, and the city of Oakland amply have demonstrated their wildfire prevention protocols in the past and have, in the EIR process of EBRPD quite recently, shown their intentions to continue what has caused fire danger in the hills. Each of these entities' practices, irregardless whether people support more tree fellings or pesticide use, routinely have included spraying pesticides and leaving dead vegetation throughout the hills, a clear fire danger adding to grossly mismanaged understories throughout the hills. These agencies each have acted in

negligence, continuing practices which abetted the '91 fire. For this reason alone, they should not be granted FEMA wildfire prevention monies. They have demonstrated incompetence in the past and their future plans would jeopardize the health and wellbeing of people, pets, wildlife, insects, soil, and vegetation, as well as structures, a misuse of public funds. For a flammability study conducted in the East Bay, near Claremont Canyon, please see http://pesticides.intown.biz/Cheriel%20Response.html .

Perhaps an example of intention would be enlightening. The only specific general management practices mentioned in the EBRPD's Draft EIR were an inadequate requirement for notification signs, and reference to the size and smoothness of cut tree stumps. EBRPD appears to have no interest in serious notification which might allow people plans to avoid treated areas or better yet make arrangements to stay away from nearby homes for a time period, and seems to be more concerned about the potential for splinters from logged trees than about chemical poisoning from contact, drift, and other mobility of pesticides applied to and around the stumps and other vegetation, a subject they avoid. Please see http://twnside.org.sg/title/service76.htm on Denmark's ban on RoundUp because it was found in groundwater.

ALTERNATIVES to PESTICIDES

These agencies' plans are to cut trees and use pesticides. There is no safe use of pesticides. By nature they kill, cause genetic mutations, neurological problems, hormonal disruption and disfunction. They translocate and endanger water supplies. We offered them alternatives, most absolutely standard practices, focusing on fuel reduction by employing people who need jobs to do manual labor of understory removal without the use of chemicals. And in the case of any tree fellings, solarization of tree stumps, a standard practice relying on elementary school and backyard bulb gardeners' basic principles of starving plant life of the photosynthesis process. No photosynthesis, no sugars to feed the plant (read: resprouts). A sheet of plastic stapled down is a standard practice, but it is possible to use a natural tar (as opposed to a petrochemically-derived product) instead. Alternatives to pesticides abound, as we made clear in 2005; yet, just days after our presentation, Tom Klatt of UC put out his 10 year plan for Strawberry Canyon and Claremont Canyon, which is enlightening. It says labor and chemicals are about $100 per acre each of two times per year, expecting it to take 1-1/2 hours per acre. That's probably a crew of several working to apply pesticides (it's only the Licensed Pesticide Applicators overseeing spray projects who make huge salaries; people doing the dangerous work rarely make much above minimum wage). The $4000 management for $6716 in labor and $1125 in chemicals for 45 acres for Claremont Canyon for 10 years may well be part of the Licensed Pesticide Applicator salary of $125,000 common in 2005. So in the event of tree fellings, a crew going in with weed wrenches for baby trees or weed whackers for resprouts should be able to be paid if instead applying most or all of that "management" $4000 for their wages, an assertion we have made all these years. Additionally, what is not outlined in Klatt's plan, nor in any of the agencies' project plans or grant requests is who covers the costs of lost productivity for those sickened by pesticide exposures, whether workers applying pesticides or otherwise working in the hills, residents, or visitors to the hills. Without such plans specified it appears that the burden is shifted to individuals, cities, or counties.

SCARE TACTICS

The issue we brought up in 2005 remains today; mismanagement. Even in the few cases of diseased trees which legitimately should be felled if they would be likely to fall in an area where people or homes would be damaged, after fellings these agencies could be cutting back resprouts, solarizing, or employing one of the many other alternatives we offered as examples. But the city of Oakland is a prime example of mismanagement creating fire danger. Eucalypts cut down in Montclair were left to resprout and in 2005, after this resprout museum had grown tall once more, but with multiple sprouts creating fire ladders everywhere, the city council woman who wanted to join in the hills pesticide use pushed by UC and EBRPD used these resprouts as an example to scare people. What scared us was the city's irresponsible behavior in cutting the trees in the first place if they didn't plan to cut them back after, or

dig out the stumps. City representatives kept talking about the massive danger of that stand of resprouts but never bothered in that time period to have the sprouts cut back down.

TOXICOLOGICAL PROFILES OF PESTICIDES

In January of 2005, EBPA/ DSC handed representatives of each of these entities toxicology of the pesticides UC and EBRPD already were using, and pushing Oakland to use in the hills. We offered many quite standard alternatives to pesticide use while pointing out the danger to other species of removing Eucalyptus from the hills (Eucalyptus was the only tree being discussed at public hearings at that time). Please see http://dontspraycalifornia.org/wpad.html for more info on our opposition in that time period. Also, please see the toxicology of Monsanto's RoundUp (http://www.alternatives2toxics.org/earsoldsite/round.htm), the toxicology of glyphosate, the "active" ingredient of the product called RoundUp (http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/glyphosate), and that of Garlon's triclopyr (http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/triclopyr), at least the formulation used at that time. Formulations are changed routinely due to pesticide resistance. In fact, part of the danger of a pesticide approach is that when a pesticide stops performing as expected, use of a new formulation is planned.

What about environmental oversight of new formulations? Is that part of FEMA's oversight when granting

2

monies for wildfire prevention projects? Does FEMA plan to leave oversight around product and formulation use to these agencies if FEMA should grant them public monies to fund their requests? Please see http://www.eastbaypesticidealert.org/wildfire.html for details of the other pesticides UC uses in the hills.

LOW DOSE and the NON-MONOTONIC DOSE RESPONSE

New formulations cannot be expected to be "less toxic", though that phrase also has absolutely no legal meaning, which may be why we have seen these agencies use such language trying to assuage the public throughout time as people have opposed pesticide use. In fact, pesticides can hit hardest in small, repeated, cumulative doses which build up in the body, and by the 'non-monotonic dose response'. The NMDR results in a larger response with less of a dose. This is the theory and basis of the practice of the healthcare modality, Homeopathy, practiced around the world; less can be more. Researchers long have described the cumulative effects of low doses of chemicals, which they consider more dangerous than the occasional major exposure in otherwise-healthy individuals. For more detail on low-dose chemical responses, please see http://web72345.ntx.net/article/gulfwar.shtml or http://toxsci.oxfordjournals.org/content/68/1/1.full . Endocrine disruptors are one example of chemicals that cause a non-monotonic dose response. Or, as the body is secreting what it can of the toxin, toxic effects can increase as well. An example dating back to 1888 is that of fungicidal chemicals such as mercuric chloride increasing fermentation in yeast (http://toxsci.oxfordjournals.org/cgi/content/full/77/1/151). This kind of process was demonstrated in Sonoma and Napa Wine Country, where health surveying revealed common, overwhelming, systemic yeast overgrowth in people (animal testing was not done to ascertain statistics on farm or domestic animals). Fungicides such as Copper Hydroxide, and Sulfur scraped from industrial smokestacks, are used everywhere in the vineyards and inversion layers in the valleys trap people and animals in a chemical soup. Another fairly common example shows itself around varied responses to coffee. While the general expectation is that a cup of caffeinated coffee will give people energy and a "pick up", for many caffeinated coffee has a physically relaxing effect while decaffeinated coffee, containing much less caffeine, gives them alertness and a burst of energy.

RESPONSE TIME AFTER EXPOSURE

In the case of pesticide applications, people might not have their primary reactions at the time of highest

as the exposure tapers off, they can have even fatal responses. In the case of carbamate and organophosphate pesticides, commonly people don't experience any significant response until 8-12 hour exposure, and responses to pesticides can last weeks to years, in the case of a response taking someone p her/his body's ability to metabolize the toxins in question. Just as one person can metabolize a 6-pack of another can be asleep, or otherwise affected, after a sip or two. We, and wildlife and pets, are individual l beings which variously are damaged by pesticides, as is soil and vegetation. The medical establishment h taught to recognize even the most common symptoms of exposure to even the most commonly-found pes typically is not familiar with appropriate tests such as the cholinesterase test which looks for depressed le enzyme, seen with carbamate and organophosphate poisoning, but must be checked within a few hours o provide an accurate assessment. Thus, when people die of heart attacks or asthma attacks due to pesticide their death certificates give no indication of the part pesticides have played. This results in any epidemiol health studies and data kept by the Department of Pesticide Regulation (DPR) and other agencies being s doesn't help statistical understanding that undocumented workers, many who do the dirty work of applyi which can kill them, are not going to be showing up in OSHA (Occupational Safety and Health Administ DPR's source for records on work-related pesticide poisonings, as DPR's staff scientist, Louise Mehler, a to us in the latter 90's.

3

UNETHICAL ASPECTS of RISK ASSESSMENT

Risk Assessment is the game played by the pesticide industry, busily trying to keep people from thinking critically about pesticide use. Risk Assessment, the methodology used by the chemical industry and authors of Environmental Impact Reports and Statements and seekers of any number of grants for projects including pesticide use, or the downing of trees, for instance, theorizes which risks are "significant" or "acceptable" to those who are paid to evaluate the financial cost-effectiveness of a plan. First, do no harm, Hippocrates' motto, and that of healthcare workers and medical doctors everywhere, recognizes that it is not ethical to call anyone an Acceptable Risk, nor is it ethical, from a standpoint of environmental sustainability, to apply Risk Assessment to wildlife, pets, insects, vegetation, and soil. Biology is clear: neither humans nor wildlife, pets, insects, vegetation, nor soil exist in a vacuum. Each is part of an intricate web from which one cannot be spot-removed without endangering the others. In fact, the USDA's Light Brown Apple Moth debacle has been exposed for the danger eradication attempts represent to biological habitats, meaning any habitat. Trying to eradicate something naturalized can create a hole of unknown consequences which we cannot predict so could not possibly know how such potential damage might be mitigated.

Environmental reviews should be based on the Precautionary Principle, which in a nutshell states "better safe than sorry", with a particular view toward protecting vulnerable species and populations, and not on a theoretical risk assessment approach, which determines how much risk to the lives of others is acceptable to those who theorize about the potential impact of an action.

INFORMATION and FACTS IGNORED

Shocking to many is how much information these agencies have been given for years about the dangers of the use of pesticides, and abundant alternatives, but also that their plans for, and execution already, of tree fellings is actually a "native plant restoration" project, masked as a wildfire prevention project. Almost 6 years ago we were challenging the city of Oakland over what was very publicly being touted as a "native plant restoration" project alongside the more formal 'wildfire prevention project' titling, pointing out the irony that, using pesticides in Sausal Creek or other hills areas would in fact serve to kill off the web of mycorrhizal fungi which nourish native plants and are an essential part of healthy soil which supports healthy vegetation. Pesticides damage immune systems of all biological beings. In spite of this fact, the city councilwoman, Jean Quan, and Friends of Sausal Creek, continued to push for pesticide use in the creek and on the 1,023 acres the city oversees in the hills, being actively pushed by

UC's Tom Klatt and EBRPD's Nancy Brownfield, under whose tenure EBRPD has increased use of pesticides, even taking into consideration acreage added over the years.

ENDANGERED SPECIES in the HILLS

We countered that in fact there are endangered species in the hills, both animal and vegetation and that, pesticides would endanger them. Finally, the city attorney said to us, "Okay, you got us. This does fall under CEQA (the California Environmental Quality Act)." As we continued to attempt to follow up, to make sure plans were not continuing without formal environmental review, including more public, advertised hearings, we were stonewalled. No one contacted at city offices would talk. Later we discovered that apparently to do an end-run around our expose, the city quietly made an alliance with UC and has plowed ahead with plans to cut down healthy trees and use pesticides, in spite of the fact of endangered species in the hills. While the endangered Pallid Manzanita, Alameda Whipsnake, Pallid Bat, and the Red-legged Frog all reside in the East Bay Hills we see no significant plans to protect them nor the raptors who depend on tall trees for their survival. Findings of 'no significant impact' abound in the EBRPD's EIR; yet it is scientifically-impossible for their plans to have 'no significant impact' when they plan to down between 500,000 and 1.2 million trees, then apply pesticides for

4

the next 10 years. By virtue of the fact of this agency's arrogance in its statement that there would be 'no significant impact', we feel any assertion they make must be questioned and researched for facts. In light of this, their request for FEMA wildfire prevention grant funding should not be provided so that it is available for true emergency wildfire prevention work.

OAKLAND MISLEADS

Look at the city's website and you see talk of sustainability and environmental health, and the old pesticide industry line, "best management practices". The words 'pesticides' and 'herbicides' are nowhere to be seen. It would appear the city continues to try to pull the wool over people's eyes as in spite of having what the city attorney likes to call a 'ban' on pesticide use by the city, it uses herbicides citywide on medians, and in some parks, such as on the paths within a few feet of Children's Fairyland, and along narrow roads in the hills on Joaquin Miller Road, among others. In addition, subcontractors use pesticides without oversight by the city, as acknowledged to us by Noel Gallo early in 2005. This results in people not being able easily or accurately to track pesticide use in the city associated with city use as county agricultural records for the city's use do not reflect the subcontractors' use, and records for subcontractors do not have to specify as clearly what products they are using where and when, or in what amounts.

The Oakland city people behind plans to remove eucalyptus seem to miss the irony of the city Office of Parks and Recreation boasting photos in their marketing materials showcasing eucalyptus, probably because most people agree it is beautiful, and are acclimated to eucalyptus surrounding us in the hills and creek areas and all around the Bay Area.

UC ACQUIRES MONEY FROM PESTICIDE COMPANIES

People would like to believe that a public university system will be devoted to seeking truth in science. UC has contracts with pesticide companies such as Novartis and Syngenta, Dow, Bayer, and Monsanto. Suffice it to say, UC is not objective; it receives masses of money directly and indirectly from pesticide companies so of course it will push pesticides. At the same time, UC has been clearcutting areas of the East Bay Hills and we have pointed out that the reason UC may have set its sights so aggressively on Claremont Canyon's trees is that to get rid of them now clears the way more easily for their Lawrence Berkeley Lab extensions to proceed without getting bogged down later in the EIR process around: trees. UC seems to have a stronghold over the city of Berkeley but it also is apparent that, that stronghold is acquiring breadth with passing time. Oakland has latched on, and a series of agencies with oversight of one area or another in the hills (eg. EBMUD and PG&E) seem to tag along fairly quietly with whatever

UC asserts.

EBRPD DISAPPOINTS, CONFUSES, and IGNORES

EBRPD is expected to be acting in the public and environment's best interest in work it does in the regio system and, indeed, its union employees sometimes have taken public stands in support of worker and vi safety, such as their strong resolution opposing the Light Brown Apple Moth pesticides program. See res http://www.dontspraycalifornia.org/AFSCME%202428%20resolution.pdf. Our experience with the unio rangers throughout the park system is frustration, almost uniformly, with Nancy Brownfield, at the cente controversy, who has a misleading title of "Integrated Pest Management Specialist". Ms. Brownfield has pesticide use, to the chagrin of many of the workers who understand that visitors, wildlife, vegetation, so are being endangered. They want money put into hiring more workers, not paying for chemicals.

To make matters worse, EBRPD has jumped headlong into the Spartina Project which uses pesticides in eradicate

5

cordgrass in the Bay (brought in originally by the military). As would be expected, the state and federally California Clapper Rail population has significantly decreased. When reading minutes of the EBRPD's B September 7, 2010 meeting, one might want to assume that this is due simply to the removal of habitat. E insight into the chemicals the Rails are ingesting, inhaling, and absorbing, please see http://www.eastbaypesticidealert.org/spartina.html . You might note that Imazapyr is being used by U and RoundUp is being used by EBRPD and Oakland. Still, the plan is to continue this pesticide use arou

WHAT IS NATIVE? WHO IS BEHIND 'INVASIVE SPECIES COUNCILS'?

We have seen repeatedly that 'native plant restoration' projects are being masqueraded as wildfire prevention projects and more insidiously, taxpayer self-assessments along with tax-supplied grants such as the FEMA grants requested by these agencies, are sold to taxpayers as necessary for wildfire safety. These scare tactics are unethical and, worse, will lead to an unwillingness in the future to supply money readily, when it might actually be needed, to fund manual removal of excess understory or grasslands vegetation, some of it ironically native and quite flammable as wildfire historically blazed through these hills bursting seedpods and covering them in what amounted to rich compost. These scare tactics could lead, therefore, to more fire danger in the future as threats continue to build due to mismanagement.

UC, EBRPD, and the city of Oakland have seemed fixated on getting rid of what they refer to as non-native plants. Invasion Biologists have differing scientific opinions on when species have reached acclimation, at which point even trying to remove them can pose biological danger. Acclimation and naturalization are normal evolutionary processes and have resulted in monarch butterflies overwintering in the East Bay Hills, where they might not if most or all of the eucalyptus were cut down.

David Theodoropoulos, an Invasion Biologist who is deeply critical of his field, and points to the historic involvement of the pesticide industry in establishing invasive species councils to do their bidding (http://www.jlhudsonseeds.net/NativesVsExotics.htm), shows photos of eucalyptus in the Oakland Hills during the 1991 fire, in areas where the understory had been kept down (http://video.google.com/videoplay?docid=5437585345864241 76). The fire burnt out before igniting the trees in those areas. Just as we see with many trees in the neighborhood of the San Bruno PG&E gas pipeline explosion and resulting inferno. Many living trees surround burnt homes.

Where agencies mismanaged in the East Bay Hills and failed to cut back the understory since it hadn't been properly attended as an Urban-Wildlands interface or a Residential-Wildlands interface, the hills inferno flourished. But many eucalyptus trees acted as windbreaks that hot, windy day, and the moist, cool forest floor around these trees reduced the potential for ignition in some areas. What we see in

photos of the 2003 Scripps Ranch fire in Southern California is classic; homes full of gas lines and gas appliances, and cars, exploded, completely surrounded by massive, unaffected eucalyptus trees. See photos: http://graphics7.nytimes.com/images/2003/10/27/national/28fire1.jpg and: http://www.scrippsranch.org/special/Fire2003/Ward/MVC-002F.jpg. The first shows a whole cul-de-sac of houses and cars exploded, completely surrounded by healthy eucalyptus, the second shows exploded cars and only a chimney of a house left (much like Broadway Terrace in '91), many healthy eucalyptus trees right there, unscathed.

WHO PROFITS IN THIS ATTACK ON "NON-NATIVES"?

The question is, who profits by manufacturing an emergency around getting rid of anything non-native?

6

Pesticide companies, for one, and in the case of felling trees, there are many contracts to be written, much money changing hands already as consultants are sent in to do their studies and estimates, and years of work and money are assured if final decisions reflect taking down a million or more trees, some of the lungs of the earth.

A history of mismanagement is no excuse for allowing further mismanagement, unleashing potent toxins upon us.

Landscape aesthetics are in the eye of the beholder and forcing nature into the aesthetic preferences of a 1 the expense of ecological health. Continued widespread removal of trees is leading to mudslides in the hi whole sections of habitat. As important, pesticides used on and around the stumps remain in the area and Innocent pedestrians or bicycle riders in some areas walk or ride through pesticide residues while inhalin (indoors, insecticides can take two weeks to stop floating around and begin to settle down onto furniture stuffed animals and dishes—source: Designer Poisons, Marion Moses, MD). People track them and spray further as they walk, jog, or bike. Wildlife in the area is exposed through inhalation, absorption and inges our considerable concerns is that in the Bay Area we have immigrant populations from Asia who use plai the hills medicinally as well as for food (blackberry shoots being popular in some cuisines), and people p Western Herbalism frequently gather herbs in the hills. They can unwittingly be sickened ironically as th gathering Horsetail to aid respiratory distress, or other herbs for other medicinal purposes.

This plan brings to mind the county of Alameda's plan to remove all the century-old Eucalypts along San Leandro Creek, in fact the only wild corridor for miles which links the flatlands and hills. As another story of deception has been revealed, tree by tree, parcel by parcel, we find that the purpose of the county's removal plans is, once again, according the county's chief arborist, Jim Brown, a "native restoration project". The grand plan was to quickly clearcut three areas to provide the easiest access/removal areas and spend the next few years chopping down one tree after another, dragging them up the creek further to ruin remaining habitat, then nicely (maybe) replanting some trees. Among those considered by the county is willow, a fine choice if you want to end up with no water at all in the creek. Oh, yes, and pesticide use on the banks of the creek, too, though no one has yet revealed which products after months of requests. And when you read the fine print on their documents, you see that a primary "Reason for Action" to remove the trees again and again is listed as: Tree will require substantial on-going resources to evaluate and maintain.

Money, time, the hassle factor. Not that they don't have money. In fact, the county hired a "very expensive" (according to a county person) p.r. firm, the same one the state hired to push their Light Brown Apple Moth pesticides program, and an arborist who has created her own ranking system for tree danger, at odds with that used by many certified arborists. One has to wonder why the county would want to rely on a new system while the arborists with her company keep saying they can't guarantee anything. Not that we are expecting many guarantees when dealing with nature. But there are some guarantees in this situation in the hills and the SL creek: down trees and you lose oxygen and gain

carbon, increasing the numbers of people who will be sickened. Change the environment so drastically by removing these trees and you will have a hotter environment, not able to support life which has acclimated over a century. Use pesticides and you will ruin soil and water health and endanger people, wildlife, pets and insects.

WHAT WOULD AN HONEST LOGGER SAY ABOUT THESE PLANS?

As the author of this writing was at work assembling notes for this response she contacted a gentleman who

7

comes from a logging family from the Central Coast area to hear his response to the general plans by these agencies. His response was swift and clear. He pointed out that in spite of herbicides which might be used, stumps are open wounds, attractive to insects and more so as they degrade. They are prone to disease which then endangers the trees nearby left standing. He put it this way, thinking of clearcutting and replants he's seen in the logging world, "In the infant stage replants are attacked by insects gathering at the open wounds of cut stumps. They are still weak in their infant stages, and more so if exposed to herbicides. Disease can spread easily in that environment, building on the stronghold on a stump. The secondary militia creates infection on many standing trees, a disease ward for any trees in the area." He went on to give more perspective. "If there's 300 tree stumps in one area and 500 are nearby, if there are infantile trees nearby many are likely to become diseased. What can happen to the rest of the forest of 2000 surrounding that area? What are the chances of survival?"

CARBON SEQUESTRATION; WHY SHOULD PEOPLE OPPOSED TO PESTICIDE USE CARE?

The East Bay is home to a population considered to have 16.3% already somewhere on the continuum of chemically-sensitive. Those of us with Multiple Chemical Sensitivity (MCS), or concerned about becoming victims of this debilitating chronic disease which can bring with it myriad life-threatening problems such as high blood sugar, high blood pressure, high cholesterol, heart problems, kidney disease, asthma, and hormonal disruption and dysfunction, are concerned about the massive carbon releases which come with felling trees such as old eucalyptus. These trees are lungs for us. They have taken in carbon and given us oxygen. We cannot lose this oxygen and on top of it face yet more carbon.

It is ironic to know that UCSF, home of an acclaimed medical school, is behind plans to remove all the eucalyptus from Mt. Sutro in San Francisco. We were busy assembling our response to UCSF's requests for a FEMA grant for what was being called a 'wildfire prevention project' but was actually another 'native plant restoration' project. Happily, before we could send in our response, we got the good news that FEMA had realized the grant request was not legitimate and refused to grant it this money to UCSF without an EIR. It is ironic that the home of a medical school is not willing to go through that health and environmental process, and instead intends to march ahead, funding the felling of trees itself. A foggy mountain in the city, providing so much needed oxygen, to be decimated by UCSF.

OUR RECOMMENDATIONS

We want FEMA to be clear that these agencies have had information in their hands for many years clarifying dangers of pesticides and offering multiple standard alternatives, easily applied with the funds available through various pools of tax monies in addition to the regular streams of funding for maintenance. They have failed in their most basic maintenance duties.

Too, we want FEMA to remember that there is no emergency here other than the lack of proper maintenance over decades by agencies with lack of competence or interest. That is no reason to grant emergency monies which need to be available for emergencies that arise unexpectedly. What's going on here is entirely predictable and reversible with common sense oversight. FEMA's wildfire prevention

project granting stream should not be used to make up for incompetence if it will result in that incompetence being allowed to remain, and continue, resulting in future wildfire dangers being created.

These agencies have been expected by people living in the hills to do reasonable understory management, a standard expectation in an Urban-Wildland interface. They have failed to act reasonably, and sensibly, to

8

safeguard people and now are ready to release massive amounts of carbon into the environment, completely change habitats in the hills, and try to create native plant nurseries in pesticide-laden soils. The irony is that they seem completely unaware that many native plants which used to thrive in the East Bay Hills are highly flammable. Perhaps it's time to stop assuming that if something is called native it's preferable, and if it's called non-native it's bad. Time to move beyond that severely limited thinking.

Our climate has changed drastically, quickly, and we cannot assume that pulling down a million eucalyptus, acacia, and monterey pine, and planting native plants, or waiting for vegetation to fill in, will mean we will end up with anything actually resembling the East Bay Hills of a century ago. And as one man said some time ago about 'native plant restoration' projects, "Looks a lot like gardening to me." An ongoing maintenance project, exactly what these agencies all seem to want to avoid: maintenance.

What do you teach a toddler if you give her sweets? Don't fill up on healthy foods; leave room for the sugar.

What do you teach these agencies if you give them these FEMA grants? Don't bother with the regular maintenance with which you are charged; let it go and you'll get the spoils.

These agencies' histories of action have violated at least two of the three parameters of FEMA's Wildfire Mitigation Policy, MRR-2-08-1, in their not doing reasonable maintenance to create defensible space around homes, and their not limiting hazardous fuels, in fact increasing fuels by pesticiding and leaving behind dried out vegetation, as described above.

East Bay Pesticide Alert asks that you deny UC; UCRPD; and Oakland the FEMA 'wildfire prevention project' grants they have requested based on the above points, and on the fact that these are 'native plant restoration' projects being masqueraded as 'wildfire prevention projects', an old game it seems we must keep exposing.

Thank you for your attention to this matter.

Sincerely,

Maxina Ventura
Chronic Effects Researcher
East Bay Pesticide Alert

EBH-EIS-FEMA-RIX

From: Bill Bogert [bill.bogert@gmail.com]
Sent: Thursday, September 30, 2010 7:07 AM
To: EBH-EIS-FEMA-RIX,
Subject: Fwd: Resubmitting FEMA grant opposition. URL's may not open in comments recently submitted
Attachments: EBPA,DSC FEMA, UC, EBRPD,Oak 2.doc

Max asked that I forward this to you to make sure it reaches you.

---------- Forwarded message ----------
From: **Max Ventura** <beneficialbug@netzero.net>
Date: Thu, Sep 30, 2010 at 1:08 AM
Subject: Resubmitting FEMA grant opposition. URL's may not open in comments recently submitted
To: EBH-EIS-FEMA-RIX@dhs.gov

To Whom It May Concern:

Once again, I am submitting East Bay Pesticide Alert's comments as a colleague was not able to open links and wondered whether this was related to them being red in the document.

Since I am about to go out of town I will simply try again with the links in the typical blue color and hope these work. Please alert me if they do not and when I return Sunday I will see what can be done to remedy this problem.

I will paste in the document as well as attaching it.

Sincerely,

Maxina Ventura

Chronic Effects Researcher

EBPA

East Bay Pesticide Alert
Don't Spray California
2399 E 14th Street #24 San Leandro, CA 94577 (510) 895-2312 beneficialbug@netzero.net

To Whom It May Concern:

East Bay Pesticide Alert, also known as Don't Spray California, is taking this opportunity to respond jointly to FEMA grant requests from the University of California (UC); the East Bay Regional Park District (EBRPD); and the city of Oakland for what the agencies refer to as 'wildfire prevention projects' in the East Bay Hills. For nearly 6 years we actively have opposed these entities' attempts to continue various and related wildfire projects which often include the use of pesticides, and in the case of tree fellings which for these agencies is paired with pesticide use, cause increased fire danger to people, wildlife, structures. These plans violate at least two out of three parameters of FEMA's Wildfire Mitigation Policy, MRR-2-08-1, "Wildfire Mitigation Policy for the HMGP and PDM Program".

PESTICIDES, TOXICITY, and FIRE DANGER DUE TO MISMANAGEMENT

UC, EBRPD, and the city of Oakland amply have demonstrated their wildfire prevention protocols in the past and have, in the EIR process of EBRPD quite recently, shown their intentions to continue what has caused fire danger in the hills. Each of these entities' practices, irregardless whether people support more tree fellings or pesticide use, routinely have included spraying pesticides and leaving dead vegetation throughout the hills, a clear fire danger adding to grossly mismanaged understories throughout the hills. These agencies each have acted in negligence, continuing practices which abetted the '91 fire. For this reason alone, they should not be granted FEMA wildfire prevention monies. They have demonstrated incompetence in the past and their future plans would jeopardize the health and wellbeing of people, pets, wildlife, insects, soil, and vegetation, as well as structures, a misuse of public funds. For a flammability study conducted in the East Bay, near Claremont Canyon, please see http://pesticides.intown.biz/Cheriel%20Response.html .

Perhaps an example of intention would be enlightening. The only specific general management practices mentioned in the EBRPD's Draft EIR were an inadequate requirement for notification signs, and reference to the size and smoothness of cut tree stumps. EBRPD appears to have no interest in serious notification which might allow people plans to avoid treated areas or better yet make arrangements to stay away from nearby homes for a time period, and seems to be more concerned about the potential for splinters from logged trees than about chemical poisoning from contact, drift, and other mobility of pesticides applied to and around the stumps and other vegetation, a subject they avoid. Please see

http://twnside.org.sg/title/service76.htm on Denmark's ban on RoundUp because it was found in groundwater.

ALTERNATIVES to PESTICIDES

These agencies' plans are to cut trees and use pesticides. There is no safe use of pesticides. By nature they kill, cause genetic mutations, neurological problems, hormonal disruption and disfunction. They translocate and endanger water supplies. We offered them alternatives, most absolutely standard practices, focusing on fuel reduction by employing people who need jobs to do manual labor of understory removal without the use of chemicals. And in the case of any tree fellings, solarization of tree stumps, a standard practice relying on elementary school and backyard bulb gardeners' basic principles of starving plant life of the photosynthesis process. No photosynthesis, no sugars to feed the plant (read: resprouts). A sheet of plastic stapled down is a standard practice, but it is possible to use a natural tar (as opposed to a petrochemically-derived product) instead. Alternatives to pesticides abound, as we made clear in 2005; yet, just days after our presentation, Tom Klatt of UC put out his 10 year plan for Strawberry Canyon and Claremont Canyon, which is enlightening. It says labor and chemicals are about $100 per acre each of two times per year, expecting it to take 1-1/2 hours per acre. That's probably a crew of several working to apply pesticides (it's only the Licensed Pesticide Applicators overseeing spray projects who make huge salaries; people doing the dangerous work rarely make much above minimum wage). The $4000 management for $6716 in labor and $1125 in chemicals for 45 acres for Claremont Canyon for 10 years may well be part of the Licensed Pesticide Applicator salary of $125,000 common in 2005. So in the event of tree fellings, a crew going in with weed wrenches for baby trees or weed whackers for resprouts should be able to be paid if instead applying most or all of that "management" $4000 for their wages, an assertion we have made all these years. Additionally, what is not outlined in Klatt's plan, nor in any of the agencies' project plans or grant requests is who covers the costs of lost productivity for those sickened by pesticide exposures, whether workers applying pesticides or otherwise working in the hills, residents, or visitors to the hills. Without such plans specified it appears that the burden is shifted to individuals, cities, or counties.

SCARE TACTICS

The issue we brought up in 2005 remains today; mismanagement. Even in the few cases of diseased trees which legitimately should be felled if they would be likely to fall in an area where people or homes would be damaged, after fellings these agencies could be cutting back resprouts, solarizing, or employing one of the many other alternatives we offered as examples. But the city of Oakland is a prime example of mismanagement creating fire danger. Eucalypts cut down in Montclair were left to resprout and in 2005, after this resprout museum had grown tall once more, but with multiple sprouts creating fire ladders everywhere, the city council woman who wanted to join in the hills pesticide use pushed by UC and EBRPD used these resprouts as an example to scare people. What scared us was the city's irresponsible behavior in cutting the trees in the first place if they didn't plan to cut them back after, or dig out the stumps. City representatives kept talking about the massive danger of that stand of resprouts but never bothered in that time period to have the sprouts cut back down.

TOXICOLOGICAL PROFILES OF PESTICIDES

In January of 2005, EBPA/ DSC handed representatives of each of these entities toxicology of

the pesticides UC and EBRPD already were using, and pushing Oakland to use in the hills. We offered many quite standard alternatives to pesticide use while pointing out the danger to other species of removing Eucalyptus from the hills (Eucalyptus was the only tree being discussed at public hearings at that time). Please see http://dontspraycalifornia.org/wpad.html for more info on our opposition in that time period. Also, please see the toxicology of Monsanto's RoundUp (http://www.alternatives2toxics.org/catsoldsite/round.htm), the toxicology of glyphosate, the "active" ingredient of the product called RoundUp (http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/glyphosate), and that of Garlon's triclopyr (http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/triclopyr), at least the formulation used at that time. Formulations are changed routinely due to pesticide resistance. In fact, part of the danger of a pesticide approach is that when a pesticide stops performing as expected, use of a new formulation is planned.

What about environmental oversight of new formulations? Is that part of FEMA's oversight when granting

2

monies for wildfire prevention projects? Does FEMA plan to leave oversight around product and formulation use to these agencies if FEMA should grant them public monies to fund their requests? Please see http://www.eastbaypesticidealert.org/wildfire.html for details of the other pesticides UC uses in the hills.

LOW DOSE and the NON-MONOTONIC DOSE RESPONSE

New formulations cannot be expected to be "less toxic", though that phrase also has absolutely no legal meaning, which may be why we have seen these agencies use such language trying to assuage the public throughout time as people have opposed pesticide use. In fact, pesticides can hit hardest in small, repeated, cumulative doses which build up in the body, and by the 'non-monotonic dose response'. The NMDR results in a larger response with less of a dose. This is the theory and basis of the practice of the healthcare modality, Homeopathy, practiced around the world; less can be more. Researchers long have described the cumulative effects of low doses of chemicals, which they consider more dangerous than the occasional major exposure in otherwise-healthy individuals. For more detail on low-dose chemical responses, please see http://web72345.mx.net/article/gulfwar.shtml or http://toxsci.oxfordjournals.org/content/68/1/1.full . Endocrine disruptors are one example of chemicals that cause a non-monotonic dose response. Or, as the body is secreting what it can of the toxin, toxic effects can increase as well. An example dating back to 1888 is that of fungicidal chemicals such as mercuric chloride increasing fermentation in yeast (http://toxsci.oxfordjournals.org/cgi/content/full/77/1/151). This kind of process was demonstrated in Sonoma and Napa Wine Country, where health surveying revealed common, overwhelming, systemic yeast overgrowth in people (animal testing was not done to ascertain statistics on farm or domestic animals). Fungicides such as Copper Hydroxide, and Sulfur scraped from industrial smokestacks, are used everywhere in the vineyards and inversion layers in the valleys trap people and animals in a chemical soup. Another fairly common example shows itself around varied responses to coffee. While the general expectation is that a cup of caffeinated coffee will give people energy and a "pick up", for many caffeinated coffee has a physically relaxing effect while decaffeinated coffee, containing much

less caffeine, gives them alertness and a burst of energy.

RESPONSE TIME AFTER EXPOSURE

In the case of pesticide applications, people might not have their primary reactions at the time of highest exposure but as the exposure tapers off, they can have even fatal responses. In the case of carbamate and organophosphate pesticides, commonly people don't experience any significant response until 8-12 hours after exposure, and responses to pesticides can last weeks to years, in the case of a response taking someone past a point of her/his body's ability to metabolize the toxins in question. Just as one person can metabolize a 6-pack of beer quickly, another can be asleep, or otherwise affected, after a sip or two. We, and wildlife and pets, are individual biological beings which variously are damaged by pesticides, as is soil and vegetation. The medical establishment has not been taught to recognize even the most common symptoms of exposure to even the most commonly-found pesticides, and typically is not familiar with appropriate tests such as the cholinesterase test which looks for depressed levels of this enzyme, seen with carbamate and organophosphate poisoning, but must be checked within a few hours of exposure to provide an accurate assessment. Thus, when people die of heart attacks or asthma attacks due to pesticide exposures, their death certificates give no indication of the part pesticides have played. This results in any epidemiological or other health studies and data kept by the Department of Pesticide Regulation (DPR) and other agencies being skewed. It doesn't help statistical understanding that undocumented workers, many who do the dirty work of applying chemicals which can kill them, are not going to be showing up in OSHA (Occupational Safety and Health Administration) files, DPR's source for records on work-related pesticide poisonings, as DPR's staff scientist, Louise Mehler, acknowledged to us in the latter 90's.

3

UNETHICAL ASPECTS of RISK ASSESSMENT

Risk Assessment is the game played by the pesticide industry, busily trying to keep people from thinking critically about pesticide use. Risk Assessment, the methodology used by the chemical industry and authors of Environmental Impact Reports and Statements and seekers of any number of grants for projects including pesticide use, or the downing of trees, for instance, theorizes which risks are "significant" or "acceptable" to those who are paid to evaluate the financial cost-effectiveness of a plan. First, do no harm, Hippocrates' motto, and that of healthcare workers and medical doctors everywhere, recognizes that it is not ethical to call anyone an Acceptable Risk, nor is it ethical, from a standpoint of environmental sustainability, to apply Risk Assessment to wildlife, pets, insects, vegetation, and soil. Biology is clear: neither humans nor wildlife, pets, insects, vegetation, nor soil exist in a vacuum. Each is part of an intricate web from which one cannot be spot-removed without endangering the others. In fact, the USDA's Light Brown Apple Moth debacle has been exposed for the danger eradication attempts represent to biological habitats, meaning any habitat. Trying to eradicate something naturalized can create a hole of unknown consequences which we cannot predict so could not possibly know how such potential damage might be mitigated

Environmental reviews should be based on the Precautionary Principle, which in a nutshell states "better safe than sorry", with a particular view toward protecting vulnerable species and populations, and not on a theoretical risk assessment approach, which determines how much risk to the lives of others is acceptable to those who theorize about the potential impact of an action.

INFORMATION and FACTS IGNORED

Shocking to many is how much information these agencies have been given for years about the dangers of the use of pesticides, and abundant alternatives, but also that their plans for, and execution already, of tree fellings is actually a "native plant restoration" project, masked as a wildfire prevention project. Almost 6 years ago we were challenging the city of Oakland over what was very publicly being touted as a "native plant restoration" project alongside the more formal 'wildfire prevention project' titling, pointing out the irony that, using pesticides in Sausal Creek or other hills areas would in fact serve to kill off the web of mycorrhizal fungi which nourish native plants and are an essential part of healthy soil which supports healthy vegetation. Pesticides damage immune systems of all biological beings. In spite of this fact, the city councilwoman, Jean Quan, and Friends of Sausal Creek, continued to push for pesticide use in the creek and on the 1,023 acres the city oversees in the hills, being actively pushed by UC's Tom Klatt and EBRPD's Nancy Brownfield, under whose tenure EBRPD has increased use of pesticides, even taking into consideration acreage added over the years.

ENDANGERED SPECIES in the HILLS

We countered that in fact there are endangered species in the hills, both animal and vegetation and that, pesticides would endanger them. Finally, the city attorney said to us, "Okay, you got us. This does fall under CEQA (the California Environmental Quality Act)." As we continued to attempt to follow up, to make sure plans were not continuing without formal environmental review, including more public, advertised hearings, we were stonewalled. No one contacted at city offices would talk. Later we discovered that apparently to do an end-run around our expose, the city quietly made an alliance with UC and has plowed ahead with plans to cut down healthy trees and use pesticides, in spite of the fact of endangered species in the hills. While the endangered Pallid Manzanita, Alameda Whipsnake, Pallid Bat, and the Red-legged Frog all reside in the East Bay Hills we see no significant plans to protect them nor the raptors who depend on tall trees for their survival. Findings of 'no significant impact' abound in the EBRPD's EIR; yet it is scientifically-impossible for their plans to have 'no significant impact' when they plan to down between 500,000 and 1.2 million trees, then apply pesticides for

4

the next 10 years. By virtue of the fact of this agency's arrogance in its statement that there would be 'no significant impact', we feel any assertion they make must be questioned and researched for facts. In light of this, their request for FEMA wildfire prevention grant funding should not be provided so that it is available for true emergency wildfire prevention work.

OAKLAND MISLEADS

Look at the city's website and you see talk of sustainability and environmental health, and the old pesticide industry line, "best management practices". The words 'pesticides' and 'herbicides' are nowhere to be seen. It would appear the city continues to try to pull the wool over people's eyes as in spite of having what the city attorney likes to call a 'ban' on pesticide use by the city, it uses herbicides citywide on medians, and in some parks, such as on the paths within a few feet of Children's Fairyland, and along narrow roads in the hills on Joaquin Miller Road, among others. In addition, subcontractors use pesticides without oversight by the city, as acknowledged to us by Noel Gallo early in 2005. This results in people not being able easily or accurately to track pesticide use in the city associated with city use as county agricultural records for the city's use do not reflect the subcontractors' use, and records for subcontractors do not have to specify as clearly what products they are using where and when, or in what amounts.

The Oakland city people behind plans to remove eucalyptus seem to miss the irony of the city Office of Parks and Recreation boasting photos in their marketing materials showcasing eucalyptus, probably because most people agree it is beautiful, and are acclimated to eucalyptus surrounding us in the hills and creek areas and all around the Bay Area.

UC ACQUIRES MONEY FROM PESTICIDE COMPANIES

People would like to believe that a public university system will be devoted to seeking truth in science. UC has contracts with pesticide companies such as Novartis and Syngenta, Dow, Bayer, and Monsanto. Suffice it to say, UC is not objective; it receives masses of money directly and indirectly from pesticide companies so of course it will push pesticides. At the same time, UC has been clearcutting areas of the East Bay Hills and we have pointed out that the reason UC may have set its sights so aggressively on Claremont Canyon's trees is that to get rid of them now clears the way more easily for their Lawrence Berkeley Lab extensions to proceed without getting bogged down later in the EIR process around: trees. UC seems to have a stronghold over the city of Berkeley but it also is apparent that, that stronghold is acquiring breadth with passing time. Oakland has latched on, and a series of agencies with oversight of one area or another in the hills (eg. EBMUD and PG&E) seem to tag along fairly quietly with whatever UC asserts.

EBRPD DISAPPOINTS, CONFUSES, and IGNORES

EBRPD is expected to be acting in the public and environment's best interest in work it does in the regional park system and, indeed, its union employees sometimes have taken public stands in support of worker and visitor park safety, such as their strong resolution opposing the Light Brown Apple Moth pesticides program. See resolution: http://www.dontspraycalifornia.org/AFSCME%202428%20resolution.pdf. Our experience with the union and park rangers throughout the park system is frustration, almost uniformly, with Nancy Brownfield, at the center of controversy, who has a misleading title of "Integrated Pest Management Specialist". Ms. Brownfield has pushed pesticide use, to the chagrin of many of the workers who understand that visitors, wildlife, vegetation, soil, and they, are being endangered. They want money put into hiring more workers, not paying for chemicals.

To make matters worse, EBRPD has jumped headlong into the Spartina Project which uses pesticides in efforts to eradicate

5

cordgrass in the Bay (brought in originally by the military). As would be expected, the state and federally-listed California Clapper Rail population has significantly decreased. When reading minutes of the EBRPD's Board's September 7, 2010 meeting, one might want to assume that this is due simply to the removal of habitat. But for more insight into the chemicals the Rails are ingesting, inhaling, and absorbing, please see http://www.eastbaypesticidealert.org/spartina.html . You might note that Imazapyr is being used by UC in the hills and RoundUp is being used by EBRPD and Oakland. Still, the plan is to continue this pesticide use around the Bay.

WHAT IS NATIVE? WHO IS BEHIND 'INVASIVE SPECIES COUNCILS'?

We have seen repeatedly that 'native plant restoration' projects are being masqueraded as wildfire prevention projects and more insidiously, taxpayer self-assessments along with tax-supplied grants such as the FEMA grants requested by these agencies, are sold to taxpayers as necessary for wildfire safety. These scare tactics are unethical and, worse, will lead to an unwillingness in the future to supply money readily, when it might actually be needed, to fund manual removal of excess understory or grasslands vegetation, some of it ironically native and quite flammable as wildfire historically blazed through these hills bursting seedpods and covering them in what amounted to rich compost. These scare tactics could lead, therefore, to more fire danger in the future as threats continue to build due to mismanagement.

UC, EBRPD, and the city of Oakland have seemed fixated on getting rid of what they refer to as non-native plants. Invasion Biologists have differing scientific opinions on when species have

reached acclimation, at which point even trying to remove them can pose biological danger.

Acclimation and naturalization are normal evolutionary processes and have resulted in monarch butterflies overwintering in the East Bay Hills, where they might not if most or all of the eucalyptus were cut down.

David Theodoropoulos, an Invasion Biologist who is deeply critical of his field, and points to the historic involvement of the pesticide industry in establishing invasive species councils to do their bidding (http://www.jlhudsonseeds.net/NativesVsExotics.htm), shows photos of eucalyptus in the Oakland Hills during the 1991 fire, in areas where the understory had been kept down (http://video.google.com/videoplay?docid=5437585345864241 76). The fire burnt out before igniting the trees in those areas. Just as we see with many trees in the neighborhood of the San Bruno PG&E gas pipeline explosion and resulting inferno. Many living trees surround burnt homes.

Where agencies mismanaged in the East Bay Hills and failed to cut back the understory since it hadn't been properly attended as an Urban-Wildlands interface or a Residential-Wildlands interface, the hills inferno flourished. But many eucalyptus trees acted as windbreaks that hot, windy day, and the moist, cool forest floor around these trees reduced the potential for ignition in some areas. What we see in photos of the 2003 Scripps Ranch fire in Southern California is classic; homes full of gas lines and gas appliances, and cars, exploded, completely surrounded by massive, unaffected eucalyptus trees. See photos: http://graphics7.nytimes.com/images/2003/10/27/national/28fire.1.jpg and: http://www.scrippsranch.org/special/Fire2003/Ward/MVC-002F.jpg. The first shows a whole cul-de-sac of houses and cars exploded, completely surrounded by healthy eucalyptus, the second shows exploded cars and only a chimney of a house left (much like Broadway Terrace in '91), many healthy eucalyptus trees right there, unscathed.

WHO PROFITS IN THIS ATTACK ON "NON-NATIVES"?

The question is, who profits by manufacturing an emergency around getting rid of anything non-native?

Pesticide companies, for one, and in the case of felling trees, there are many contracts to be written, much money changing hands already as consultants are sent in to do their studies and estimates, and years of work and money are assured if final decisions reflect taking down a million or more trees, some of the lungs of the earth.

A history of mismanagement is no excuse for allowing further mismanagement, unleashing potent toxins upon us.

Landscape aesthetics are in the eye of the beholder and forcing nature into the aesthetic preferences of a few comes at the expense of ecological health. Continued widespread removal of trees is leading to mudslides in the hills, removing whole sections of habitat. As important, pesticides used on and around the stumps remain in the area and translocate. Innocent pedestrians or bicycle riders in some areas walk or ride through pesticide residues while inhaling residual drift (indoors, insecticides can take two weeks to stop floating around and begin to settle down onto furniture and floors, stuffed animals and dishes—source: Designer Poisons, Marion Moses, MD). People track them and spray them around further as they walk, jog, or bike. Wildlife in the area is exposed through inhalation, absorption and ingestion. One of our considerable concerns is that in the Bay Area we have immigrant populations from Asia who use plants found in the hills medicinally as well as for food (blackberry shoots being popular in some cuisines), and people practicing Western Herbalism frequently gather herbs in the hills. They can unwittingly be sickened ironically as they are gathering Horsetail to aid respiratory distress, or other herbs for other medicinal purposes.

This plan brings to mind the county of Alameda's plan to remove all the century-old Eucalypts along San Leandro Creek, in fact the only wild corridor for miles which links the flatlands and hills. As

another story of deception has been revealed, tree by tree, parcel by parcel, we find that the purpose of the county's removal plans is, once again, according the county's chief arborist, Jim Brown, a "native restoration project". The grand plan was to quickly clearcut three areas to provide the easiest access/removal areas and spend the next few years chopping down one tree after another, dragging them up the creek further to ruin remaining habitat, then nicely (maybe) replanting some trees. Among those considered by the county is willow, a fine choice if you want to end up with no water at all in the creek. Oh, yes, and pesticide use on the banks of the creek, too, though no one has yet revealed which products after months of requests. And when you read the fine print on their documents, you see that a primary "Reason for Action" to remove the trees again and again is listed as: Tree will require substantial on-going resources to evaluate and maintain.

Money, time, the hassle factor. Not that they don't have money. In fact, the county hired a "very expensive" (according to a county person) p.r. firm, the same one the state hired to push their Light Brown Apple Moth pesticides program, and an arborist who has created her own ranking system for tree danger, at odds with that used by many certified arborists. One has to wonder why the county would want to rely on a new system while the arborists with her company keep saying they can't guarantee anything. Not that we are expecting many guarantees when dealing with nature. But there are some guarantees in this situation in the hills and the SL creek: down trees and you lose oxygen and gain carbon, increasing the numbers of people who will be sickened. Change the environment so drastically by removing these trees and you will have a hotter environment, not able to support life which has acclimated over a century. Use pesticides and you will ruin soil and water health and endanger people, wildlife, pets and insects.

WHAT WOULD AN HONEST LOGGER SAY ABOUT THESE PLANS?

As the author of this writing was at work assembling notes for this response she contacted a gentleman who

7

comes from a logging family from the Central Coast area to hear his response to the general plans by these agencies. His response was swift and clear. He pointed out that in spite of herbicides which might be used, stumps are open wounds, attractive to insects and more so as they degrade. They are prone to disease which then endangers the trees nearby left standing. He put it this way, thinking of clearcutting and replants he's seen in the logging world, "In the infant stage replants are attacked by insects gathering at the open wounds of cut stumps. They are still weak in their infant stages, and more so if exposed to herbicides. Disease can spread easily in that environment, building on the stronghold on a stump. The secondary militia creates infection on many standing trees, a disease ward for any trees in the area." He went on to give more perspective. "If there's 300 tree stumps in one area and 500 are nearby, if there are infantile trees nearby many are likely to become diseased. What can happen to the rest of the forest of 2000 surrounding that area? What are the chances of survival?"

CARBON SEQUESTRATION; WHY SHOULD PEOPLE OPPOSED TO PESTICIDE USE CARE?

The East Bay is home to a population considered to have 16.3% already somewhere on the continuum of chemically-sensitive. Those of us with Multiple Chemical Sensitivity (MCS), or concerned about becoming victims of this debilitating chronic disease which can bring with it myriad life-threatening problems such as high blood sugar, high blood pressure, high cholesterol, heart problems, kidney disease, asthma, and hormonal disruption and dysfunction, are concerned about the massive carbon releases which come with felling trees such as old eucalyptus. These trees are lungs for us. They have taken in carbon and given us oxygen. We cannot lose this oxygen and on top of it face yet more carbon.

It is ironic to know that UCSF, home of an acclaimed medical school, is behind plans to remove all the eucalyptus from Mt. Sutro in San Francisco. We were busy assembling our response to UCSF's requests for a FEMA grant for what was being called a 'wildfire prevention project' but was actually another 'native plant restoration' project. Happily, before we could send in our response, we got the good news that FEMA had realized the grant request was not legitimate and refused to grant it this money to UCSF without an EIR. It is ironic that the home of a medical school is not willing to go through that health and environmental process, and instead intends to march ahead, funding the felling of trees itself. A foggy mountain in the city, providing so much needed oxygen, to be decimated by UCSF.

OUR RECOMMENDATIONS

We want FEMA to be clear that these agencies have had information in their hands for many years clarifying dangers of pesticides and offering multiple standard alternatives, easily applied with the funds available through various pools of tax monies in addition to the regular streams of funding for maintenance. They have failed in their most basic maintenance duties.

Too, we want FEMA to remember that there is no emergency here other than the lack of proper maintenance over decades by agencies with lack of competence or interest. That is no reason to grant emergency monies which need to be available for emergencies that arise unexpectedly. What's going on here is entirely predictable and reversible with common sense oversight. FEMA's wildfire prevention project granting stream should not be used to make up for incompetence if it will result in that incompetence being allowed to remain, and continue, resulting in future wildfire dangers being created.

These agencies have been expected by people living in the hills to do reasonable understory management, a standard expectation in an Urban-Wildland interface. They have failed to act reasonably, and sensibly, to

8

safeguard people and now are ready to release massive amounts of carbon into the environment, completely change habitats in the hills, and try to create native plant nurseries in pesticide-laden soils. The irony is that they seem completely unaware that many native plants which used to thrive in the East

Bay Hills are highly flammable. Perhaps it's time to stop assuming that if something is called native it's preferable, and if it's called non-native it's bad. Time to move beyond that severely limited thinking.

Our climate has changed drastically, quickly, and we cannot assume that pulling down a million eucalyptus, acacia, and monterey pine, and planting native plants, or waiting for vegetation to fill in, will mean we will end up with anything actually resembling the East Bay Hills of a century ago. And as one man said some time ago about 'native plant restoration' projects, "Looks a lot like gardening to me." An ongoing maintenance project, exactly what these agencies all seem to want to avoid: maintenance.

What do you teach a toddler if you give her sweets? Don't fill up on healthy foods; leave room for the sugar.

What do you teach these agencies if you give them these FEMA grants? Don't bother with the regular maintenance with which you are charged; let it go and you'll get the spoils.

These agencies' histories of action have violated at least two of the three parameters of FEMA's Wildfire Mitigation Policy, MRR-2-08-1, in their not doing reasonable maintenance to create defensible space around homes, and their not limiting hazardous fuels, in fact increasing fuels by pesticiding and leaving behind dried out vegetation, as described above.

East Bay Pesticide Alert asks that you deny UC; UCRPD; and Oakland the FEMA 'wildfire prevention project' grants they have requested based on the above points, and on the fact that these are 'native plant restoration' projects being masqueraded as 'wildfire prevention projects', an old game it seems we must keep exposing.

Thank you for your attention to this matter.

Sincerely,

Maxina Ventura

Chronic Effects Researcher

East Bay Pesticide Alert

EBH-EIS-FEMA-RIX

From: Claremont Canyon Conservancy [barrypilger@gmail.com]
Sent: Thursday, September 30, 2010 8:55 AM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

The Claremont Canyon Conservancy supports the fire hazard reduction work proposed for Claremont Canyon by the University of California. That proposed work is described in detail in the University's pre-disaster mitigation grant application. It is our wish that the following issues be considered within the scope of the planned environmental impact statement: 1. If the proposed work is not completed (the no-project alternative) or if only a portion of the eucalyptus trees are removed, the EIS should estimate and describe the increase in fuel load that will result. It is our contention that blue gum eucalyptus trees are not only highly flammable and highly invasive, but that their rate of growth is far faster than the oak, bay, and willow trees that are native to the canyon. The amount of fuel in the canyon and the cost of removing that fuel will therefore increase significantly if the no-project alternative is selected or if only a portion of the eucalyptus trees are removed. 2. If the proposed work is not completed (the no-project alternative) or if only a portion of the eucalyptus trees are removed, this EIS should also evaluate the effects of a freeze in Claremont Canyon, such as occurred approximately 40 years ago. It is our belief that such a freeze would again kill all of the above-ground eucalyptus stems, branches, and leaves and force the university to reduce the resultant fire hazard by once again conducting an expensive emergency-based tree removal program such as occurred in the 1970s. Barry Pilger President Claremont Canyon Conservancy 510-843-2226 PO Box 5551 Berkeley CA 94705

EBH-EIS-FEMA-RIX

From: jerry Baer [oldtimerjib@comcast.net]
Sent: Thursday, September 30, 2010 1:18 PM
To: EBH-EIS-FEMA-RIX,
Subject: Response to EIS

Attachments: FEMA Letter 9-29-10.doc

FEMA Letter
-29-10.doc (49 KB...

Thank you in advance for your consideration. Jerry Baer

EBH-EIS
P.O. Box 72391
Oakland, CA. 94612

Dear Sir,

Regarding the EIS for Hazardous Fire Risk Reduction for Oakland, UCB and the EBRPD, I have the following comments:

When I attended the meeting that FEMA had to present the scope of these projects it became clear that FEMA had done a remarkable job in defining their positions. It has become clear to me after reading the information regarding these projects that none of the three agencies have listened to or taken into consideration the fact that there are currently rules and guidelines that need to be followed.

The projects proposed do not consider the fact that FEMA doesn't finance **"native plant restoration".** It seems clear that they either didn't understand the rules or they have decided to ignore them in the hopes that the FEMA officials in charge of dispersing the money will simply buckle under. This is gross arrogance.

The idea that cutting down trees will stop fires has been proven wrong everywhere in this state. In fact there has never been a fire **started by trees** in the hills of Oakland in all of recorded history. The fires, including the massive '91 Firestorm, were started by people and they are not "native" to this area.

In point of fact, if everyone in the hills kept the land surrounding their homes "fire safe" as required by the fire department, this argument would never come up. My home was partially burned in the '91 Firestorm and was saved from complete destruction because, according to the Orinda Fire Chief who helped put out the fire, our home had 30'-40' of cleared area surrounding it. It wasn't

a matter of what species of tree was there, they were all cut back to allow that space to be there and consequently, a good part of our home was saved.

I worked in the forest industry for 50+ years, first for Southwest Forest Industries in Arizona and then for Georgia Pacific in Georgia. I have never heard such poppy cock as "chipping trees" and leaving 24" of the waste on the ground. It is creating the worst kind of danger, since once the chips catch fire, and they will, they are almost impossible to put out.

I guess what I am saying is that the projects that these three entities have proposed don't meet the idiot test. They ignore facts, they subvert the FEMA rules and worse of all they will endanger all of us who have already gone through the horror of a Firestorm at least once in our lives.

I ask that FEMA deny them access to their (our) money for what seems to me to be more a change of landscape then Fire Risk Mitigation. And again, I want to thank all of you for your work in helping define what is and what is not Fire Risk Mitigation.

Jerry Baer
1227 Alvarado Road
Berkeley, CA. 94705

EBH-EIS-FEMA-RIX

From: KAREN PERKINS [kper@sbcglobal.net]
Sent: Thursday, September 30, 2010 1:21 PM
To: EBH-EIS-FEMA-RIX,
Subject: Destruction of California Parklands

I strongly oppose the massive removal of trees by East Bay Regional Park District, the City of Oakland, and the University of California at Berkeley. California has had one of the wettest years in recent times and one of the coolest summers in it's history. There has always been a danger of wildfires in California - so why have the above mentioned public agencies, etc. decided now is the time to destroy 100's of 1000's of trees? Clearcutting these trees will remove moisture and shade and leave barren grasslands even more prone to fire danger. It will also leave our public parklands and cities far uglier and less inviting for recreation. Carbon will be released into the atmosphere contributing to climate change. The continual use of pesticides will be detrimental to our health and that of our dogs and animals living in the poisoned environment. The only ones I see who benefit from this massive clearcut and destruction of trees are those who may be using it as a jobs program to increase funding in hard economic times for public agencies and employees. A classic boondoggle!

Sincerely
Karen Perkins
Moraga, California

EBH-EIS-FEMA-RIX

From: bob sand [2rhs07@comcast.net]
Sent: Thursday, September 30, 2010 2:08 PM
To: EBH-EIS-FEMA-RIX,
Subject: Grant Awards: Hazardous Fire Risk Reduction, East Bay Hills, CA ; Docket ID FEMA-2010-0037
Attachments: DSC_0026 (2).JPG; DSC_0009.JPG

Briefly stated, awards to the 4 subject applicant-areas should not be made.
All of the potential awardees have violated FEMA specific requirements, both in practice, and/or their submitted award-seeking descriptions of work .

Basically, for example, the award-seekers emphasize "Fuel Reduction", thus focus on removing large, mature trees, clear-cutting of our environmentally needed urban forest. Studying their submitted documentation, this counter productive activity has been, and will be practiced in areas distant from many structures – housing in particular.

Established US Forestry & Australian fire science has demonstrated that hazardous fires propagate by igniting fine dry fuel -- weeds, grasses, brush, tree litter & falls of small, mostly limited to 3" diameter. In wind condition, embers disburse widely, falling into such easy ignitable fuel, and create the hard to control Wild Fire. Surprisingly, the documentation presented by the award-seekers does not emphasize ignition control, and/or avoids commitment to such activity.

It should be noted that the Award-Seekers are all large, high overhead organizations, which cannot operate lean low-cost projects, but can partially justify million dollar awards by practicing what amounts to a logging operation. Additionally, by focusing on the removal of non-native Eucalyptus, the support of native plant enthusiasts is assured -- but only if FEMA pays the bill. I'm attaching a couple of pictures to help justify my above words. It's an example of UC work done upon receipt of prior FEMA funds.

My house burned to the ground in 1991 Oakland Hills fire. Since then, I have reviewed pictures of many after-fire events. Typically, the house + contents end as a chest high heap of ashes, with a chimney standing. Consistently, pictures show nearby trees blackened, but still standing. My own house was also such an example. An explanation of this phenomenon appears in the fireman's Fire Prevention Handbook, which states that the small diameter fuels ignite & burn in minutes, whereas the larger diameter trees require 1000 hours (over 41 days) to be consumed.

Admittedly, anything combustible can ultimately burn, but realistically, it's the easy ignitable fuels that presents the greatest hazard.
Since money – FEMA's money -- is a great motivator, all award seekers must meet FEMA requirements, and show documented intention and methods to reduce ignition hazard.

Robert H Sand
25 Dartmouth Dr
Berkeley CA 94705

EBH-EIS-FEMA-RIX

From: John R. Shively, P.E. [jrshively@gmail.com]
Sent: Thursday, September 30, 2010 2:28 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

I am writing in response to the invitation for public comment regarding the following two proposed projects sponsored under the FEMA EIS for Hazardous Fire Risk Reduction proposal in the East Bay hills of California. Claremont Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-003): While I concur with the intent of the project, to reduce hazardous fire risk, I am absolutely opposed to stated "...felling of ALL eucalyptus, Monterey pine and acacia trees on approximately 45 acres of UCB property..." This project should be rejected as proposed. It is a wrong headed method of addressing the fire risk issue. Fires do not start in those trees. Fires are most commonly the result of discarded cigarettes and sparks from engine exhausts. The best defense against such fire ignition is clearing and mowing along streets and roads. This is presently is not being done. Such wholesale clearing of trees as proposed will lay the area vulnerable to unprotected soil, mudslides in heavy rain, and major land erosion. Additionally it will destroy the well established century old environmental character of the area. Strawberry Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-011): Again this project calls for "...the felling ALL eucalyptus, Monterey pine, and acacia trees on approximately 60 acres of UCB property..." This project should also be rejected as proposed, for the very same reasons stated for the preceding cited project.

EBH-EIS-FEMA-RIX

From: John Shively [jrshively@gmail.com]
Sent: Thursday, September 30, 2010 3:54 PM
To: EBH-EIS-FEMA-RIX,
Cc: SylviaMc@presto.com; Georgia Wright; Lesley Emmington
Subject: Hazardous Fire Risk Reduction EIS for East Bay Hills,California

The following is written in response to the invitation for public comment on the following two proposed fire risk reduction projects in the East Bay Hills of California.

The Claremont Canyon Vegetation Management Project (PDM-PJ-09-A-2005-003):
This project proposes "...felling *all* eucalyptus, Monterey pine, and acacia trees on approximately 45 acres of UCB property..." ostensibly for the purpose of fire protection. Essentially this is a tree clear cutting proposal, which will not address the root cause of fires in this beautiful hill area. Most accidental fires in such areas start as grass fires, commonly the result of tossed cigarettes or hot exhaust from internal combustion engines along roadways. They do not start in the trees.

This project as proposed would destroy the century old sylvan character of the established trees in this hill area, and unnecessarily so. Furthermore such tree clear cutting would make the area's steep hillsides vulnerable and exposed to damage caused by heavy rains and mudslides.

The best defense against such fires is the mowing of grass along roadways. This is common practice in most states, but for some unknown reason is rarely seen done in California.

The Strawberry Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-011):
This project also proposes: "...felling *all* eucalyptus, Monterey pine, and acacia trees on approximately 60 acres of UCB property..." again ostensibly for the purpose of fire protection. And this proposed project is also a tree clear cutting proposal. It should be rejected as well for the very same reason as the preceding Claremont Canyon proposal.

These two preceding proposed fire protection projects should be rejected absolutely as stated. They should be replaced by two entirely new alternative fire prevention proposals - that would not have such disastrous consequences to the existing natural environment of the area.

EBH-EIS-FEMA-RIX

From: John Shively [jrshively@gmail.com]
Sent: Thursday, September 30, 2010 4:13 PM
To: EBH-EIS-FEMA-RIX,
Subject: Re: Hazardous Fire Risk Reduction EIS for East Bay Hills,California

The following is written in response to the invitation for public comment on the following two proposed fire risk reduction projects in the East Bay Hills of California.

The Claremont Canyon Vegetation Management Project (PDM-PJ-09-A-2005-003):
This project proposes "...felling *all* eucalyptus, Monterey pine, and acacia trees on approximately 45 acres of UCB property..." ostensibly for the purpose of fire protection. Essentially this is a tree clear cutting proposal, which will not address the root cause of fires in this beautiful hill area. Most accidental fires in such areas start as grass fires, commonly the result of tossed cigarettes or hot exhaust from internal combustion engines along roadways. They do not start in the trees.

This project as proposed would destroy the century old sylvan character of the established trees in this hill area, and unnecessarily so. Furthermore such tree clear cutting would make the area's steep hillsides vulnerable and exposed to damage caused by heavy rains and mudslides.

The best defense against such fires is the mowing of grass along roadways. This is common practice in most states, but for some unknown reason is rarely seen done in California.

The Strawberry Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-011):
This project also proposes: "...felling *all* eucalyptus, Monterey pine, and acacia trees on approximately 60 acres of UCB property..." again ostensibly for the purpose of fire protection. And this proposed project is also a tree clear cutting proposal. It should be rejected as well for the very same reason as the preceding Claremont Canyon proposal.

These two preceding proposed fire protection projects should be rejected absolutely as stated. They should be replaced by two entirely new alternative fire prevention proposals - that would not have such disastrous consequences to the existing natural environment of the area.

Respectfully submitted,
John R. Shively, P.E.
Oakland, California

EBH-EIS-FEMA-RIX

From: HCN [inquiries@hillsconservationnetwork.org]
Sent: Thursday, September 30, 2010 5:36 PM
To: EBH-EIS-FEMA-RIX,
Subject: Hills Conservation Network EIS comments

Attachments: eisresponsea.pdf

eisresponsea.pdf
(109 KB)

Attached please find comments to the FEMA EIS for UC, EBRPD, and the City of Oakland proposed wildland fire mitigation projects.

We thank FEMA for the opportunity to provide this input, and hope that as the EIS process unfolds FEMA continues to do the rigorous and professional job its been doing in managing the awarding of these grants.

Dan Grassetti on behalf of the Hills Conservation Network

Hills Conservation Network

P.O. Box 5027, Berkeley, CA 94705, (510) 849-2601, inquiries@hillsconservationnetwork.org/

http://hillsconservationnetwork.org

Preserving the East Bay Hills

9/30/10

EBH-EIS
P.O. Box 72391
Oakland, CA 94612
ID FEMA -2010-0037

The Hills Conservation Network has conducted a thorough review of the projects proposed for funding under the EIS currently being scoped and has come to a number of conclusions. Once again, we appreciate the opportunity to participate in this process and are confident that the outcome will be a rational and data-based set of projects.

We have divided our comments into 3 sections, tied to the 4 projects under consideration. The first of these are the 2 PDM projects proposed by the University of California, the next is City of Oakland PDM project, and the last is the EBRPD HGMP project.

Beginning with the 2 UC projects, our position is that for a range or reasons FEMA should categorize these under the No Action Alternative, meaning that they should not be funded as currently proposed.

We come to this conclusion for the following reasons:

1. These projects are not at all consistent with the stated intent and rules that FEMA has provided for this program. Specific violations are as follow:

a. FEMA Mitigation Policy MRR-2-08-1 states "FEMA hazard mitigation assistance for wildfires is only focused on long-term and cost-effective actions taken to reduce the risk to specific property or structures from future wildfires." Neither the Strawberry nor Claremont canyon project fit this description. To be clear, the UC facilities nearest to the proposed project areas already have defensible space, and to the extent that they might benefit from more extensive defensible space and improved building materials/fire suppression technologies, this would be appropriate under the PDM grant system.

The problem here is that the proposed project areas are not proximate to UC facilities, and are not near residential properties either. So, there is a fundamental disconnect between the purpose of the PDM grants, as described by FEMA, and what the applicant is proposing these funds be used for.

Per the FEMA guidelines the programs will allow for "hazardous fuels reduction vegetation management, vegetation thinning or reduction of flammable materials to protect life and property beyond the defensible space perimeters, but proximate to at-risk structures. There are simply no at-risk structures near either of these two projects, so they are ineligible for FEMA funding. Again, if these projects were to reduce risk to critical UC structures by enhancing defensible space and/or reducing the susceptibility of these structures to fire, this would be an appropriate use of these funds. But this is not the case. What is being proposed is clearcutting 3 species of trees that are not near either UC or private structures, while offering no fire risk reduction benefits.

b. These projects will not mitigate the threat that these projects claims to mitigate, and as such are ineligible for funding by FEMA under the PDM program. To be clear, there is no conclusive evidence that should lead FEMA to conclude that what is proposed in these two projects will actually reduce the risk of fire. While there is no question that creating vegetation-free buffer zones around structures is an effective means of mitigating wildfire risk (the most effective policy according to experts), the assertion that removing only certain species of trees will mitigate fire risk is simply wrong. Neither the grant applications nor the Strawberry Canyon DEA made the case for the approach that UC is proposing. In fact, the approach that UC is suggesting is highly controversial for a number of reasons:

i. Removing only certain species while leaving others will not reduce the risk of fire from those that remain. In fact, there is plenty of evidence to suggest that removing large trees, which is the effective result of the projects being proposed, will INCREASE the risk of fire.

There are several factors that cause fire risk, one being fuel load and the other being risk of ignition. As has been seen with Angel Island and with the recent oak and grassland fire between Tunnel road and Charing Cross road, grasses and oaks burn really well. In fact it is well known that grass fires produce longer flame lengths than burning eucalyptus trees, not to mention the fact that while eucalyptus trees are very difficult to ignite, grasses are very easy to ignite.

To suggest that somehow the fields of drying chips, dried-out poison hemlock, thistle, and broom don't create a greater risk of ignition than large trees is simply incorrect. And these are the very species that have taken over sites where the methodology that UC is proposing has been used.

Once the canopy has been removed, which is what UC proposes to do, the result has been and will be a proliferation of species that are designed to burn frequently in nature. Adding piles of highly flammable wood chips to the mix creates an even greater fire hazard.

Even if, somehow, the removal of tall trees would miraculously result in "oak and bay woodlands" (an unfounded claim made by project proponents), there is no evidence to suggest that the resultant vegetation would be less of a fire hazard than the eucs, pines, and acacias that were clearcut.

Additionally, the argument that the potential for eucs and pines throwing embers is reason enough for their destruction is simply not supported by the science. There is nothing to say that oaks and bays in similar locations wouldn't pose an identical hazard.

The bottom line is this, FEMA has created these programs to reduce fire risk, but there is scant evidence that what's being suggested by UC will in fact accomplish this goal.

ii. Chipping and scattering up to 24" of material at the site creates a fire hazard. It is well known that piles of drying wood chips are both easily ignitable and once ignited are almost impossible to extinguish. This is the very reason that other large public agencies in the area will not use this technique on their properties.

iii. Clearcutting the trees being targeted will eliminate canopy, and as the results of past projects of this sort in this area have shown, once the canopy is gone there is an invasion of extremely fire prone vegetation such as thistles, poison hemlock, and broom. Experience has shown that once this problem is created it is impossible to manage these hazardous invaders without the use of garlon, roundup and other toxic chemicals...and even so, they come back every year. This is another reason why other large public land owners in this area won't employ these methods.

iv. Given that virtually all of the large fires in this area have occurred on hot Diablo wind days, and given that the fires that have occurred here under these conditions have proven to be completely non-selective in what they will burn, why would any rational person conclude that removing certain species (and suggesting that other more desirable species will somehow move in to replace them) will actually reduce the fire risk? As fire experts make clear, fuel is fuel, especially in a conflagration such as what we experienced in 1991. The problem with what's being proposed here is that there is just no evidence that it will reduce the risk, frequency, or severity of fires in this environment.

c. FEMA Mitigation Policy MRR-2-08-1 states that clearcutting projects are ineligible for funding. Since the vast majority of the trees at these 2 sites are eucalyptus, pines, and acacias, and since the project descriptions call for the complete removal of ALL of these trees, this would be about as obvious a case of clearcutting as exists. While the proponents of these projects will argue that they are "only removing non-natives invasive species," the fact is that in so doing they are effectively performing a clearcut. This sort of project is clearly in violation of FEMA policy for these programs.

d. The FEMA policy clearly states that "projects to address ecological or agricultural issue related to land and forest management" are ineligible for funding. It is clear from what's being proposed in these projects that they are more about "transforming the landscape" than about fire risk mitigation. There is no evidence that fire risk mitigation will result from these projects; in fact there is substantial evidence that fire risk will INCREASE, but there is little question that focusing entirely on 3 species for complete eradication is intended to achieve landscape transformation, at any cost.

It is evident that the project proponents are attempting to acquire FEMA PDM funding to advance a landscape transformation agenda, claiming that fire risk mitigation will result. This is a clear violation of FEMA guidelines that prohibit using these moneys for ecological issues and therefore should not be funded.

e. Additionally, given the need for a cumulative impact analysis as part of the EIS, and given the size of projects planned for the immediately adjacent area, to make no attempt to minimize carbon release through selective tree removal is likely to result in an unacceptable level of carbon release. Additionally, these projects would result in extreme habitat destruction, increasing slide and erosion risk, and call for the application of unprecedented amounts of toxic herbicides over decades. We think that because of their high environmental cost these projects could likely not survive the EIS process and possible subsequent legal challenges, so there is no point in allowing them to move forward.

f. The proponents of this plan make the argument that in removing all of these trees that they are achieving a commensurate reduction in fuels, but this is in fact not the case. The reality is that in virtually all wildland fires in this area, the fine fuels (<3" diameter) burn, but the trees remain standing. So, what's effectively happening by removing ALL trees of certain species is that there is no intelligence being applied to selectively removing trees that have a high combustible fuel load relative to total biomass, instead removing trees that have a very low combustible fuel load relative to total biomass.

The result is the release of enormous amounts of sequestered carbon, while reducing the combustible fuel load relatively little. Again, the claims made by project proponents that by implementing this program they would be removing

an enormous amount of fuel is simply wrong, because the bulk of the "fuel" that is being removed will not burn. The only fuel that is relevant to the fire-risk discussion is the fuel that actually burns. It would be far better to focus on the actual combustible fuel, that with a diameter of less than 3", and reduce combustible fuel loads substantially while minimizing the reduction of non-combustible fuel loads.

Since this level of intelligence is excluded from the proposed action, the net result will be large amounts of carbon un-sequestered, massive habitat destruction, significant increases in the risk of slides and erosion, and the application of unprecedented amounts of toxic herbicides over an extended period, without a commensurate reduction in fire risk. A bad deal all around....unless the objective is to achieve landscape transformation.

We believe that it's unlikely this sort of approach will be justifiable, especially in light of their questionable effectiveness, extreme environmental cost, and the fact that there are better alternatives. We believe that there is little doubt that these projects, as currently defined, will not be acceptable under an EIS, and suggest that FEMA not allow these projects to move forward.

g. Finally, there are several legal issues with these projects.
The first is that formal allegations of fraud have been filed with the FEMA Inspector General's office. The assertion is that there were numerous and significant mis-statements made by the grant author (s) for the grants in question, and that these mis-statements were serious enough that they could easily have caused the evaluation panel to select these projects over others that were more deserving. In the even that these projects were to be funded, we believe that there is a high likelihood that the IG would find that the claims of fraud were valid, and would seek financial reimbursement from UC. The problem is that by the time this would happen the damage would have been done. While we understand that this isn't standard practice, we ask that the FEMA IG investigate these claims BEFORE the moneys are awarded so that irreparable damage would not result.

Additionally, there is currently a lawsuit pending against the East Bay Regional Park District over the adequacy of an EIR addressing a large project immediately adjacent to the proposed UC projects. Given that there is clearly a cumulative impact with the EBRPD projects and the UC projects, it would seem imperative that the EBRPD lawsuit be resolved before serious consideration is given to the UC projects.

Next is the Oakland PDM 06 Grant. This one needs to be divided into two sections. The first is the City of Oakland/EBRPD piece for the area immediately above Caldecott Field and the second is the UC portion for the Frowning Ridge area. HCN has reviewed these projects extensively and is making different recommendations for the 2 subprojects. For

the overall grant we recommend that FEMA adopt Alternative 4, with the subgrants as follow.

The first is the UC Frowning Ridge project. We recommend that FEMA adopt the No Action Alternative for this project for the same reasons described above for the 2 UC PDM 05 projects as the methods and issues are identical.

The second is the Caldecott Field Project, which we recommend that FEMA adopt Alternative 3 due to the proximity of private residences at the head of the canyon. While the text of the grant application is similar to that of the UC projects, we have been led to believe by Leroy Griffin of the Oakland Fire Department that the plan for this area is not at all similar to what UC plans for its properties. We ask that this portion of the grant/plan be re-written in such a way as to ensure that there be selective, species-neutral tree removal aimed at reducing combustible fuel loads in a minimally environmentally damaging manner.

Specifically, we propose that OFD employ proven methods including:

- removal of all understory vegetation
- limbing all trees to a minimum of 8 feet above the ground
- targeting small trees for removal, removing no more than 50% of the total
- the removal effort must be species-neutral
- under no conditions may canopy be diminished
- using non-chemical methods for addressing resprout issues

These rules would apply to both Oakland and EBRPD owned properties in the area immediately above Caldecott Field.

Lastly is the EBRPD Brushland Fuels Management Project (HMGP 1731-16-34). Unfortunately, it appears that the title of this project is something of a misnomer. In fact a number of the polygons that would be funded for "treatment" under this project are not brush removal at all, but involve the removal of large trees. As a result of this, we recommend that FEMA adopt Alternative 4 for these projects, allowing funding for the understory and shrub clearing portions of this grant, but not for the tree removal portions (16 polygons). For the tree-removal portions of this grant, following are reasons for our opposition:

1. These projects are not at all consistent with the stated intent and rules that FEMA has provided for this program. Specific violations are as follow:

   a. FEMA Mitigation Policy MRR-2-08-1 states "FEMA hazard mitigation assistance for wildfires is only focused on long-term and cost-effective actions taken to reduce the risk to specific property or structures from future wildfires." Since there are essentialy no structures threatened by the vegetation under consideration for removal, the proposed project area does not fit this description.

Per the FEMA guidelines the programs will allow for "hazardous fuels reduction vegetation management, vegetation thinning or reduction of flammable materials to protect life and property beyond the defensible space perimeters, but proximate to at-risk structures. Again, these projects are targeted at removing trees far away from structures, trees that would appear to pose little if any risk to structures, so they are ineligible for FEMA funding.

b. These projects will not mitigate the threat that these projects claim to mitigate, and as such are ineligible for funding by FEMA under the PDM program. To be clear, there is no conclusive evidence that should lead FEMA to conclude that what is proposed in these projects will actually reduce the risk of fire. While there is no question that creating vegetation-free buffer zones around structures is an effective means of mitigating wildfire risk (the most effective policy according to experts), the assertion that removing trees not proximate to structures, and in many cases only certain species of trees, will likely have negligible effect on fire risk mitigation is simply not founded in fact.

There are several factors that cause fire risk, one being fuel load and the other being risk of ignition. As has been seen with Angel Island and with the recent oak and grassland fire between Tunnel road and Charing Cross road, grasses and oaks burn really well. In fact it is well known that grass fires produce longer flame lengths than burning eucalyptus trees, not to mention the fact that while eucalyptus trees are very difficult to ignite, grasses are very easy to ignite; yet the intent of these EBRPD projects is to transform the environment into what has been shown to be a MORE fire-prone environment than what's currently there.

Given that virtually all of the large fires in this area have occurred on hot Diablo wind days, and given that the fires that have occurred here under these conditions have proven to be completely non-selective in what they will burn, why would any rational person conclude that removing certain species (and suggesting that other more desirable species will somehow move in to replace them) will actually reduce the fire risk? As fire experts make clear, fuel is fuel, especially in a conflagration such as what we experienced in 1991. The problem with what's being proposed here is that there is just no evidence that it will reduce the risk, frequency, or severity of fires in this environment.

c. FEMA Mitigation Policy MRR-2-08-1 states that clearcutting projects are ineligible for funding. Since the vast majority of the trees slated for removal by EBRPD are eucalyptus, pines, and acacias, and since the project descriptions in many cases call for the complete removal of ALL of these trees, this would seem to be an obvious example of clearcutting. While the proponents of these projects will argue that they are "only removing non-natives invasive species," the fact is that in so doing they are effectively

performing a clearcut. This sort of project is clearly in violation of FEMA policy for these programs.

d. The FEMA policy clearly states that "projects to address ecological or agricultural issues related to land and forest management" are ineligible for funding. It is clear from what's being proposed in these projects that they are more about "transforming the landscape" than about fire risk mitigation. There is no evidence that fire risk mitigation will result from these projects; in fact there is substantial evidence that fire risk will INCREASE, but there is little question that focusing entirely on 3 species for complete eradication is intended to achieve landscape transformation, at any cost.

It is evident that the project proponents are attempting to acquire FEMA PDM funding to advance a landscape transformation agenda, claiming that fire risk mitigation will result. This is a clear violation of FEMA guidelines that prohibit using these moneys for ecological issues and therefore should not be funded.

e. Additionally, given the need for a cumulative impact analysis as part of the EIS, and given the size of projects planned for the immediately adjacent area, to make no attempt to minimize carbon release through selective tree removal is likely to result in an unacceptable level of carbon release. Additionally, these projects would result in extreme habitat destruction, increasing slide and erosion risk, and call for the application of unprecedented amounts of toxic herbicides over decades. We think that because of their high environmental cost these projects could likely not survive the EIS process and possible subsequent legal challenges, so there is no point in allowing them to move forward.

f. The proponents of this plan make the argument that in removing all of these trees that they are achieving a commensurate reduction in fuels, but this is in fact not the case. The reality is that in virtually all wildland fires in this area, the fine fuels (<3" diameter) burn, but the trees remain standing. So, what's effectively happening by removing ALL trees of certain species is that there is no intelligence being applied to selectively removing trees that have a high combustible fuel load relative to total biomass, instead removing trees that have a very low combustible fuel load relative to total biomass.

The result is the release of enormous amounts of sequestered carbon, while reducing the combustible fuel load relatively little. Again, the claims made by project proponents that by implementing this program they would be removing an enormous amount of fuel is simply wrong, because the bulk of the "fuel" that is being removed will not burn. The only fuel that is relevant to the fire-risk discussion is the fuel that actually burns. It would be far better to focus on the actual combustible fuel, that with a diameter of less than 3", and

reduce combustible fuel loads substantially while minimizing the reduction of non-combustible fuel loads.

Since this level of intelligence is excluded from the proposed action, the net result will be large amounts of carbon un-sequestered, massive habitat destruction, significant increases in the risk of slides and erosion, and the application of unprecedented amounts of toxic herbicides over an extended period, without a commensurate reduction in fire risk. A bad deal all around....unless the objective is to achieve landscape transformation.

We believe that it's unlikely this sort of approach will be justifiable, especially in light of their questionable effectiveness, extreme environmental cost, and the fact that there are better alternatives. We believe that there is little doubt that these projects, as currently defined, will not be acceptable under an EIS, and suggest that FEMA not allow these projects to move forward.

It should be further noted that there is currently pending litigation for the CEQA EIR used to justify these projects, and until this litigation is resolved, it would be impossible to understand the cumulative impact of the proposed actions.

In summary, the Hills Conservation Network recommends the No Action Alternative for the 2 UC PDM applications and the Frowning Ridge portion of the Oakland PDM 06 application. We make this recommendation because it is clear that the projects proposed are not only of questionable effectiveness in mitigating fire risk, but are not in compliance with FEMA guidelines for this program.

We recommend that the Oakland Caldecott Field project be allowed to move forward under Alternative 3, with following the specific guidelines we have proposed.

We recommend that the EBRPD HMGP grant be considered under Alternative 4, allowing for the portions of the project involving understory and ground fuels removal, but not allowing for the portions that involve the removal of trees. This is due to many of the same failings of the 3 UC projects involving failure to comply with FEMA guidelines and failure to demonstrate that these projects will actually mitigate the risk of fires.

Sincerely,

Dan Grassetti
On behalf of the Hills Conservation Network

EBH-EIS-FEMA-RIX

From: isis feral [isisferal@yahoo.com]
Sent: Friday, October 01, 2010 9:12 AM
To: EBH-EIS-FEMA-RIX,
Subject: Comment on FEMA-2010-0037
Attachments: FEMA-EBH-EIS-100110.pdf

Please see attached comments on Docket number FEMA-2010-0037, the East Bay Hill Environmental Impact Statement (EBH EIS).

Return receipt requested.

Thank you.

Isis Feral
isisferal@yahoo.com

Comments on the East Bay Hills Environmental Impact Statement (EBH EIS)
for the Federal Emergency Management Agency (FEMA)
Wildfire Pre-Disaster and Hazard Mitigation funding requested by
the University of California, City of Oakland, and East Bay Regional Park District

DOCKET FEMA-2010-0037

Isis Feral - October 1, 2010

The University of California (UC), the City of Oakland, and the East Bay Regional Park District (EBRPD) have applied for FEMA funding for four fire mitigation projects in the East Bay Hills, spanning 2,000 acres in Alameda and Contra Costa Counties.

FEMA funding for these projects should be denied, because the planned actions do not accomplish the purpose of the Pre-Disaster and Hazard Mitigation Grant programs. They do not protect life, but instead increase fire danger and contribute to other environmental hazards.

INCREASED FIRE DANGER

The projects' stated intent is to reduce fire danger, but the proposed actions are more likely to increase fire danger. In addition to clearcutting moisture-rich forests and turning them into dry, flammable grasslands, as well as removing windbreaks, giving Diablo winds free rein to drive fires into our communities, herbicides are planned for use, which increase the flammability of vegetation, and may themselves have flammable components.

The three projects described on UC's projects' page under "In Planning", which includes the project for which the City of Oakland seeks funding (http://oep.berkeley.edu/programs/fire_mitigation/index.html), list Garlon 4, for example, as one of the herbicides to be used in these projects. One formulation of Garlon 4 contains kerosene, which is highly flammable (http://www.cdms.net/ldat/mp080014.pdf).

The manufacturer's Material Safety Data Sheet for Stalker, another herbicide to be used, warns that if the product is involved in a fire, toxic vapors will be released (http://www.cdms.net/LDat/mp01R007.pdf). This is not an unusual warning for pesticide products, and shows that chemical use in fire prone areas is particularly irresponsible.

Experiments by community activists also showed that herbicides in general make vegetation more flammable than vegetation that was not exposed to herbicides (http://www.dontspraycalifornia.org/Cheriel%20Response.html).

ADDITIONAL ENVIRONMENTAL HAZARDS

Pesticides are hazardous to both human and ecological health. Some of the specific dangers of the herbicides listed in the three projects on UC's site:

Garlon http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/triclopyr

The active chemical ingredient in Garlon is triclopyr. Acute exposure symptoms include, but are not limited to, difficulty breathing, lethargy, incoordination, weakness, and tremors, as well as skin sensitization, increasing

subsequent exposure symptoms. In lab animals an increased incidence of breast cancer, kidney damage, various reproductive problems, and genetic damage, was observed. Triclopyr's breakdown product 3,5,6-trichloro-2-pyridinol (TCP) disrupts nervous system development, and in lab tests, it accumated in fetal brains when exposed during pregnancy.

Triclopyr also causes complex ecological impacts, including, but not limited to, interfering with nitrogen cycling, and inhibiting the growth of beneficial mycorrhizal fungi that aid nutrient uptake in plants. It has been observed to reduce the diversity of mosses and lichens. The breakdown product TCP is toxic to soil bacteria. Triclopyr is mobile and persistent in soil, has contaminated wells, streams, and rivers, and has the potential to contaminate ground water. Increased growth of algae has been observed after triclopyr applications. It is highly toxic to fish, affects oyster larvae, and disturbs frog behaviors that help them avoid predators. It also decreases the survival of bird nestlings, is toxic to spider mites, and affects other beneficial insects and spiders by killing plants they depend on for food and shelter.

Roundup http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/glyphosate

The active chemical ingredient in Roundup is glyphosate. Roundup also contains the surfactant polyethoxylated tallowamine (POEA), which is even more toxic than glyphosate, and the combination of the two is more toxic than either chemical on its own. Acute exposure symptoms include, but are not limited to, eye and skin irritation, blurred vision, skin rashes and blisters, headache, nausea, dizziness, numbness, elevated blood pressure, heart palpitations, coughing, congestion, and chest pains. Extended exposures have been associated with non-Hodgkin's lymphoma, miscarriages, premature birth, and other reproductive harm. In lab animals there was an increase in testicular, kidney, pancreas and liver tumors, as well as thyroid cancer. Studies have shown glyphosate to be mutagenic, and to cause chromosome and DNA damage.

Glyphosate also causes complex ecologiccal impacts, including, but not limited to, inhibiting the growth of nitrogen-fixing bacteria and mycorrhizal fungi, reducing seed quality, and making plants more susceptible to disease. Glyphosate drifts extensively, and is mobile and persistent in soil. Its persistence in soil varies widely, from days to months, but has been found to persist on some forest sites for as long as 3 years. It has been found in both ground and surface water, has found its way into streams and rivers, and contaminated wells. Both glyphosate and POEA are toxic to fish. Roundup has been shown to kill various beneficial insects, such as species of parasitic wasps, lacewings, ladybugs, predatory mites and beetles. Glyphosate also reduces the growth of earthworms, and affects other beneficial insects, spiders, birds, and wildlife by killing plants they depend on for food and shelter.

Stalker http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/imazapyr

The active ingredient in Stalker is imazapyr. Acute exposure symptoms include, but are not limited to, eye and skin irritation. It is corrosive and can cause irreversible eye damage. Acute effects on lab animals included bleeding and congested lungs, congestion of kidneys, liver, and the intestine. Chronic exposure in lab animals caused fluid accumulation in the lungs, kidney cysts, abnormal blood formation in the spleen, increase in brain, adrenal gland, and thyroid cancers. Quinolinic acid, a breakdown product of imazapyr, causes eye, skin, and respiratory irritation, and is a neurotoxin which causes nerve lesions and symptoms similar to Huntington's disease.

Imazapyr is very mobile and persistent in soil. It has been shown to persist in soil for well over a year. It can disrupt nutrient cycling by slowing down the decomposition of plant material. Imazapyr has contaminated both surface and ground water. Ozone degradation, to remove pesticides from drinking water, removes only half of the contamination. Imazapyr is highly toxic to fish.

In addition, herbicides listed in EBRPD's fire plan (http://ebparks.org/files/fireplan/EBRPD_WHRRM_Plan/5-VegMan.pdf) include:

Clopyralid http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/clopyralid

Clopyralid is an eye irritant. Some products containing clopyralid can cause permanent impairment of vision. In lab animals clopyralid caused substantial reproductive problems, including reduced weight and skeletal abnormalities, as well as excess fluid around the brain, of fetuses. Effects on the stomach, liver, blood, and body weight of animals was also observed.

Clopyralid is persistent in soil, and has been measured in soil for up to 14 months. Residues have also been found in compost and mulches, causing damage to plants where used as soil amendments. Plant damage from clopyralid can be passed on for several generations. Clopyralid is particularly volatile, drifting away from the site of application by evaporating from foliage. It is also very soluble in water and very mobile in soil, and has been found in river basins. It is toxic to several beneficial insects, including species of lacewings, ladybugs, and pirate bugs.

Dicamba http://www.pesticide.org/get-the-facts/pesticide-factsheets/factsheets/dicamba

Dicamba exposure symptoms include muscle cramps, shortness of breath, nausea, vomiting, loss ofvoice, swollen glands, skin irritation and sensitization, as well as severe eye irritation, and can result in irreversible eye damage. It is associated with the inhibition of the nervous system enzyme acetylcholinesterase, as well as non-Hodgkin's lymphoma. In lab animals it has caused weight loss, liver damage, and fetal loss. Dicamba has caused chromosome and DNA damage.

Dicamba evaporates easily and has been shown to drift for miles. It is toxic to some nitrogen-fixing bacteria, as well as some algae that contribute to soil fertility, and it impacts soil nutrient cycling by reducing enzyme activity in soil microbes. It is mobile in soil, and has been shown to persist in soil as long as a year. It has contaminated rivers, ponds, groundwater, and drinking water supplies. Tests show wide variations of toxic effects on fish and other aquatic organisms. Researchers have documented that dicamba reduced germination of oak seedlings.

Undisclosed ingredients and chemical mixtures

In addition to active ingredients and their breakdown products, herbicides contain a large percentage of so-called "inert" ingredients, which are kept undisclosed, protected as "proprietary" by trade secret laws. They are frequently even more toxic than the active ingredients listed on the label, and are specifically designed to interact synergistically to achieve greater toxicity than each chemical by itself (http://www.ehponline.org/members/2006/9374/9374.pdf).

Some inert ingredients, such as the surfactant POEA in Roundup, have been identified. POEA causes eye burns, skin redness and swelling, blistering, nausea, and diarrhea. Another ingredient in some Roundup products is isopropylamine, which causes injury to the tissue of the mucous membranes and upper respiratory tract, wheezing, laryngitis, headache, and nausea. The details about most other inert ingredients and their effect is being withheld from the public, including from medical workers.

Contamination during manufacture further adds to the danger of chemical use. POEA is contaminated during manufacturing by 1,4 dioxane, which is recognized as a carcinogen under Proposition 65. Dicamba is contaminated during its manufacture with 2,7-dichlorodibenzo-p-dioxin, which has been shown to cause birth defects and cancer. Dicamba can also be contaminated with dimethylnitrosamine, which causes cancer as well.

Synergistic effects also come into play when herbicide products are being combined, as UC has been known to do. Mixing can also occur when different herbicides are used near each other, and chemicals combine as they drift by air, water, soil, and contact. Because chemical residues can persist in the environment for a long time, subsequent applications of different herbicides can also combine into new mixtures. Synergism can exponentially increase chemical toxicity (http://www.ourstolenfuture.org/newscience/synergy/mixtures.htm).

Dose response

Manufacturers and other proponents of pesticides often downplay the dangers, by claiming that they are using a negligible quantity of chemicals. While this is debatable on many levels, it is also irrelevant. Some effects, specifically endocrine disruption, are subject to a non-monotonic dose response, where decreasing exposure levels can actually cause greater impacts (http://www.ourstolenfuture.org/newscience/lowdose/nonmonotonic.htm). Disruptions to the endocrine systems are far reaching, and can cause a vast number of reproductive problems, various cancers, and can impair immune and neurological functions.

Body burden studies (http://www.ewg.org/sites/bodyburden1/) have shown that chemicals accumulate and persist in our bodies over time, including chemicals to which we were exposed by drift or extensive cross-contamination. Most alarming are the increasing findings that chemical injuries are being passed on by various means over generations (http://www.organicconsumers.org/Politics/toxins060605.cfm).

Chemical exposures have harmed countless people, causing fatal or disabling illnesses, including, but not limited to, lung diseases, cancers, neurological disorders, reproductive harm, immune deficiencies, and increased sensitization to chemicals. For millions of people already disabled by exposure to toxic chemicals, the herbicide applications by UC, EBRPD, and the City of Oakland present especially severe health risks and direct obstacles to access. They deny access to local public parks to those of us who most need refuge from urban pollution. Obstacles to access to public space are a violation of the Americans with Disabilities Act.

Native habitat

While the stated intent of the agencies requesting FEMA funding is fire mitigation, their plans specifically single out non-native plant species for eradication. It appears UC, EBRPD, and the City of Oakland are attempting to use federal emergency monies for native plant restoration projects.

Ironically, these projects are actually a threat to already endangered native species in the East Bay Hills. Several of the herbicides threaten the California Red-Legged Frog (http://www.biologicaldiversity.org/swcbd/PRESS/rlf-10-19-2006.html), whose habitat is not adequately protected against the drift these chemicals are known for. Both the Alameda Whipsnake and Pallid Manzanita are threatened by the exclusion of fire from their habitat. The Pallid Manzanita specifically cannot reproduce without fire to sterilize the soil and scar its seeds.

These native species are threatened with extinction because of human intervention with chemical vegetation management practices and aggressive wildfire prevention, the very actions these projects propose more of.

So much damage has already been done, that the Berkeley Police recently was caught unprepared by a mountain lion driven into the city, where it posed a substantial threat to a neighborhood a few blocks away from downtown (http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/08/31/MNV41F6FIP.DTL). With ever larger areas of habitat disturbed by vegetation removal and poisoning of the environment, communities surrounding the hills will likely see more such desperate, disoriented, and quite possibly poisoned, wildlife wandering into our neighborhoods.

CONTEXT

To consider the full environmental impact of these four projects, they must be understood not only in combination with each other, but also in the context of the series of projects, which these projects are part of, and which affect hundreds of thousands of trees, on thousands of acres. Details about the projects these three agencies are involved in, can be found at the following weblinks:

- UC Berkeley's projects: http://oep.berkeley.edu/programs/fire_mitigation/index.html
- EBRPD's projects: http://www.ebparks.org/stewardship/fireplan/plan

- Maps of UC and EBRPD projects: http://www.hillsconservationnetwork.org/Cumulative_Impact.html
- Photos of projects and damage already done: http://www.hillsconservationnetwork.org/Site_Index.html
- Map of Oakland's Wildfire Prevention Assessment District: http://www.oaklandnet.com/wildfirePrevention/docs/WPADistrictMap.pdf

DISHONEST AGENCIES

University of California

UC's request for federal emergency monies appears to be a development scheme in the making: The two areas (http://www.hillsconservationnetwork.org/LBL_and_UC_Link.html) for which UC requests FEMA funding are immediately adjacent to Lawrence Berkeley National Laboratory, which is operated by UC, and is slated for massive expansion (http://www.lbl.gov/LRDP/). It is not FEMA's responsibility nor prerogative to fund LBL's Long Range Development Plan.

City of Oakland

Oakland's approach to fire mitigation has also been less than honest: In 2004 the city convinced East Bay Hills residents with brochures that pictured grazing goats, to pay an assessment for wildfire prevention. When the money was collected in 2005, officials suddenly attempted to exempt the Wildfire Prevention Assessment District from the city's pesticide ordinance. After the pesticide proposal was successfully challenged by the public, and the city agreed to conduct environmental impact studies, the city instead quietly entered into a partnership with UC to engage in the exact same actions, in violation of Oakland's pesticide ordinance (http://oep.berkeley.edu/pdf/FireProjects/OtherDocs/ARfire_2005.pdf).

East Bay Regional Park District

EBRPD's Fire Plan and Environmental Impact Report is currently facing legal challenges by East Bay Hills residents (http://hillsconservationnetwork.org/Blog/Entries/2010/5/26_HCN_files_suit_against_EBRPD.html), and as such should not be aided by FEMA.

FEMA GRANT PROGRAMS

FEMA has already recognized that UC mischaracterizes fire danger, and does not have a handle on fire safety, when UCSF applied for a fire mitigatin grant for the same kind of project in a similar environment in San Francisco (http://milliontrees.wordpress.com/2010/09/24/fema-sees-through-the-smokescreen/). The FEMA grant applications for the East Bay Hills should be denied for the same reasons FEMA representatives expressed concerns during that application process.

The FEMA grant programs specify that the goal is to protect life. Chopping down forests and poisoning the environment accomplish the opposite. These projects do not create defensible space to safeguard homes. The vegetation removal is not limited, but will result in clear cuts. Plants targeted are being vilified as "invasives", which implicitly makes these projects pest control projects, and not eligible for the grants.

The FEMA East Bay Hills Environmental Impact Statement should reflect the real dangers these projects pose to public and environmental health, and put on the environmental record the actions these agencies, under the guidance of UC, are already undertaking, so that they can be held accountable for the environmental devastation they are perpetrating on our ecosystem.

EBH-EIS-FEMA-RIX

From: carole schemmerling [caroleschem@hotmail.com]
Sent: Friday, October 01, 2010 11:42 AM
To: EBH-EIS-FEMA-RIX,
Subject: Request
Attachments: FEMA LTR.rtf

This is our response to the FEMA presentation last month.

STRAWBERRY CREEK WATERSHED COUNCIL

The Strawberry Creek Watershed Council is opposed the funding of the 2 UC PDM grants because they are examples of the worst forestry and fire management practices possible.

* Clearcutting is a practice that leads to erosion, establishment of exotic (ie: European annual rye) grasses and low species which become the fuel of the next big fire. The loss of canopy creates the depletion of moisture in a drought-prone environment.

* Plans to urbanize the ridges above the UC and LBNL Campuses, whether with housing or research are irresponsible to the extreme. Southern California has allowed this practice and suffers huge losses from fire every year. **It should be noted that those areas have no trees.**

* Plans to use pesticides/herbicides are profitable for the manufacturers and the purveyors of these materials, but are a terrible detriment to the ecosystems that will be affected by them. There is no logical reason to use them if proper forestry practices are followed.

* The appropriate practices are:
1. Cull small trees with trunk diameters of less than 6-8".

2. Remove lower limbs of trees having the 8' trunk diameter, but leaving the upper canopy thick enough to shade the floor.
3. Keep the spaces between the large trees (10' plus or minus) clear by weed-wacking in September and October. (Think of all these "green" jobs....much better to hire humans than buying chemicals)

* The species of trees is not as important as long as the appropriate practices are followed. Case in point: in the 1991 Oakland fire, a property owner who lived at the bottom of a grassy slope of at least 200' or more; he also had eucalyptus trees clustered on the side just about 10' above his house , some small live oaks nearby and a couple of redwood trees next to his house. A week earlier he had removed fallen branches and leaves from under the eucalypts and the redwoods. When the fire came roaring down the grassy slope, it went under the trees and burned his house to the ground. **None of the eucalypts or the other trees where burned or even singed.**

* It is important to note that the slopes and headwater streams at the LBNL site are already contaminated by toxics and are prone to landslides. What UC and LBNL want to do up on the ridge, at the top of Strawberry Canyon and Centennial Drive, if allowed, is going to create an even more unsafe, fire prone and landslide prone situation.

Therefore we request that there be NO funding of the UC PDM grants.

Sincerely,

Carole Schemmerling
861 Regal Rd.
Berkeley, Ca 94708
510.524-4005

EBH-EIS-FEMA-RIX

From: Madeline Hovland [mhovland@mindspring.com]
Sent: Friday, October 01, 2010 1:00 PM
To: EBH-EIS-FEMA-RIX,
Subject: East Bay Hills EIS-public comments

Attachments: FEMAcomments-Hovland-10-1-2010.pdf; ATT810487.txt

FEMAcomments-Hovland-10-1-2010... ATT810487.txt (153 B)

To: Mr. Alessandro Amaglio

I am a member of the Hills Conservation Network, but this is my comment as an individual and as a resident of the East Bay Hills. I live in Oakland, even though the zip code is Berkeley.

Thank you for the opportunity to comment on these projects.

Please call me if you have any difficulty opening or reading this comment.

Public Comment from Madeline Hovland on EBH-EIS 1

To: Mr. Alessandro Amaglio, Environmental Officer, FEMA Region 9 Docket ID FEMA-2010-0037

PUBLIC COMMENT on EIS for Hazardous Fire Risk Reduction Projects in the East Bay Hills

I live on Alvarado Road in the North Hills of Oakland. On October 20, 1991 my family was fortunate; as I said in my comment at the FEMA public meeting on August 26, 2010, our house is in a group of approximately 15 houses that did not burn in the 1991 Oakland-Berkeley fire. The fire stopped up the street at three giant eucalyptus trees at the edge of Garber Park. (The fire also burned houses on Alvarado below Slater Lane down to Vicente, and on most of Gravatt in our immediate neighborhood.) Those tall, thick-trunked eucalyptus trees (still there) did not ignite despite all of the embers, sparks and debris flying through the air. If any sparks or embers landed in the foliage of other tall eucalyptus or pine trees close to our house, their crowns did not ignite. ***However, all of the native oaks, bays, dry grass, weeds and brush across the street, and a redwood standing next to a eucalyptus tree in a neighbor's yard, caught fire and burned to the ground.***

My observations of what had burned—and not burned—around our house during that terrible fire made me question the anti-eucalyptus fervor that broke out in our North Hills community a few years later. Some members of this community may sincerely believe, or have been led to believe, that non-native trees, especially eucalyptus trees, were the primary cause of the 1991 fire, if not the reason why it spread. These theories contradict reports that were done immediately after the fire.

According to Peter Scott, whose house at Alvarado and Amito burned in the fire (see "What Caused the Oakland-Berkeley Hills Fire," HCN newsletter, September, 2010 *), there were several causes, and eucalyptus trees played a very minor role. (Scott's account is based on the Grand Jury investigation that followed the fire and the extensive history of the fire issued by California's Office of Emergency Services, which does not even mention eucalyptus.)

A group of us, including several who had survived the 1991 fire, became increasingly concerned about the anti-eucalyptus rhetoric, especially after we saw the clearcutting that UCB was doing (ironically in the name of fire risk mitigation) in Claremont Canyon. We are not experts in fire science, but we did a lot of research, and what we learned caused us to question UCB's methods, which we now believe to be totally counter-productive to fire prevention. We are convinced that the efforts of UCB and EBRPD to remove non-native trees are directed primarily to advancing the restoration of native plant landscapes, and only secondarily to fire risk mitigation.

I am a member of the Hills Conservation Network, which was organized in late 2007 to advocate with public agencies and residents for cost-effective, environmentally friendly fire risk mitigation. HCN supports the reduction of fuel loading while maintaining species diversity and preserving an environment that will be sustainable in the future.

As a resident of this urban-wildland interface, there is no way I can agree with the Sierra Club's Norman LaForce (in his public comment to FEMA, September 12, 2010) that "natural resource protection [should be] given equal status with fire hazard reduction work." By "natural resource,"Mr. LaForce means native plants and trees. If Mr. LaForce lived in this area, he might believe, as I do, that nothing is as important as fire hazard reduction work that protects human lives and wildlife.

*** All HCN newsletters referred to in this comment may be found at: http://www.hillsconservationnetwork.org/Additional_Resources.html**

I. COMMENTS ON UCB PROJECTS:

These projects are described as follows:

- The Claremont Canyon Vegetation Management Project (PDM-PJ-09 CA 2005-003) submitted by UC involves felling all eucalyptus, Monterey pine, and acacia trees on approximately 45 acres of UCB property, chipping the downed trees and scattering the chips in the cleared area, and semi-annually applying herbicides to eradicate eucalyptus tree sprouts.

- The Strawberry Canyon Vegetation Management Project (PDM-PJ-09-CA-2005-011) submitted by UCB involves felling all eucalyptus, Monterey pine, and acacia trees on approximately 60 acres of UCB property, chipping the downed trees and scattering the chips in the cleared area, and semi-annually applying herbicides to eradicate eucalyptus tree sprouts.

I urge FEMA not to implement either of these UCB grants for the following reasons:

1. UCB did not respond to any of the concerns that were raised after the release of the DEA in 2007.

HCN members worked together in January of 2008 to create 39 pages of comments, including five pages of copies of petitions opposing the UCB clearcutting (more than 200 signatures), and an extensive annotated bibliography of books and articles that backed up our comments. Our concerns were based on UCB's methods for reducing wildfire risk: clearcutting non-native trees and chipping the remnants on site, in several places leaving highly ignitable wood chips to a depth of several inches.

Our concerns were and still are valid. The description of UCB's projects in Claremont and Strawberry Canyons has not changed. I believe that these projects are environmentally destructive, and that the management of UCB's "fire mitigation" projects will resist any changes in its goal, which is ultimately to eradicate all the non-native trees on UCB property in the hills, regardless of the effect that landscape transformation might have on the increase in flammable, ignition-prone weeds, and the disastrous effect it would have on wildlife habitat, air quality, erosion and slope stability.

The description of the UCB projects does not comply with FEMA Policy MRR-2-08-1 for wildfire mitigation. In fact, it seems to ignore the FEMA guidelines. FEMA should not fund these UCB projects because they appear to be simply a repetition of the methods and goals of the original DEA submitted by UCB. FEMA has required an EIS for the four East Bay Hills grants in part because UCB did not respond to the concerns raised by that DEA.

2. The UCB projects involve clearcutting.

According to FEMA Mitigation Policy-MRR-2-08-1, clearcutting is a wildfire activity that is not eligible for funding. FEMA should not fund the UCB projects because they involve clearcutting.

Even though the description of the two UCB projects does not describe its method as "clearcutting," we have seen, from UCB work already done in the canyons, that clearcutting is what will be done. UCB intends to remove all of the non-native trees, leaving only stumps behind. Heavy equipment will be used to remove the trees, disturbing the ground and increasing the susceptibility to erosion and slope instability in the coming years when extreme weather conditions (including intense rainstorms) can be

expected due to global climate change. As reported in the *Washington Post* and in the *San Francisco Chronicle* September 29, 2010, "David Easterling, chief of the Scientific Services Division at the National Oceanic and Atmospheric Administration's Climatic Data Center, said there will be more incidences of extreme weather because the planet is heating up." (http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/09/29/MN9L1FL45S.DTL)

3. According to FEMA Mitigation Policy MRR-2-08-1, "FEMA hazard mitigation assistance for wildfires is only focused on long-term and cost-effective actions taken to reduce the risk to specific property or structures from future wildfires."

The Claremont and Strawberry Canyon projects will not "reduce the risk to specific property or structures from future wildfires." Therefore, FEMA should not fund them.

There has never been a wildfire of any significance in either project area. The 1991 Oakland-Berkeley fire (which started in dry grass and brush, and quickly became a structure fire) did not extend to the north side of Claremont Canyon or to Strawberry Canyon. Claremont Avenue acts as a kind of fire break to the north side of the canyon. The danger to vegetation on the north side of Claremont Avenue would be primarily from ignition due to arson, a carelessly thrown cigarette or sparks from a vehicle.

There may be a few widely scattered structures within the area of the Claremont and Strawberry projects, but they could be protected by creating a wide perimeter around those structures, removing or thinning flammable vegetation, cutting trees smaller than 6 inches in diameter (which would remove approximately 70% of the fuel), removing ground fuels, cutting down the understory, and removing tree branches so that they are all at least 8 feet above the ground.

UC Berkeley has not conducted any independent fire risk analyses by professional analysts not affiliated with UCB on the potential for fire in these areas.

The Claremont and Strawberry Canyon clearcutting projects would increase, not reduce, the possibility of ignition. Once the shade is removed, highly flammable weeds, brush and tall grass will grow and thrive in the clearcut areas. (See Jon E. Keeley, "Fire Management Impacts on Invasive Plants," USGS, April 2006.)

Despite the fear of non-native trees that UCB fire managers attempt to inject into the debate about how many of them should be retained (very few in their opinion), many tall, ornamental eucalyptus trees and pines can be seen throughout the UCB campus, some of them with branches overhanging rather dangerously close to roads bordering the campus and along walks crossing the campus. Many of these trees are close to residences and campus buildings, some of them less than 20 feet from structures. UCB might well request FEMA funds to create defensible space and otherwise provide safety zones around those structures rather than attempting to gain funds to cut down trees in forests far from structures, in forests that are not in high-hazard zones.

In an article about the importance of fireproofing homes and buildings, and creating defensible space around them, Jack Cohen, research physical scientist for the U.S. Forest Service, agrees with the FEMA guidelines. He states, "The wildland threat to homes is not where it happens related to wildlands but how it happens related to home ignitability. . .[research] indicates that the wildland-urban interface home fire loss problem is a home ignitability issue largely independent of landscape fuel reduction

issues. . .("What is the Wildland Fire Threat to Homes," a research paper presented at the Northern Arizona University School of Forestry, April 2000). According to Cohen, "It is the home ignition zone that principally determines the potential for wildland-urban interface disasters. . ."("The Wildland-Urban Interface Fire Problem," *Forest History Today*, Fall, 2008.)

It is important to thin and maintain all of the vegetation in the UCB project zones where necessary to achieve fire safety. However, the work should be done in a species-neutral manner; the slender, more flammable trees less than 6 inches in diameter should be removed as well as brush, understory, and fire ladders. Lower branches of all trees should be cut. Species diversity, not a monoculture forest, should be encouraged. Efforts should be made to retain not only the biggest trees, but also a variety of trees.

4. Removing the tall non-native trees listed in the description of the Claremont and Strawberry Canyon projects will increase the fire hazard.

Thick tree trunks are fire-resistant. "Older trees . . . cope with fire through thicker barks that make them relatively immune to flames" (Robin Doughty, *The Eucalyptus*, Johns Hopkins Press, 2000). Tall trees with thick trunks that are well-maintained with branches high above the ground, spaced at a distance from each other of 10-15 feet, will not burn as easily as trees such as native oaks and bays that have branches drooping close to or even touching highly ignitable ground fuels (weeds and brush) or tall dry grass. "Fine fuels (those with a diameter of ¼ inch or less) and not tree trunks are what contribute to the intensity of wildfire. . . the university has not reduced but compounded its wildfire danger problem in the UC hill area by replacing groves of eucalyptus trees with grassland."(Alexander Kerr, former wildland fire official in Australia, *An Evaluation of the Fire Management Plan for the UC Hill Area*, Unpub. Report, 1991.)

When canopy is removed, flammable weeds, such as dried grass, brush, broom, and poison hemlock that thrive best in the sun will come into the area, as can be observed on sites that UCB has already clearcut in Claremont Canyon.

Small, young trees, not big trees, should be removed in the thinning process. There is paradoxically more fuel in young trees than there is in the older, larger, taller trees. In a fire, all of the shorter, more slender trees, trunk, branches and leaves will be fuel because they are closer to flames on the ground. The trunks of tall trees may be scorched, but it is unusual to have them ignite; even if ignited, the trunks usually do not burn completely. If left standing after a fire, trees may look dead, like blackened poles, but if they are not cut down, in four or five years, new shoots and then new branches appear. Flames will not reach up to the upper branches and leaves of tall trees (with their fire ladders removed) unless there is a Diablo wind-driven fire (in which case everything in the path of the fire may burn). Ann S. Fege, biology professor at San Diego State University, in her interesting report on eucalyptus trees and wildfire risk reduction in San Diego reminds us that "Photos of the 2003 wildfires in Scripps Ranch show that eucalyptus did not burn in canopies." (For Dr. Fage's report, see: http://scrippscentral.com/CitySD_ScrippsRanch_EucTrees_Fege_19jun09%202.pdf
See the Scripps Ranch post-fire photos at http://scrippscentral.com/photos.htm)

UCB's proposed removal of tall trees will increase the fire danger in Claremont and Strawberry Canyons. Since the goal of FEMA Policy MRR-2-08-1 is to mitigate wildfire, not increase the hazard, FEMA should not fund the UCB projects.

5. The flammability of vegetation has nothing to do with whether the species is native or non-native.

Flammability depends on the characteristics of a tree, such as how tall it grows, how thick the trunk is, how much moisture it absorbs and contains in its roots, trunk, and foliage, the size, shape, and thickness of its leaves, whether it is evergreen or deciduous, how much oil is in the leaf (vs. the amount of water in the leaf), the presence of oils and resins in the leaves or branches, the branching pattern, and the amount of dead material retained within the tree. (See J. Douglas Doran and others, *Fire in the Wildland-Urban Interface*, USDA Forest Service, 2004, or https://edis.ifas.ufl.edu/fr147.)

Much of the information exaggerating the hazards of eucalyptus trees comes from biased, unscientific sources. UCB's current Environmental Projects Manager co-authored a brochure about the "wildfire threat" of blue gum eucalyptus that is frequently referenced by UC, EBRPD, the Sierra Club, the National Park Service, and other groups that consider the restoration of native plant landscapes to be one of their missions.

This brochure includes falsifications about the hazards of eucalyptus trees that are presented as accepted facts. A few examples:

- Eucalyptus flowers suffocate local short-beaked birds.
  The fact is: Many species of birds and other animals depend on eucalyptus and other non-native trees for food, and/or nest or roost in them. (See "Birds and Blue Gum: Love or Death," HCN Newsletter, April 2010. This article, supported by several scientific references as well as observations, reports, and photographs from local and Australian experts on birds, completely debunks the bogus claim that eucalyptus trees and flowers are dangerous to birds, bees, and butterflies.)

- The height of euc trees contributes to "convenient fire spread."
  The fact is: Tall trees are less likely to spread fire than trees such as oaks and bays with branches hanging close to the ground. What studies have the brochure authors made to corroborate their claim that euc trees spread fire more "conveniently" than other trees?

- Eucalyptus trees "explode" when heated in fire.
  The fact is: Scientists have been unable to make a eucalyptus tree, or any other tree species, explode in fire. In a fireplace, a log from a eucalyptus tree is slow to ignite and does not explode. What evidence do the brochure authors have that eucalyptus trees explode?

As long as UCB and other agencies continue to hype the dangers of eucalyptus trees without providing any evidence for their claims, their comments about eucalyptus must be considered biased and nonscientific. (Also see "Pitching Myths and Knocking 'em Down," HCN Newsletter, February 2010.)

I do not deny that eucalyptus was one of many vegetation species that provided fuel for the 1991 Oakland-Berkeley fire. Eucalyptus leaves contain about as much oil as the leaves of California bay trees. Both eucalyptus leaves and bay leaves are flammable. The bark of eucalyptus trees shreds in long pieces and falls to the ground, so the debris under them needs to be picked up on a regular basis as does the debris under oaks, which is drier than euc debris and may be more flammable. "Oak leaves and litter burn much more readily than the litter and leaves of other hardwoods. . . Oak leaves tend to be drier (more xerophytic) than other hardwood species, making them more flammable." (from

"Managing Fire in Oak Savannas," http://oaksavannas.org/fire-fuel.html)

The UCB projects are based on the unscientific, biased premise that native vegetation is less flammable than non-native. Native plant advocates may prefer to remove eucs, pines and acacias to encourage the growth of native oaks and bays, but some characteristics of native trees make them far from "far-safe." FEMA should not fund the UCB projects because eliminating all of the non-native trees, while preserving flammable oaks and bays, and extremely flammable native chaparral and grasslands, will do little or nothing to protect life and property in the wildland-urban interface.

6. Chipping the downed trees and scattering the chips, leaving them at a depth of several inches on site, will increase the fire hazard.

Dry wood chips are easy to ignite from a tossed cigarette when wood chips are allowed to dry out. A fire ignited by a spark from a catalytic converter, or a dragging tailpipe can smolder and spread below the surface of woodchips to rise into flames when the wind whips through the area.

Wood chips spread thickly over the ground are bad for the environment, especially for wildlife habitat. Snakes, small creatures, and wild bees that nest or hunt in the ground or hunt need some bare ground to survive. ". . . some 60-70% of native bees. . .make their nests in the ground and they need access to bare dirt to do so." (See Ron Sullivan, "Too Mulch of a Good Thing," *Berkeley Daily Planet*, April 11-14, 2008.) As the chips decay, they release CO2, a greenhouse gas that increases global warming.

Weeds come up through the wood chips, increasing the fire hazard, especially as the weeds and brush dry out at the height of the fire season. Crews with pesticide packs have been observed spraying weeds (broom and poison hemlock) with pesticides (probably Garlon 4 Ultra or Roundup) in areas previously clearcut by UCB. Weeds grow and thrive wherever shade has been lost when tall trees are removed. The pesticides cause the weeds to die back (where they are left to dry on the ground) and provide more fuel for ignition).

Chipping downed trees on site was someone's idea to save money; this practice is bad for the environment and it creates a fire hazard. FEMA should not fund the UCB projects because UCB methods specify chipping on site and spreading wood chips in deep layers over the ground.

7. Toxic pesticides are dangerous to people, wildlife, and the environment.

It has become standard practice to spray or paint Garlon 4 Ultra on cut stumps of eucalyptus trees. To prevent eucalptus trees from resprouting, the companies that manufacture pesticides claim that it is necessary to paint every stump twice a year for more than 10 years. No studies have been done to determine whether all cut stumps—regardless of the age or size of the cut tree—would resprout. These studies should be done because it is important to decrease the amount of pesticides used. Several large euc stumps that were cut down in my neighborhood within the last 5 years, have not resprouted, even though they were not painted with Garlon 4 Ultra.

Hand labor can be used to cut off sprouts on a regular basis, if and when resprouts appear. There is observational evidence that, after resprouts are cut off for two or three years, the stump no longer grows sprouts. Pesticides should not be used, as they are now, on stumps close to streams, roadsides,

and trails. In some cases, crews from UCB have been observed spraying pesticides close to roadsides. No signs were posted to warn the public even though signage of pesticide spraying is required by law.

According to SF's Dept. of the Environment, Garlon 4 Ultra (triclopyr) is a highest hazard pesticide in the "limited use, special concern" category. (See www.SFEnvironment.orgIPMchecklist.) The EPA describes it as "very mobile in soil" with "the potential to leach to ground water." Laboratory tests have shown that triclopyr significantly increases the frequency of breast cancer in laboratory animals. "There is no such thing as a safe herbicide; all herbicides have the potential to cause adverse effects at some level of exposure. . .Triclopyr (Garlon) poses the highest risk to workers, the general public, and most aquatic and terrestrial wildlife." (Marin Municipal Water District Herbicide Risk Assessment, Draft, August 26, 2008.)

To kill the thickets of weeds that move into the area after shade canopy is removed, Roundup (glyphosate), a pesticide that has been linked to Hodgkin's lymphoma and multiple myeloma, is typically used. A study from the University of Caen in France, published in January, 2009, says that the inert ingredients in Roundup amplified the toxic effect on human cells, even at concentrations much more diluted than used on farms and lawns. Syndicated columnist and entomologist Richard Fagerlund wrote, "It is my opinion that Roundup should not be used in any public area. . .where people can unknowingly come in contact with it." ("Roundup's Dangers Confirmed in Report," *SF Gate*, July 8, 2009.)

The use of pesticides to prevent resprouts is highly controversial in this community.

FEMA should not fund the UCB projects because UCB has done no independent studies to determine the effects of Garlon 4 Ultra or Roundup on the health of humans and wildlife.

8. It is important to the climate and to wildlife to retain as many tall, large trees as possible.

Large, healthy trees sequester CO2, one of the greenhouse gases that causes global warming. Brought about by the greenhouse effect, global warming itself increases the risk of fire. Drought conditions create a situation where fire, once ignited, can spread with tremendous speed. ". . . the sum of evidence, plus common sense and basic biological theory, suggests that the more forests we retain, and the more new forest we plant, the better." (Colin Tudge, *The Tree: a Natural History of What Trees Are . . .* Crown, 2006.)

UCB's grant applications do not quantify the net carbon impacts of removing so many trees. (In fact, it is impossible to find out how many large trees will be cut down, and the size of each tree.) Although it cannot be expected that UCB will measure every tree, it certainly should provide some estimates as to how much carbon storage will be lost when the big trees are removed. It is not logical or accurate to say that there will be no change in carbon sequestration because the area will be reforested. Even if oak-bay woodlands should magically arise (through the woodchips) in the places where non-native trees have been removed, those native trees would be smaller, even at full maturity, and less competent at absorbing and storing CO2 than the large eucs that would be removed. It would take many years (if ever) for oaks and bays to thrive in those areas, particularly since it is highly unlikely that they ever grew there—even 250 years ago. In fact, nobody knows what grew long ago in many areas where non-native trees now stand. ". . . from the diaries of the early explorers the picture we get is of a moist, even swampy land. . .Water was virtually everywhere. . . "(Malcolm Margolin, *The Ohlone Way*, Heyday

Books. 1978.)

Tall trees are important for the survival of several species of birds, especially raptors. They also serve as windbreaks and help to keep the local climate cool and moist. "Moisture from the air condenses on the [eucalyptus] leaves and the drippage keeps the groves moist and cool even during the dry season." (Caitlin Bean and others of the Global Invasive Species Team, The Nature Conservancy in the article "Eucalyptus Globulus" from *Bugwood Wiki.*)

II. COMMENT ON THE OAKLAND FUEL MANAGEMENT PROJECT, SUBMITTED BY THE CITY OF OAKLAND (PDM-PJ-09-CA-2006-004):

This project involves various vegetation thinning and eradication techniques on approximately 325 acres owned by the City, UCB, and EBRPD. Each agency would be responsible for implementing the project on its own property. Fuel management techniques would vary by agency.

I oppose the transfer of responsibility and management of any part of this project from Oakland to UCB because UCB's fire-mitigation policies and methodology are environmentally destructive.

I support funding to remove vegetation that might provide fuel for fires that could threaten structures in this area, especially the houses in Montclair uphill from the Caldecott Sports Field. The trees throughout these 325 acres should be thinned and/or removed in a species-neutral manner. All of the brush fuels and understory of trees should be removed.

Since the sports field is used by children and adults, and dogs are often walked there, it is especially important to avoid the use of pesticides in this area. If studies show that resprouting can be stopped by using hand labor to cut off resprouts, that is the method that should be preferred. It cannot be emphasized enough that the little that is known about the effects of pesticides is quite alarming. And what is known about the inert ingredients in Roundup, for instance, is scary. "One specific enert ingredient [in Roundup] polyethoxylated tallowamine, or POEA, was more deadly to human embryos, placental and umbilical cord cells than the herbicide itself—a finding the researchers call 'astonishing.'" (Crystal Gammon, "Weed-Whacking Herbicide Proves Deadly to Human Cells," *Scientific American*, June 23, 2009.) I am sure that parents would be very unhappy if they knew that dangerous chemicals were being used in places where their children play.

III. COMMENT ON EBRPD'S BRUSHLAND FUELS MANAGEMENT PROJECT (HGMP 1731-16-34):

This project involves the treatment of approximately 590 acres of EBRPD property to reduce fuel load through brush removal (mechanical and hand clearing), chemical treatment, limbing, mowing, thinning, and grazing.

<u>1. This grant should not be funded until HCN's CEQA case is settled or the lawsuit is resolved.</u>

Sixteen of the RTAs (polygons) included in this grant are in Measure CC polygons (RTAs), where the vegetation management methods are being contested by HCN.

<u>2. FEMA should not grant funds for this project unless it is really about clearing and removing brush.</u>

not non-native trees.

The title of this project, "Brushland Fuels Management," is reassuring since most fires in California start in dry brush and grass. "Chaparral shrublands—not forest—cover much of our landscape and account for the vast majority of what burns. The United States Forest Service, which devotes more than half of its budget to fire-related activities, spends most of that money to protect residences built in these shrublands." (C.J. Fotheringham, Jon Keeley and Philip Rundel, "Blazed and Confused," *NY Times*, November 3, 2007.)

However, most of the EBRPD polygons in the grant request to FEMA include non-native trees, and the stated goal has been to "landscape scrub and oak woodlands" or to encourage "perennial and annual grassland, oak-bay woodland."

If this project is about clearing brush, I would have no problem with it. But the descriptions of the work planned for these areas seems to involve landscape transformation, clearing the trees to encourage native vegetation. **FEMA Mitigation Policy MRR-2-08-1 specifically excludes granting funds for the purpose of ecological issues related to land and forest management.**

3. Much of this work would remove trees far from any structures, which is in direct opposition to FEMA Mitigation Policy MRR-2-08-1.

As pointed out in 2. above, according to the project description, the goal of the project is supposed to be brush removal. Where the removal of non-native trees is involved, as it seems to be, they should be thinned or removed "to protect life and property beyond defensible space perimeters, but proximate to at-risk structures."

Where structures are not residences, which, of course, should be protected, EBRPD should be required to provide ratings of how critical these structures are.

Instead of removing large trees, it may be more cost effective to create defensible-space perimeters around buildings and residences.

According to FEMA Policy guidelines, projects that do not protect homes, neighborhoods, structures or infrastructure are ineligible for funding.

4. Where EBRPD is hoping that oak-bay woodland or oak savanna, or brush and shrub dominated (including chaparral) communities will "succeed" when non-native trees are removed, EBRPD should provide scientific and objective evidence that such vegetation will be less flammable than thinned trees.

It is illogical and unscientific to assume that native plants and trees are less flammable than non-natives simply because they are native. EBRPD has a point of view on native grasslands, brush and shrub dominated "communities" (including chaparral) and trees, that appears to bias some of their treatment decisions.

EBRPD consultants assumed at the beginning of their study that eucalyptus and pine trees, for instance, should have negative points assigned to them because they "cast embers." They ignored the fact that all vegetation is capable of casting embers. Were their conclusions based on anecdotal evidence from the

1991 Oakland-Berkeley fire? It is clear from FEMA's excellent reports 919 and 060 on the fire that many different materials (wood shingles, books, pieces of bark, tree branches) created burning brands that were projected through the air. It is rather unscientific, to say the least, that eucalyptus trees and pines cast all or even most of the embers. Yet EBRPD consultants blame non-native trees and recommend cutting them down apparently to prevent embers from being cast ever again. It is amazing to view the complicated tables, graphs, and charts with bonus points added for characteristics of native trees and negative points subtracted for immigrant trees. Eventually these inputs are fed into a computer to arrive at "preferred treatments," but who can believe the results?

I respect most of the EBRPD employees I have met and I believe they are ethical people. It seems to me, however, that consultants who analyzed and weighed the evidence started with some assumptions that biased the results that they presented to EBRPD staff—which accepted those results because of pressures from environmental groups that advocate transformation to native plant landscapes. And any non-believers in the superiority of native plants to withstand flame may have rationalized that some fuel reduction was better than none.

FEMA funds should not be granted for landscape transformation since this type of activity is ineligible for funding.

There are other points of view that are not represented in UCB's or EBRPD's vegetation management policies.

- When EBRPD and UCB consider the flammability of tree species, they put eucalyptus trees into a category separate from other hardwoods, apparently because most of the hardwoods in these forests are native: coast live oak, California bay, buckeye, madrone, etc. Yet each of these hardwood species has different flammability characteristics. Glenn Keator in *Plants of the East Bay Parks* (Mount Diablo Interpretive Association, 1994) divides plant communities into grasslands (open places), shrublands, and wooded places (forests—with complete canopy—and woodlands—with gaps or openings between trees). It is interesting to note that books about fire in California by reputable authors (not connected with UCB or EBRPD) do not even *mention* eucalyptus. See, for instance, David Carle, *Introduction to Fire in California*, UC Press, 2008; yet Carle devotes many pages to California chaparral and grassland wildfires.

- According to information in the Hills Emergency Forum's Management Recommendations, grasslands (with flame lengths ranging from 12 to 38 feet) cover 20% of the wildlands in the Berkeley-Oakland hills; brush and shrub dominated communities (with flame lengths ranging from 14 to in excess of 69 feet) account for 24% of the wildlands in this area; mixed hardwood woodlands (mostly native trees) cover 27% of the North Hills, and have flame lengths ranging from 1 foot to 34 feet; eucalyptus, with flame lengths of 6 to 21 feet, represent about 12% of the wildland vegetation; and pines, with flame lengths of 2-16 feet, account for only 6% of the wildland in the North Hills.

Why is there so much emphasis, then, on eradicating eucs and pines (which are still planted as ornamentals close to houses!) when native shrub and brush communities and grasslands are both more prevalent in the North Hills and more dangerous? Why do native plant advocates demonize eucs and pines while conferring sainthood on any shrub, grass, or tree, no matter how flammable, as long as it's native? Here are two descriptions of chaparral from writers who like it, but are not blind to its

susceptibility to fire:

"Chaparral's distinctive odor comes in large part from the resins and oils that help it conserve water. Chamise, for example, has such a high oil content that it's nicknamed greasewood. . . it's designed to burn." (Peter Fish, "Chaparral," *Sunset* magazine, April 1994.)
"Fire is an intrinsic part of the chaparral as it has been for many thousands of years, and it is up to us individually and collectively to take responsible action recognizing this inevitability. . . As summer wears on, chaparral shrubs become progressively drier and more flammable. . .The fine dead branches inside maturer shrubs become crisp, dry kindling. All it takes is a small source of fire, such as a match or a spark, to set off an explosive blaze." (Ronald Quinn and Sterling Keeley, *Introduction to Chaparral*, UC Press, 2006.)

- Most fires in California are grass and brush fires that can "crown" and throw embers. "In grasslands, spot fires are fairly common up to 100 meters or so ahead of the flame front. . ." (R. H. Luke and A.G. McArthur, *Bushfires in Australia*, Division of Forest Research, Australian Government Printing Office, 1978.)

- Oak savanna (grassland with widely spaced oaks in shady draws) is more flammable than non-native trees, limbed up, with understory removed. Both oak savanna and oak-bay woodland tend to have overhanging branches. They contain more fuel ladders and flammable understory than tall trees. "Oak woodlands, the combination of oak trees and other hardwood tree species with continuous ground cover, are found on more than 10 million acres in California. Wildfire in this setting is very common, with fire behavior dominated by rapid spread through burning grass." (General Guidelines for Creating Defensible Space, CDF, 2006.)

Wherever brush and trees are removed, they should be removed to reduce hazardous fuel, and they should be removed in a species-neutral manner, not to promote and restore native plant landscapes. Otherwise, FEMA should not grant funds for EBRPD 's Brushland Fuels Management project.

CONCLUSIONS:

1. The cumulative impact of these four projects must be analyzed to determine impacts on air quality, climate change, ground instability, human health and the health of wildlife and the environment.

2. The use of pesticides must be reduced and eventually eliminated.

3. Large trees should be retained because of the carbon storage and other environmental benefits they provide.

4. FEMA should fund only projects that meet its policy guidelines, thinning vegetation or reducing flammable materials (without regard to whether they are native or not native), and "to protect life and property beyond defensible space perimeters, but proximate to at-risk structures." Only if these East Bay Hills projects can be revised to conform to FEMA Mitigation Policy MRR-2-08-1, should they be considered for FEMA funding.

In our fire-prone area, we depend on FEMA to provide funding only for projects that will result in fire-

risk mitigation, not for projects that might increase the risk of fire.

In the words of the late evolutionary biologist and paleontologist Stephen Jay Gould, ". . . we will not achieve clarity on this issue if we advocate a knee-jerk equation of "native" with morally best, and fail to recognize the ethical power of a contrary view, supporting a sensitive cultivation of all plants, whatever their geographic origin, that can . . .bring both delight and utility to humans." ("An Evolutionary Perspective on Strengths, Fallacies, and Confusions in the Concept of Native Plants," *Nature and Ideology*, Dumbarton Oaks, 1997.)

Madeline (Lynn) Hovland
October 1, 2010

ATT810487

Madeline Hovland
781 Alvarado Rd.
Berkeley, CA 94705

1:00 p.m. October 1, 2010

EBH-EIS-FEMA-RIX

From: Lech Naumovich - EBCNPS [conservation@ebcnps.org]
Sent: Friday, October 01, 2010 3:20 PM
To: EBH-EIS-FEMA-RIX,; Amaglio, Alessandro
Subject: Formal Comments on docket FEMA-2010-0037 - Hazardous Fire Reduction NOP/NOI

Attachments: FEMA Hazardous Fire Risk NOP comments EBCNPS.pdf

FEMA Hazardous Fire Risk NOP c...

Please accept our attached comments on FEMA-2010-0037.
Please confirm receipt of comments to conservation@ebcnps.org

Thank you.

--
Lech Naumovich
Conservation Analyst

California Native Plant Society
East Bay Chapter
510.734.0335
www.ebcnps.org

EBCNPS
PO Box 5597
Berkeley, CA 94705

"Dedicated to the conservation of native flora"

California Native Plant Society
East Bay Chapter
Conservation Committee

October 1, 2010

Office of Chief Counsel, Federal Emergency
Management Agency, 500 C Street, SW.,
Room 835, Washington, DC 20472–3100

RE: Docket ID: FEMA–2010–0037, Hazardous Fire Risk Reduction, East Bay Hills, CA

Dear Sir/Madam:

The East Bay Chapter of the California Native Plant Society (EBCNPS) appreciates the opportunity to comment on the Notice of Intent for the Environmental Impact Statement on **FEMA–2010–0037, Hazardous Fire Risk Reduction, East Bay Hills, CA**. The California Native Plant Society (CNPS) is a non-profit organization of more than 10,000 laypersons, professional and academic botanists organized into 33 chapters throughout California. The mission of the CNPS is to increase the understanding and appreciation of California's native plants and to preserve them in their natural habitat through scientific activities, education, and conservation.

The East Bay Chapter of CNPS (EBCNPS) has been involved with protecting and conserving native plant resources in the East Bay Hills for some 47 years now. These East Bay Hills are rich with native vegetation and rare and unusual plants that often are found nowhere else in the two-county East Bay area. The East Bay Hills are home to a large number of endangered, threatened, and locally rare plants which could be affected by fuels management projects. EBCNPS wants to ensure that the EIS will address potential impacts to these plants. Appendix A provides a list of CEQA protected A-ranked plants, or plants that are locally rare, including federally listed and state listed plants.

We recognize that there is a frightening wildfire potential each fall for some residents living in the East Bay Hills. This potential exists because of the combination of extreme weather events (Diablo winds), the pattern of residential development in the hills, the proximity of flammable homes to fire-prone vegetation, and the lack of adequate preparation to the urban infrastructure, including defensible space [excerpted from our paper, "Managing the East Bay Hills WUI to Preserve Native Habitat and Reduce the Risk of Catastrophic Fire", Appendix B].

This paper, co-authored with Sierra Club and Golden Gate Audubon, was submitted to the East Bay Park District during their Fuels Management EIR process. We believe that it is applicable to this project and helps provide insight and information from three environmentally motivated organizations. In addition to providing this paper and other letters to responsible parties, EBCNPS continues to be in contact with landowners and land managers in the East Bay Hills, including the City of Oakland and EBRPD, helping ensure that the fuels management plans for these hills will not negatively impact native vegetation. In fact, in many cases we're working

East Bay Chapter – California Native Plant Society – P.O. Box 5597, Elmwood Station, Berkeley, California 94705

together to produce a win-win situation wherein both fuel reduction goals are met while native plant habitat is maintained and even improved in some situations.

EBCNPS supports many of the concepts presented in the Sierra Club (SC) letter (Norman LaForce, September 12th, 2010) submitted during this project scoping process. EBCNPS has been working assiduously with a number of local conservation groups, including the Sierra Club, Golden Gate Audubon Society, Friends of Sausal Creek, and the Claremont Canyon Conservancy, to help identify resources and educate the public and decision-makers about the ecological value of these resources. We firmly agree with the second (2) point in the SC letter that the EIS needs to be grounded in "verifiable wildfire science, reliable resource protection/management science, and expert opinions".

The role of FEMA, as a potential funder of these wildfire reduction plans, should be to review the documents submitted not only for the quality of the project presented, but also for the foundation upon which the proposals were written. We hope that FEMA would uphold grantees to an extremely high standard and require the projects to explicitly state their assumptions and the background information they have used to inform the proposed project. Although we understand that all of the projects highlighted in the scoping session (e.g., City of Oakland, University of California, EBRPD) have already submitted proposals, we believe that it is not too late to assess the quality of these projects for the following parameters:

1. What type of fuel model is used to create the recommendations for fuels treatment? Is the model generalized from another area or is it based on vegetation found in the East Bay Hills and on an understanding of local weather phenomena?

2. Was the project proposal written with a demonstrated knowledge of the *site-specific* natural resources and land conditions for each project? Did the project proposal team include an ecologist, biologist, and botanist in order to help ensure that the project will not create additional impacts to the environment? Was vegetation mapped at the appropriate scale for each project? Since many projects will occur on a small scale, it should be required that vegetation is mapped to the standards of the *Manual of California Vegetation – 2nd Edition*, so that resources and impacts to resources can be assessed at the proper scale.

3. Do the proposals mention that they are working in "living landscapes"? Do these proposals take into account the fact that the living environment will "respond" to the changes proposed in each fuels management plan? The response of a living landscape to perturbation isn't always easy to predict, therefore, does the proposed project include a number of possible scenarios that will occur 1, 5, and 10 years after the initial fuels treatment? Does the project proponent have access to stable funding that will be able to deal with costs of additional contingencies (i.e., erosion, invasive species spread, etc.) that might arise after the FEMA funds are spent? How are these additional funds to be spent if everything proceeds as planned?

4. Does the project proponent offer a clear and complete maintenance and monitoring plan that will be initiated once the initial treatment is concluded?

5. Each project should have an approved Environmental Impact Report, or similar duly prepared legal document, that has been properly noticed to the public and approved by the proper agencies. The completion of the environmental review process, by the applicant, should be a requirement before any project commences.

6. What is the track record of the applicant to finish projects as proposed? Since all of the applicants have some history with fuels management work, how will past performance be assessed for each applicant?

7. Does the applicant have an informed program for contending with weed and invasive species that may colonize the site after fuels treatment?

8. Does the applicant have a technical advisory committee that would be helpful when potential problems arise with fuels treatments or follow up monitoring?

General Considerations

FEMA's EIS is required to consider all potential impacts that may occur from the act of FEMA funding fuels reduction projects in the East Bay Hills. Given the history of fire in the East Bay Hills, fear is a strong motivator for action that will help minimize the risk of catastrophic fire. Although we agree that FEMA should act as quickly as possible, it does serve public safety or our ecological heritage to act too quickly without considering the long-term consequences of this scale of environmental manipulation. There are many associated impacts that could be exaggerated with a poor fuels management plan, including but not limited to, flooding, erosion, deterioration of water quality, deterioration of habitat for native flora and fauna, increased land slides, and most importantly, increased risk of fire. We hope that FEMA clearly understands its responsibilities if a fuels project has unintended consequences. We would like the document to clearly outline FEMA's actions after a project is approved, from contracts to reporting to follow-up and enforcement.

FEMA's EIS should include information on cumulative impacts to habitat. Since this project will fund several million dollars of fuels work in the East Bay Hills, we believe that the funder of this work should be required to take a landscape scale perspective of the greater proposed project area. In this case, it seems likely that almost all of the impacts will fall upon a relatively small area – the Berkeley and Oakland "Hills" areas where the urban areas are carved into steep hills and lie adjacent to wildlands (parks, preserves, watershed lands). EBCNPS asks that the EIS clearly state the acreage of each habitat type that will be affected and what habitat types will replace these. We request that vegetation mapping be done at a fine scale and that vegetation be reported as a vegetation type in accordance with the *Manual of California Vegetation - 2nd Edition*.

EBCNPS Conservation Committee

FEMA's EIS should include an impact analysis on the increase of the spread of invasive plants from the proposed action. In addition, to help minimize the potential of increasing weed invasion, we hope the EIS will clearly outline Best Management Practices as mitigation for all grantees and contracts and enforce penalties if those BMPs are not implemented as agreed. At least two mechanisms, with regard to invasive species spread, will be at play when a fuels reduction project is undertaken. First, the actual act of bringing in machinery for fuels treatment purposes poses a risk to the site. The equipment may be contaminated with seeds or vegetative plant parts from another site and deposit weeds that were previously not known from the immediate site. Second, the process of soil disturbance is one of the major factors in increasing weed populations, as well as introducing new colonizers. Barren soil or soil that has been disturbed by machinery or mechanical tools is more likely to be colonized by invasive species than soil which remains intact. Most of our invasive plants thrive in disturbed soils, and fuels management work therefore provides a vector by which weeds can spread. In some cases, the implications of increased weed biomass can be significant. Many weeds are extremely competitive and produce large amounts of biomass that crowd out native plants. As a result, often the weeds can be as great or greater a fire hazard than the native vegetation that was managed for fuel load. EBCNPS believes that this scenario needs to be addressed in the EIS and FEMA should be clear about monitoring requirements over the course of 2-5 years to ensure that this will not be the outcome of the proposed projects. We believe FEMA should require annual project reports for 3 to 5 years and require that the grantee make these reports easily available to the public.

FEMA's EIS should require monitoring for all projects that it approves and funds. As stated in the above points, monitoring will help ensure that projects are compliant with FEMA standards, and even more importantly, that environmental conditions have not been degraded for resources, people, or wildlife at the cost of fuels management. Although FEMA has clearly stated that its funding cannot go towards monitoring and follow-up activities, it should require that an agency has matching funding at a rate of 1:3 or 1:4 for monitoring and follow-up activities that are needed for a successful project. Projects that lack monitoring and follow-up often produce less desirable results and can negatively impact the project site. FEMA's EIS should clearly state that the funding for any approved project has the appropriate matching funds (at a reasonable ratio) so that monitoring and follow-up tasks can make FEMA-funded projects successful and accountable to the community in which they take place.

Thank you for your consideration of the above comments. Please do not hesitate to contact me with questions at (510) 734-0335.

Sincerely,

Lech Naumovich
Conservation Analyst
California Native Plant Society
East Bay Chapter
conservation@ebcnps.org

EBCNPS Conservation Committee

APPENDIX A: CEQA protected A-Ranked Plants known from the East Bay Hills

East Bay Rarity Rank	Species Name	Common Name	Habitat
A1	Acer negundo var. unknown (var. californicum is the most common)	box-elder	Riparian
A2	Adiantum aleuticum (A. jordanii is more common)	five-finger fern	Riparian
A1	Agoseris apargioides var. apargioides	seaside agoseris	Forest; Grassland; Scrub; Sand or Sandstone
A2	Allium falcifolium	sickle-leaved onion	Rock, Tallus or Scree; Serpentine
A2	Alnus rubra (A. rhombifolia is more common)	red alder	Riparian
A1	Ammannia coccinea	long-leaved ammannia	Riparian areas; Misc. Wetlands
A1x	Amsinckia douglasiana (historical-1938)	Douglas' fiddleneck	Dry Open Slopes; Rock, Tallus or Scree
*A2	AMSINCKIA LUNARIS	bent-flowered fiddleneck	Grassland; Woodland; Misc. habitats
A1	Anisocarpus madioides (Madia madioides in Jepson Manual)	woodland madia	Forest; Redwood Forest; Woodland
A2	Apiastrum angustifolium	wild celery	Chaparral; Scrub
A2	Arctostaphylos glandulosa ssp. glandulosa	Eastwood manzanita	Chaparral
*A1	ARCTOSTAPHYLOS PALLIDA	pallid manzanita	Chaparral; Sand or Sandstone
A2	Asclepias speciosa (A. californica is more common)	milkweed	Misc. habitats
A2	Aster lanceolatus ssp. hesperius	marsh aster	Riparian areas; Misc. Wetlands; Misc. habitats
*A1	ASTRAGALUS TENER VAR. TENER	alkali milk-vetch	Alkali areas; Grassland; Vernal Pools; Misc. Wetlands
A1x	Atriplex patula ssp. obtusa (historical-1897)	spear saltbush	Alkali areas
*A1	BALSAMORHIZA MACROLEPIS VAR. MACROLEPIS	big-scale balsamroot	Grassland; Serpentine
A1x	Calamagrostis nutkaensis (historical-18??)	Pacific reed grass	Coastal Strand; Freshwater Marsh; Forest; Redwood Forest
*A2	CALOCHORTUS UMBELLATUS	Oakland star-tulip	Chaparral; Scrub; Woodland
A1	Calycadenia multiglandulosa	sticky calycadenia	Rock, Tallus or Scree; Scrub
A2	Camissonia graciliflora	hill sun cup	Dry Open Slopes; Grassland; Scrub; Woodland
A1	Carex brevicaulis	short-stemmed sedge	Rock, Tallus or Scree; Sand or Sandstone areas
A2	Carex densa	dense sedge	Misc. Wetlands; Misc. habitats
A1	Carex deweyana ssp. leptopoda	short-scaled sedge	Misc. Wetlands; Misc. Habitats
A1	Carex dudleyi	Dudley's sedge	Misc. Wetlands
A1	Carex globosa	round-fruited sedge	Misc. habitats

EBCNPS Conservation Committee

A1g	Carex gracilior (historical-1939)	slender sedge	Forest; Grassland; Misc. Wetlands; Misc. habitats
A2	Carex multicostata	many-ribbed sedge	Misc. habitats
A1	Carex obnupta	slough sedge	Misc. Wetlands
A1	Castilleja ambigua ssp. ambigua	Johnny-nip	Coastal Bluff; Grassland
A2	Castilleja subinclusa ssp. franciscana	Franciscan Indian paintbrush	Chaparral; Scrub
A2	Ceanothus thyrsiflorus var. thyrsiflorus	blue blossom; California-lilac	Misc. habitats
A1	Chorizanthe polygonoides var. polygonoides	knotweed spineflower	Gravel; Sand or Sandstone
A2	Chrysolepis chrysophylla var. minor	golden chinquapin	Chaparral; Forest; Sand or Sandstone
A2	Cirsium quercetorum	brownie thistle	Grassland; Woodland
*A1	CLARKIA FRANCISCANA	Presidio clarkia	Serpentine
A2	Clarkia purpurea ssp. viminea (ssp. quadrivulnera is more common)	large godetia	Misc. habitats
A1	Clintonia andrewsiana	red clintonia	Redwood Forest
A2	Collomia heterophylla	varied-leaved collomia	Rock, Tallus or Scree; Sand or Sandstone areas
A2	Corallorhiza maculata fma. maculata (forma immaculata is more common)	spotted coralroot	Forest; Woodland
A1	Corallorhiza striata (C. maculata is more common)	striped coralroot	Forest; Woodland
A1	Coreopsis stillmanii	Stillman's coreopsis	Chaparral; Grassland; Serpentine; Woodland
A1	Cryptantha micromeres	minute-flowered cryptantha	Chaparral; Woodland
A2	Cryptantha muricata	prickly cryptantha	Rock, Tallus or Scree; Sand or Sandstone areas
A2	Cryptantha torreyana	Torrey's cryptantha	Dry Open Slopes; Forest
A2	Cyperus erythrorhizos	red-rooted cyperus	Riparian
A2	Deinandra corymbosa ssp. corymbosa (Hemizonia corymbosa in Jepson Manual)	coast tarweed	Coastal Bluff; Grassland
A2	Dendromecon rigida	bush poppy	Burns; Chaparral; Scrub
A2	Deschampsia cespitosa ssp. holciformis	tufted hairgrass	Misc. Wetlands
A2	Dicentra formosa	bleeding heart	Forest; Redwood Forest; Misc. habitats
A1?	Dichelostemma volubile(?)	twining brodiaea	Scrub; Woodland
*A2	DIRCA OCCIDENTALIS	western leatherwood	Forest; Riparian; Scrub
A1?	Disporum smithii(?) (D. hookeri is more common)	large-flowered fairy bell	Forest; Woodland
A2	Echinodorus berteroi	burhead	Freshwater Marsh
A2	Elymus glaucus ssp. jepsonii (ssp. glaucus is more common)	blue wildrye	Grassland
A2	Elymus X hansenii	Hansen squirreltail	Grassland
A1	Eragrostis mexicana ssp.	Orcutt's eragrostis	Riparian areas; Sand or Sandstone

East Bay Chapter – Comments on FEMA Hazardous Fire Risk Reduction NOP 6

EBCNPS Conservation Committee

	virescens		areas; Misc. habitats
A2	Ericameria arborescens	golden-fleece	Chaparral; Forest; Woodland
A2	Erigeron petrophilus var. petrophilus	rock daisy	Rock, Talus or Scree; Serpentine
*A1	ERIOGONUM LUTEOLUM VAR. CANINUM	Tiburon buckwheat	Grassland; Serpentine
A2	Eriogonum luteolum var. luteolum	golden carpet	Gravel; Sand or Sandstone; Serpentine
*A2	ERODIUM MACROPHYLLUM	round-leaved filaree	Grassland; Scrub
A2	Festuca elmeri	Elmer's fescue	Riparian
*A1	FRITILLARIA LILIACEA	fragrant fritillary	Grassland; Serpentine; Vernal Pools
*A2	GALIUM ANDREWSII SSP. GATENSE	serpentine bedstraw	Chaparral; Serpentine; Woodland
A1	Gaultheria shallon	salal	Forest; Redwood Forest
A2	Githopsis diffusa ssp. robusta	southern bluecup	Burns; Misc. habitats
A2	Gnaphalium bicolor	Bioletti's cudweed	Dry Open Slopes; Sand or Sandstone
A2	Gnaphalium canescens ssp. microcephalum	white everlasting	Chaparral; Dry Open Slopes
*A2	HELIANTHELLA CASTANEA	Diablo helianthella	Chaparral; Grassland; Woodland
A2	Hesperolinon californicum	California dwarf flax	Grassland; Rock, Tallus or Scree; Serpentine
A1x	Hierochloe occidentalis (historical-1987 but not seen since)	vanilla grass	Forest; Redwood Forest
A2	Hoita macrostachya	California hemp	Freshwater Marsh; Riparian
A1x	Hoita orbicularis (historical-1936)	round-leaved psoralea	Riparian areas; Misc. habitats
*A1x	HOITA STROBILINA (HISTORICAL-1865)	Loma Prieta hoita	Chaparral; Woodland
A2	Hordeum jubatum	foxtail barley	Misc. habitats
A1	Horkelia californica ssp. californica	California horkelia	Grassland; Scrub
*A1x	HORKELIA CUNEATA SSP. SERICEA (HISTORICAL-1894)	Kellogg's horkelia	Grassland; Scrub; Sand or Sandstone
A1	Hypericum formosum var. scouleri	Scouler's St. John's wort	Freshwater Marsh; Riparian
A2	Iris douglasiana	Douglas iris	Misc. habitats
A1	Iris longipetala	field iris	Misc. habitats
*A2	LATHYRUS JEPSONII VAR. JEPSONII	Delta tule pea	Brackish Marsh; Freshwater Marsh
A2	Layia gaillardioides	woodland layia	Scrub; Woodland
A1x	Layia glandulosa (historical-1983 but not seen since)	white layia	Sand or Sandstone
A2	Layia hieracioides	tall layia	Misc. habitats
A1x	Lepidium oblongum var. oblongum (historical-1937)	wayside pepper-grass	Misc. habitats
A1	Ligusticum apiifolium	Pacific lovage	Coastal Bluff; Grassland; Scrub; Woodland
A2	Lilium pardalinum ssp.	leopard lily	Freshwater Marsh; Riparian

East Bay Chapter – Comments on FEMA Hazardous Fire Risk Reduction NOP 7

EBCNPS Conservation Committee

	pardalinum		
*A1	LINANTHUS ACICULARIS	bristly linanthus	Chaparral; Grassland; Woodland
A1	Linanthus liniflorus	flax-flowered linanthus	Scrub; Serpentine; Woodland; Misc. habitats
A2	Lithophragma bolanderi	Bolander starflower	Misc. habitats
A2	Lomatium caruifolium var. caruifolium	caraway-leaved lomatium	Grassland; Vernal Pool; Misc. habitats
A1	Lotus stipularis var. stipularis	stipulate lotus	Chaparral
A1	Lupinus affinis	lupine	Misc. habitats
A1	Lupinus bicolor var. tridentatus (var. umbellatus is more common)	miniature lupine	Misc. habitats
A1	Lupinus variicolor	bluff lupine	Coastal Strand; Grassland; Sand or Sandstone
A2	Madia elegans ssp. vernalis (ssp. densifolia is more common)	common madia	Grassland
A1x	Meconella linearis (historical-1983 but not seen since)	narrow-leaved meconella	Dry Washes; Grassland; Sand or Sandstone
*A2	MECONELLA OREGANA	Oregon meconella	Grassland; Misc. habitats
A1?	Melica bulbosa var. bulbosa(?)	oniongrass	Forest; Rock, Tallus or Scree
*A1	MICROPUS AMPHIBOLUS	Mt. Diablo cottonweed	Dry Open Slopes; Grassland; Rock, Tallus or Scree
A1x	Micropus californicus var. subvestitus (historical-1930) (var. californicus is more common)	slender cottonweed	Dry Open Slopes; Misc. habitats
A1x	Microseris bigelovii (historical-1891)	coast microseris	Coastal Bluff; Coastal Strand; Sand or Sandstone
A2	Mimulus douglasii	Douglas monkeyflower	Chaparral; Gravel; Rock, Tallus or Scree; Serpentine; Woodland
A2	Monardella douglasii ssp. douglasii	Fenestra monardella	Chaparral; Grassland; Serpentine; Woodland
A1	Monardella sheltonii	Shelton's monardella	Chaparral; Forest; Rock, Tallus or Scree; Serpentine; Woodland
*A2	MONARDELLA VILLOSA SSP. GLOBOSA (ssp. villosa is more common)	robust monardella	Chaparral; Woodland
A1	Monolopia gracilens	woodland monolopia	Chaparral; Grassland; Serpentine; Woodland
A2	Myrica californica	wax myrtle	Forest; Redwood Forest; Scrub
A2	Oxalis albicans ssp. pilosa	hairy wood-sorrel	Chaparral; Grassland; Scrub
A1	Oxalis oregana	redwood sorrel	Redwood Forest
A1	Perideridia oregana	yampah	Dry Open Slopes; Rock, Tallus or Scree; Woodland; Misc. habitats
A2	Petunia parviflora	wild petunia	Dry Washes
A2	Phacelia divaricata	divaricate phacelia	Chaparral; Grassland; Woodland
A2	Phacelia tanacetifolia	tansy phacelia	Gravel; Sand or Sandstone
A1x	Phalaris angusta (historical-1912)	Narrow canary grass	Misc. Wetlands

EBCNPS Conservation Committee

A2	Phalaris arundinacea	reed canary grass	Riparian areas; Misc. Wetlands
A1x	Phalaris californica (historical-1943)	California canary grass	Grassland; Woodland
A1	Phalaris lemmonii	Lemmon's canary-grass	Misc. habitats
A2	Pinus attenuata	knobcone pine	Chaparral; Forest; Sand or Sandstone
A2	Piperia elongata	elongate piperia	Forest; Scrub
A1	Piperia unalascensis	Alaska piperia	Forest; Scrub; Woodland
*A1x	PLAGIOBOTHRYS CHORISIANUS VAR. CHORISIANUS (historical-1890)	Choris's popcorn flower	Chaparral; Grassland; Scrub
*A1	PLAGIOBOTHRYS DIFFUSUS	San Francisco popcorn flower	Grassland; Misc. Wetlands
A2	Plagiobothrys tenellus	slender popcornflower	Misc. habitats
A1	Polypodium scouleri	leather-leaf fern	Coastal Bluff; Misc. habitats
A1	Polystichum californicum	California sword fern	Misc. habitats
A1	Polystichum imbricans var. imbricans	rock sword fern	Misc. habitats
*A1	POTAMOGETON FILIFORMIS	slender-leaved potamogeton	Freshwater Marsh; Riparian; Misc. Wetlands
A1	Prunella vulgaris var. lanceolata (var. vulgaris is more common)	selfheal	Forest; Riparian; Woodland; Misc. Wetlands
A1	Psilocarphus tenellus var. globiferus (var. tenellus is more common)	round woolly-marbles	Vernal Pools; Misc. Wetlands
A1	Quercus parvula var. shrevii	island scrub oak	Chaparral; Woodland
A1	Ranunculus orthorhynchus var. bloomeri	Bloomer's buttercup	Misc. Wetlands
A1	Ribes amarum	bitter gooseberry	Chaparral
A1	Ribes speciosum	fuchsia-flowered gooseberry	Chaparral; Scrub
A2	Rorippa palustris var. occidentalis	marsh yellow-cress	Misc. Wetlands
A1	Rosa nutkana var. nutkana	Nootka rose	Misc. habitats
A2	Rumex maritimus	golden dock	Brackish Marsh; Salt Marsh
A2	Rumex salicifolius var. denticulatus	willow dock	Misc. Wetlands
A1	Sagittaria latifolia	arrowhead	Freshwater Marsh
A2	Salix scouleriana	Scouler's willow	Misc. Wetlands
A1	Sambucus racemosa var. racemosa	red elderberry	Riparian
A1x	Sanicula arctopoides (historical-19??)	footsteps-of-spring	Coastal Bluff
A2	Sanicula laciniata	coast sanicle	Chaparral; Scrub; Woodland
A1x	Scoliopus bigelovii (historical-18??)	fetid adder's tongue; slink pod	Redwood Forest
A2	Scutellaria californica	California skullcap	Scrub; Woodland; Misc. habitats
A2	Spergularia macrotheca var. macrotheca	large-flowered sand spurry	Alkali areas; Coastal Bluff; Rock, Tallus or Scree; Misc. Wetlands
A1	Spiranthes porrifolia	western ladies' tresses	Misc. Wetlands
A1	Spiranthes romanzoffiana	hooded ladies' tresses	Coastal Bluff, Freshwater Marsh
A1?	Stachys bullata(?) (S.	California hedge nettle	Dry Open Slopes; Misc. habitats

East Bay Chapter – Comments on FEMA Hazardous Fire Risk Reduction NOP 9

EBCNPS Conservation Committee

	ajugoides var. rigida is more common)		
A2	Stephanomeria elata	stephanomeria	Dry Open Slopes
*A2	STREPTANTHUS ALBIDUS SSP. PERAMOENUS	most beautiful jewel-flower	Chaparral; Dry Open Slopes; Grassland; Serpentine
A1x	Thermopsis macrophylla var. macrophylla (historical-1929)	false-lupine	Chaparral; Grassland; Woodland
A2	Thysanocarpus radians	ribbed fringe pod	Misc. habitats
A1	Tolmiea menziesii	pig-a-back plant	Riparian
A2	Trifolium macraei	double-headed clover	Sand or Sandstone; Misc. habitats
A2	Trifolium wormskioldii	cow clover	Misc. Wetlands
A2	Trillium ovatum ssp. ovatum	white trillium	Forest; Redwood Forest
A2	Triodanis biflora	Venus' looking-glass	Misc. habitats
A2	Triphysaria versicolor ssp. faucibarbata	smooth owl's-clover	Grassland
A2	Trisetum canescens	tall trisetum	Forest; Misc. habitats
A2	Tropidocarpum gracile	slender tropidocarpum	Alkali areas; Grassland
A1x	Vancouveria planipetala (historical-1898)	inside-out flower	Forest
A2	Vicia hassei	slender vetch	Grassland; Scrub
A1	Viola adunca	western blue violet	Forest
A2	Viola glabella	stream violet	Forest; Riparian
A1	Viola sempervirens	evergreen violet	Redwood Forest

NOTE: Some of these plant species are only known from the area historically and have not been reported for quite some time. It should not necessarily be assumed, however, that they no longer exist here as they may be on private land or hard-to-reach areas where surveys have not been done for a long time, if ever. In recent years, several plant species have been rediscovered in the East Bay that had not been reported in the area since the late 1800's or early 1900's.

Dates indicated for historical species in the species name column refer to the last known record in the Alameda-Contra Costa Counties area, not necessarily the area described in the title.

Explanation of Ranks

***A1 or *A2**: Species in Alameda and Contra Costa counties listed as rare, threatened or endangered statewide by federal or state agencies or by the state level of CNPS.

A1x: Species previously known from Alameda or Contra Costa Counties, but now presumed extirpated here.

A1: Species currently known from 2 or less regions in Alameda and Contra Costa Counties.

A2: Species currently known from 3 to 5 regions in the two counties, or, if more, meeting other important criteria such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.

A1?: Species with taxonomic or distribution problems that make it unclear if they actually occur here.

EBCNPS Conservation Committee

APPENDIX B: Green Paper on Fuels Management in the East Bay Hills

Managing the East Bay Hills Wildland/Urban Interface to
Preserve Native Habitat and Reduce the Risk of Catastrophic Fire

An Environmental Green Paper- March 27, 2009

Sierra Club, California Native Plant Society, Golden Gate Audubon Society

This paper has been prepared by the San Francisco Bay Chapter of the Sierra Club (Sierra Club), East Bay Chapter of the California Native Plant Society (CNPS) and the Golden Gate Audubon Society (Audubon) to document our point of view about how best to meet the twin goals of managing the urban wildland interface to enhance and preserve habitat for native plants and wildlife species while reducing the threat of catastrophic fire at the interface.

This topic is of timely importance because of the pending release of the environmental review documents being prepared by the East Bay Regional Park District, FEMA grants for vegetation management, and other agency documents that are to follow. This paper contains the major guiding principles, which are further elaborated on in the attached background paper and appendix.

It is important to note at the outset that we embrace an Integrated Fire Management (IFM) approach to this issue. An IFM approach addresses the total scope of fire hazard both from problems with the human infrastructure and those from wildland vegetation.

We apply this theme at both the landscape level as well as at individual sites, whether they are homes at the interface or public parks and open space. While the human infrastructure including roads, water supply, defensible neighborhoods, etc., is expensive to maintain or improve, only well-planned infrastructure can assure safety from catastrophic fire. Without that fundamental understanding, vegetation management projects are doomed to fail in meeting the twin goals of fire safety and conservation of native habitat.

GUIDING PRINCIPLES

Background

We recognize that there is a frightening wildfire potential each fall for some residents living in the East Bay Hills. This potential exists because of the combination of extreme weather events (Diablo winds), the pattern of residential development in the hills, the proximity of flammable homes to fire-prone vegetation, and the lack of adequate preparation to the urban infrastructure, including defensible space.

Natural wildfire in wildland areas can be viewed as an event without serious consequences to humans, but at the wildland/urban interface where man has altered natural conditions, it can lead to a disaster. There are natural cycles that are unavoidable that we must pay attention to, prepare for, and be ready to respond to appropriately and sometimes quickly. As an example, during the 21st century the East Bay Hills will not be lucky enough, even with exceptional fire fighting, to get by with zero uncontrollable wildfires and zero extremes in weather. Diablo winds in the fall months are the key environmental factor for extreme fire behavior, and it will be impossible to know the exact location, source, and timing of an ignition that will transform high winds into a raging wildfire.

During some Diablo Wind wildfires there will not be enough firefighters, fire trucks, helicopters, or aircraft to save every house or even control the fire until the winds slow. Unlike "normal" fires that can be fought, to a certain extent on the ground, Diablo Wind fires prevent the placement of firefighters on steep slopes or other hazardous locations due to the speed of wind-driven fire. Under these circumstances, quick evacuation and homeowners insurance will be the only protection for residents who have lost property.

Recent reports compiled by firefighters and researchers in "lessons learned" from other catastrophic wildland/urban interface fires in California have shown that the most important factor in preventing homes from burning in wildland fires is hardening of structures and the creation of defensible space. Conversely, unprepared residential areas will likely not be saved during a wind-driven wildfire and will contribute to the rapid spread of wildfire into adjacent residential areas as happened during the 1991 Oakland/Berkeley Tunnel Fire.

The 1995 Hills Emergency Forum Plan did not receive full acceptance from the environmental community because it contained insufficient field collected data to support the designations of fuel characteristics of our local vegetation, did not take into account the importance of conserving native habitat, and did not include a legally required environmental document along with the Plan.

The 1995 HEF Plan recommended that public agencies and large acreage landowners create and maintain two different types of areas managed for fuel reduction in the East Bay Hills. The first are the ridgetop fuelbreaks that were begun after the freeze of 1972 by removing freeze damaged eucalyptus to achieve a 300' wide zone of managed vegetation where firefighters could attempt to stop a fire that started in wildland areas to the east, before it could race over the ridge into residential areas. The second type of management was created after the 1982 Blue Ribbon Report and the 1995 HEF Plan. The 1982 Report recommended fuelbreaks designed to provide a minimum of 100 feet of managed vegetation (including what the homeowner is required to do for defensible space) at the wildland/urban edge. The 1995 HEF Plan recommended fuelbreaks within a 500 foot study area, that in itself became controversial and confusing, designed to provide an area of managed vegetation with less than eight-foot flame lengths at the wildland/urban edge where firefighters could safely work to protect homes.

The Sierra Club, CNPS, and Audubon have not been satisfied with the Park District's approach for maintaining its fuel-managed areas. We know that fuelbreaks constitute a combined area of more than 20 miles and 500 acres, often covered by weedy species, mowed below 4" of height, or over-grazed by goats, with little concern about species or habitat values. Also several eucalyptus management, thinning, or conversion projects exist that need attention. We are concerned that the Park District's consultants and its staff have yet to articulate a clear vision about how they intend to maintain these areas while favoring and increasing the percentage of native plants over weedy, fuel-rich non-natives.

The debate about wildfire risks attributed to non-native eucalyptus trees has been a controversial topic for years. In our opinion, there is ample evidence to show that eucalyptus and pine trees in dense unmanaged groves are both a wildfire threat and an environmental dilemma that requires attention. Non-native eucalyptus and pine groves can exceed 120' in height and can be prone to dramatic fire behavior. When wind- driven wildfire reaches tree crowns, flames above 150' can be expected with burning embers blowing downwind well beyond one half mile. The capacity to spot new fires that overwhelm firefighting forces during Diablo Wind conditions means these species must receive high priority for treatment.

Selected and representative quotes, articles, and reports that provide additional information and perspective about the fire hazards and the environmental dilemmas posed by eucalyptus and pine plantations in the East Bay Hills can be found in the Background to the Environmental Green Paper.

Recommendations and Solutions

In our opinion, decisions about how best to manage our east bay hill vegetation on the wildland side should be based on the twin goals of reducing the risk of catastrophic fire and maintaining the fragile native habitat found in the wildland/urban interface. To accomplish these goals, agencies should formulate well-conceived plans that integrate natural resource sciences and fire science.

All plans to reduce vegetation on the wildland side must be site specific, taking into account a range of critical variables that result in an individual profile for each site. We do not endorse generic fuel prescriptions because they do not take into account the unique threats and values of each site. In order to accomplish the twin goals of reducing the risk of catastrophic fires and of maintaining sustainable native habitat, agencies must recognize that effective management of live fuels is a subset of sound land management (and not the other way around) primarily because of the high degree of variability of living landscapes.

We urge the Hills Emergency Forum (HEF) and its member agencies to prepare updated mapping systems for the East Bay hills that identify wildland plant communities in site-specific detail as well as the type and density of vegetation intermixed with home landscapes.

Native vegetation communities, including our native woodlands, are generally below 40' in height, and are less prone to unmanageable fire behavior. These communities are comprised predominantly of plants that are native to the East Bay and form more than 80% of today's wildland vegetation in the hills. The recommended strategy for protecting residential areas from wildfire coming from native vegetation is to establish an understanding of the ecology and fire-behavior of the fuels site-specific to each individual wildland/residential edge, and then manage these edges to provide safe access for firefighters defending structures that are able to resist burning embers and to hopefully stop fire before it enters residential areas.

As each agency prepares their individual plans and environmental documents, they will be required to address the cumulative impacts of wildland fire hazard reduction projects by all agencies. This will require active cooperation and long range planning by HEF member agencies. We will reserve our final opinion about how each agency handles these matters as we review their plans and environmental documents.

EBCNPS Conservation Committee

Enhancing and Preserving our Natural Environment
While Reducing the Risk of Catastrophic Fire
Background to the Environmental Green Paper

This Background Paper has been prepared by the Sierra Club (Sierra Club), East Bay Chapter of the California Native Plant Society (CNPS) and the Golden Gate Audubon Society (Audubon) to document our positions on several of the issues that are important to us as we explore options for meeting the twin goals of enhancing and preserving native plants and wildlife while reducing the threat of catastrophic fire at the Wildland Urban Interface in the East Bay Hills.

This topic is of timely importance because of the pending release of the environmental review documents being prepared by the East Bay Regional Park District, FEMA grants for vegetation management, and other agency documents that are to follow.

We would have preferred working with and commenting on a single draft wildfire hazard reduction plan and environmental document for the East Bay Hills with a free exchange of ideas, concepts, and details presented to and discussed with experts and stakeholders who have been involved in these matters for the past 15-years. This would have provided for an Integrated Fire Management approach at all levels, both in content and process, and among all-important stakeholders. This was the type of process that we expected after the Park District's Temescal workshops of 2000, and is consistent with our understanding of how the Park District Plan/EIR/EIS should have been developed. With that understanding, we supported Measure CC in 2004 including the $10 million for District projects and a joint fire hazard mitigation plan that was to involve Hills Emergency Forum (HEF) agencies.

Thus, we were disappointed that the HEF decided three years ago that each agency should proceed with individual plans and environmental documents. The East Bay Municipal Utility District and the University of California had already completed their Land Use Master Plans, with Berkeley, Kensington, and El Cerrito not contemplating plans for their residential areas. The next to emerge will be the Park District's Plan/EIR that has been under development during the past two years. The consultant's draft Plan is currently being reviewed by Park District staff that will recommend several changes in the draft, followed by a public review document that is nearing completion. We also understand that Oakland intends to prepare its plan and environmental document following completion of the Park District Plan/EIR.

In our opinion, staff and consultants have developed the Draft Park District Plan in relative isolation instead of taking more time to "get specific" with recognized experts and stakeholders. True, there were four informational meetings at the Trudeau Center with consultant and staff presentations, and time for public comment. However, the District's Plan/EIR process to date, has offered little detail, so it's anyone's guess about what will be in the draft documents soon to be released for public review. We have seen very little in the way of detailed resource information, and have not been informed about which federal agency the District will use to obtain required biological opinions necessary to make its Plan/EIR complete. In the event the draft, which we have not seen, requires substantial changes or additions, we support the use of additional Measure CC funds, District funds, or use of grant funds to complete a Plan/EIR document that will be useful and supported by the environmental community and other stakeholders.

In the meantime, the District has proceeded with fuels management based on very little oversight by its own stewardship department and with a FEMA EA that covered only federally listed plant and animal species. The result has been fuels management executed without the benefit of clearly derived policy.

Meanwhile the actual vegetation management projects taking place in some areas have been fraught with controversy. We also are aware that three Federal Emergency Management Agency (FEMA) competitive grants have been awarded to the University (Strawberry and Claremont Canyons), to the City of Oakland (Frowning Ridge), and to the Park District (East Bay Hills Area) for fire hazard reduction projects. These grants will require three different project level FEMA Environmental Assessments. As with EBRPD, one of the consequences of this kind of haphazard approach has been the creation of de facto policy on the part of UC, the City of Oakland, and various stewardship groups in terms of on-the-ground management of vegetation. These policies have not had the benefit of public, scientific vetting and in some cases have now found their way into federal policy. Without proper vetting, these activities have resulted in mixed results.

It is important to note at the outset that an Integrated Fire Management approach means that the total scope of fire hazard (both from human infrastructure and from vegetation) will be considered as a first step, both in the wide scope of the East Bay Hills Wildland Urban Interface and in individual sites that are identified for some form of action. While vegetation management is surely an important part of the total picture, it must not be the tail that wags the dog as it has been in the past, particularly after the '91 fire. While the human infrastructure including roads, water supply, defensible neighborhoods, etc., is expensive to maintain or improve, only well-planned infrastructure can assure safety from catastrophic fire. The National Firewise Communities program has made that clear. By its very nature, the living landscape involves far more variability and therefore attempting to manage it means a certain lack of predictability. Without that fundamental understanding, vegetation management projects are doomed to fail in meeting the twin goals of fire safety and conservation of native habitat.

It is clear to us that the approach taken by HEF agencies will result in duplication of effort as well as an understandable level of confusion as agencies work through fire hazard and resource management plans that address their unique situations. However, in the spirit of moving forward, we offer the following guiding principles for consideration by agencies and others interested in these issues.

GUIDING PRINCIPLES

1. **We recognize that there is a frightening wildfire potential each fall for some residents living in the East Bay Hills.** Our local wildfire history suggests that there are different levels of risk faced by hill residents depending on their location. Of the approximately 30,000 homes in the hills, the actual number of homes that have been lost or families personally threatened by a wildfire has been relatively small. However, agencies and residents should not be apathetic because wildland/urban interface wildfires are becoming all to common during the past two decades, and global warming with its extremes of weather will make this century even more risky.

a) Too many homes were lost during the Berkeley Fire of 1923, the Fish Ranch Road Fire of 1970, and the Oakland/Berkeley Tunnel Fire of 1991. These three Diablo Wind Fires destroyed homes, took lives, and caused substantial property and economic damage, and played a role in massive weed invasion of East Bay Hill native habitat. Seven other Diablo Wind Fires and many West Wind Fires have also occurred in the past along the 30-mile hill corridor without significant property loss, many before residential developments were fully extended into the hills. The above three Diablo Wind mega-fires destroyed a total of 3,600 homes during less than seven hours of rapid expansion for each fire. Wind driven fires can be impossible to control at the fire head, leaving firefighters to only work on a fires flanks until the winds slow. The 1991 fire destroyed 700 homes in one hour, a total of 3,000 homes in seven hours, and 26 lives were lost, mostly during the first hour of the fire.

b) Predictions about what might happen in the way of wildfire, weather extremes, and climate change during the 21st century should be part of the public discussions leading to agency planning processes that will ensure appropriate preparation for wildfire and appropriate planning for wise management of natural resources. As an example, during this century the East Bay Hills will not be lucky enough to get by with zero mega-fires and zero extremes in weather. Diablo Winds in the fall months are the key environmental factor, and it will be impossible to know the exact location and timing of an ignition that will transform high winds into a frightening wildfire. The events of the 20th Century suggest that it would not be unreasonable to forecast something like three Diablo Wind mega-fires, seven "normal" Diablo Wind fires, possibly as many as 150 "normal" West Wind fires, four El Nino events, four extended freezes, and four drought cycles that will all impact wildland vegetation and residential areas during the 21st century. Agency and homeowner preparation or lack of preparation will be directly related to the amount and extent of damage that these events can cause.

2. **Natural wildfire in wildland areas can be viewed as an event without serious consequences to humans, but at the wildland/urban interface where man has altered natural conditions, it can lead to a disaster.** When wildfire is in control, all involved vegetation and residential areas that lie in its path can be taken back to an earlier stage, to start all over again. Wildfires are different in scope and impact than controlled burns, but their potential for weed invasion can be the same. Given the level of weed invasion that is directly related to disturbance--whether it's fire or vegetation removal--, it is unlikely that native vegetation will re-set to "an earlier stage." Rather, we are likely to see an increase in weed invasion and a disruption of our East Bay Hill native habitat unless appropriate steps are taken to control invasive weeds.

In the hills, wind driven wildfire will not distinguish between vegetation and unprepared residential structures. Virtually all development in the East Bay Hills occurred during a 100-year period when agencies and homeowners did not understand or respect the potential wildfire danger created by Diablo Winds. The patterns of residential development combined with the hills unique natural features have increased the potential for home loss during wind driven wildfire.

a) Roads are on steep hillsides, narrow, and usually congested.

b) Homes are in dense residential areas, mostly constructed of wood, and often surrounded by other potentially flammable homes and vegetation.

c) Homes are on steep hillsides with limited access for fire fighters.

d) Public agencies and large acreage landowners have allowed non-native vegetation to develop "unnaturally" with little maintenance, and with increasing levels of flammability.

e) Above ground power lines are common in the hills and water supply for firefighting is less than desirable.

These are all recognized aspects of unsophisticated residential development in the hills, in comparison with today's standards. Public officials and fire safety activists, all to often, want to focus on fixing the "vegetation problem" without fixing the "residential problem". Both need short and long term attention and fixing.

3. **During some Diablo Wind wildfires there will not be enough firefighters, fire trucks, helicopters, or aircraft to save every house or even control the fire until the winds slow. Unlike "normal" fires that can be fought, to a certain extent on the ground, Diablo Wind fires prevent the placement of firefighters on steep slopes or other hazardous locations due to the speed of wind-driven fire.** Under these circumstances, quick evacuation and homeowners insurance will be the only protection for residents who have lost property.

a) We believe that cities and area fire departments must develop more reliable fire-fighting strategies for combating Diablo Wind wildfire with more attention paid to identifying and expanding predetermined areas in both wildland and residential areas where wildfire might be stopped.

b) Cities through their police departments must develop neighborhood evacuation plans, known to all residents and agencies, that recognize the potential for rapid spread of wildfire moving through hill residential areas with narrow and congested streets.

c) Insurance is also necessary and critical for homeowners choosing to live in high-risk settings; however, having insurance should not be a reason for not appreciating and preparing for the actual risks being faced.

It is surprising to hear some resident's say they like the hills and their homes just the way they are, and that they accept the risk of wildfires. This sentiment is not usually shared by most, but remains one of the more important concerns if it threatens future stability of fire hazard reduction efforts. If true and persuasive, further efforts in wildland vegetation management may not be supported during tough economic times, and less substantial efforts will result in marginal wildfire risk reduction benefit. If the status quo condition for the hills were followed, future fire losses for both large and small wildfires would be a matter for insurance coverage if it can be obtained.

Fortunately, residents have recently voted to support two significant measures that will improve their fire safety. Oakland's Wildfire Prevention District and the Park District's Measure CC have provided funding to address fire risks by two of the largest landowning public agencies in the hills. **During these funding measures, the Sierra Club, CNPS and Audubon have supported strategic vegetation management programs in our neighborhoods, regional, and local parklands that reduce wildfire risks while conserving, recovering, and sustaining native habitats.**

4. **Recent reports compiled by firefighters and researchers in "lessons learned" from other catastrophic wildland/urban interface fires in California have shown that the most important factor in preventing homes from burning in wildland fires is hardening of structures and the creation of defensible space. We concur that the best way to protect homes from wildfire is for cities to make sure that all homes and all structures have 100' of defensible space, and that homes can resist burning embers. We strongly encourage and support programs by agencies and homeowners on local and private lands that will protect homes from wildfire.** The recently revised State Standards for defensible space and home construction can be relatively easy to inspect and achieve in rural areas, but not so easy in our densely occupied hill residential areas. Cities should determine how best to apply these standards for both individual homes and groups of homes, especially at the wildland/urban interface where property ownership is complex.

   Too often, homes are permitted and constructed within 15' or less of the property line without enough space to comply with the intent of state law that homeowners should create and maintain their own defensible space. Cities must continue to ramp up their inspections to get compliance and continue their inspections even in times of economic difficulty.

   Further, building codes must be updated to cover the construction and maintenance of fire safe structures that can resist burning embers. Waiting 50 years for remodels to bring new codes into force is unacceptable. Unprepared residential areas will likely not be saved during a wind-driven wildfire, and will contribute to the rapid spread of wildfire into adjacent residential areas.

   As a very important matter of public policy, cities and counties should make sure that homes and other structures are not built within an indefensible distance from public-park and open space without appropriate mitigation, nor from the open space borders of other public lands. Cities should also prioritize for inspection and compliance those structures already located within an indefensible distance from public parklands. Public agencies should not have to use their limited funds and staff resources to create and maintain defensible space for new homes constructed too close to park boundaries or other public lands.

5. **In our opinion, decisions about how best to manage our east bay hill vegetation should be based on the twin goals of reducing the risk of catastrophic fire and maintaining the fragile native habitat found in the wildland/urban interface. To accomplish these goals agencies should formulate well-conceived plans that integrate natural resource sciences and fire science.** Very little of today's East Bay

Hill wildland vegetation is truly pristine because of the dramatic landscape changes that have occurred during the past 200 years. Returning to the vegetation of 1800 or 1900 is not realistic or even remotely possible with today's population of 2.5 million east bay residents and the extensive hill residential areas that were developed during the past 100 years.

Existing native plants and habitat are the result of the unique and complex history of plant species and habitat evolution in this geographical area. Most of today's East Bay Hill public land vegetation (by counting numbers of species represented in that vegetation) is composed of "truly native" species. However, most of the plant communities, in their current locations and size, are relatively young and will continue to change. As change occurs, we believe that today's natively-evolved local species and their tendencies to aggregate into recognized "native habitats" can persist very well if allowed and assisted by dedicated land managers. These persistent, recognized habitats will indeed not remain static, and will go through stages of succession, development and rebirth during the next 200 years.

We know that "exotic" vegetation in the hills has experienced four major freezes that have killed or damaged eucalyptus trees, and that many fires have killed pine trees. Since the spread of both blue-gum eucalyptus and Monterey pines is assisted by fire, the presence of these trees pose a growing threat. We also know that global warming will result in further extremes in weather that will make the 21st century even more risky. The best we can say at this point is that we do not really know how native-like wildland plant communities will respond in detail to future climate change. However, we prefer to limit the possibilities to changes brought about by our natively evolved regional flora, and to not intermix or include species of distant exotic origins that will complicate the process and remain as potential fire hazards.

6. **Any and all fuels management plans must be site specific, not simply vegetation and fire risk specific. In order to accomplish the twin goals of reducing the risk of catastrophic fires and of maintaining sustainable native habitat, agencies must recognize that effective management of live fuels is a subset of sound land management (and not the other way around) primarily because of the high degree of variability of living landscapes. Each site is unique and is constantly undergoing multiple processes of change and evolution. Agency plans must be based on sound environmental concepts and not just the developing science of wildfire behavior in wildland/urban interface settings.** This is the issue that caused us the most concern during the discussions following the 1995 HEF plan. We are not so sure about how much useful fire science there is that will really apply to our unique wildland/urban setting since to date very little science has been based on field collected data. Instead, there has been heavy reliance on modeling which is subject to error based on sometimes-incorrect assumptions.

   We suspect that the Plan will be based on a combination of relevant local and statewide experiences with wildland/urban fire, and with some adapted fire science. However, we doubt that it will take into account detailed field-collected data on the unique characteristics of our local vegetation types. The application of sound environmental concepts will be especially important for any vegetation management program

undertaken by the Regional Park District where informed knowledge about the environment must guide what it can and should do to reduce fire risks.

Since 1995 we have consistently urged the Park District to seek solutions that will be effective with minimum impacts on the park environment in managed areas that are designed to sustain native habitat. We have also urged that a comprehensive Resource Management and Fire Hazard Reduction Plan be prepared, along with its legally required environmental document.

7. **We urge the HEF and its member agencies to prepare updated mapping systems for the East Bay hills that identifies wildland plant communities as well as the type and density of vegetation intermixed with home landscapes.** Since vegetation is a key factor in wildfire behavior, we should have accurate information about the type of vegetation that exists in both wildland and residential areas. We do not currently have a good mapping system with data on the fire-prone vegetation that is intermixed with home landscapes. If we are expected to reduce the risks associated with wildland vegetation, we should definitely be reducing the risks of vegetation to be found in residential areas.

   The 1995 HEF Plan is the only mapping system (other than the Park District vegetation maps of 2006 that only cover Regional Parks) available today that attempted to describe the type of wildland vegetation found throughout the 18,500 acres of undeveloped property in the Oakland/Berkeley hills (the 1995 acreage numbers do not include wildland vegetation in Kensington to Richmond residential areas or Wildcat Canyon Regional Park). The Behave computer wildfire modeling of the 18,500 acres of wildland vegetation predicted that 43% would burn with flame lengths of 8' or less that could theoretically be fought and controlled by firefighters on the ground. The other 57% of wildland vegetation would burn with flame lengths between 9' and 60', with fire fighters unable to control wind driven wildfires in these areas until the winds abate. Polygons were developed for each plant community, and the summary acreage of each type of plant community is organized in this paper as follows:

Acres	Native-like Plant Communities (mostly natives by species count)
4,100	Oak/Bay Forest- Mixed
3,847	Grassland (mostly areas that are grazed)
3,309	Dry North Coastal Shrubland
1,418	Redwood Forest
918	Successional Shrubland
855	Oak/Bay Woodland- Mixed
332	Wet North Coastal Shrubland
79	Chaparral- Mixed
71	Riparian Forest
10	Oak Savannah
14,940	Subtotal (81% of wildland vegetation)

Acres	Non-Native Plant Communities (dominated by trees with few species)
1,379	Eucalyptus- 20-year old stump sprouts (now 30-years old)
859	Pine Forest- Mature
836	Eucalyptus Woodland- Mature

233	Pine/Eucalyptus Mature, Mix
222	Eucalyptus- 5-year old seedlings (now 15-years old)
47	Pine Forest- Plantation
6	Acacia
6	Cypress
1	Other
3,590	Subtotal (19% of wildland vegetation)

This initial attempt to map and classify vegetation in the East Bay Hills has proved to be inadequate for the task because it did not accurately describe our diverse local vegetation types in site-specific detail, as well as for their individual and community fuel characteristics. There are newer mapping and classification protocols developed by the State Vegetation Program of the California Native Plant Society and adopted by the National Park Service and other government agencies that can be utilized to map and describe the vegetation in these areas accurately.

However, this is only one of several important factors to be taken into account when developing a management strategy for any given polygon. Location within a watershed, slope, aspect, wind mapping (under "normal" and Diablo conditions), live fuel moisture field sampling, description of understory (not only of woodlands but of shrublands as well), soil type, soil moisture, utilization by wildlife, type and degree of weed invasion, and proximity to structures. These are the important factors that go into understanding how best to manage a given area.

We are aware that the Park District's mapping project for Hill parks between Lake Chabot and Wildcat Canyon (and all Measure CC Parks) was finished in 2006, and that fire modeling has been completed for these parks. We will be particularly interested in reviewing the data, mapping results, assumptions used, and the fire attributes for park vegetation. We understand that the District's 13,818 acres of hill park vegetation have been grouped into the following park plant communities, and we have organized these groups into two major classes as follows:

Acres	Native-like Plant Communities (mostly natives by species count)
3,675	Oak/Bay Woodland
2,439	Woodland Succession
1,688	Grassland (mostly areas that are grazed)
1,505	Shrubland
1,022	Shrub Succession
474	Redwood
110	Willow
30	Riparian/Wetland
11,034	Subtotal (80% of park vegetation)

Acres	Non-Native Plant Communities (dominated by trees with few species)
1,862	Eucalyptus
363	Developed Park Areas and Turf
341	Pine
30	Mowed Annual Grass
5	Acacia

2,784 Subtotal (20% of park vegetation)

It appears that the fuels management done by the HEF agencies and EBRPD to date has been conducted in accordance with the old Behave (flammap) fuel models that are untested at the wildland/urban interface. If so, it has driven management decisions in ways that cannot support the goals of either achieving safer fuel loads or maintaining native habitat. If the old classification of maintaining an 8-foot flame length in all vegetation is adhered to, very little but mowed or grazed annual grassland can qualify as "safe" to maintain. The empirical result of following that prescription has often meant that the type conversion of native shrublands, such as Baccharis-dominated north coastal scrub, has created their replacement with fuel-rich French broom and light flashy fuels such as thistle, which also have poor habitat value.

On the other hand, field-collected data, including sampling for live fuel moisture, might indicate that, in some instances it's wiser to leave vegetation in place rather than to remove it. One example would be to contemplate leaving Baccharis, which contains relatively high levels of moisture, in some sites where it acts as a green sponge, holding moisture within the plant as well as within the soil.

It is critical that if fuel modeling is to be used, it contain accurate inputs from our local vegetation under differing conditions. We do not know what the current models are that are being used to inform the conclusions of the EIR or what information is being used as input to the models.

8. **The 1995 HEF Plan did not receive full acceptance from the environmental community because it contained insufficient field collected data to support the designations of fuel characteristics of our local vegetation, did not take into account the importance of conserving native habitat, and did not include an environmental impact report as required by state law.** However, the 1995 HEF Plan identified the specific wildfire threats faced by homeowners in the hills, and recommended a mitigation program for agencies and private property owners based on the following concepts.

   a) The Plan recommended that homeowners fully comply with state law that currently requires a minimum of 100 feet of defensible space surrounding structures, and that all homes in high risk areas should be constructed or renovated and maintained to resist burning embers.

   b) The Plan recommended that public agencies continue maintenance of ridgetop fuelbreaks, and create a new type of managed area at the residential edge, that will involve both public and private lands. The width for residential edge buffer zones has been a topic of ongoing controversy for the past 15 years. Currently, most research suggest that a maintained zone of vegetation 100' to 200' from structures (including homeowner defensible space) is appropriate, depending on slope, type of vegetation, and site conditions. These maintained areas will not necessarily stop all wildfires, but will be essential for providing safe locations for firefighters defending homes at the wildland/urban interface.

c) The Plan recommended that public agencies and large acreage land owners manage or convert their eucalyptus and pine groves to reduce the chance of burning embers being blown into residential areas.

9. **The 1995 HEF Plan recommended that public agencies and large acreage landowners create and maintain two different types of areas managed for fuel reduction in the East Bay Hills.** The first are the ridgetop fuelbreaks that were begun after the freeze of 1972. These fuelbreaks were created along the west boundary of regional parks with some sections along Skyline and Grizzly Peak Boulevards on city or other agency lands. Ridgetop fuelbreaks were created by removing freeze damaged eucalyptus to achieve a 300' wide zone of managed vegetation where firefighters could attempt to stop a fire that started in wildland areas to the east, before it could race over the ridge into residential areas. Public agencies that currently manage ridgetop breaks are now creating even wider resource management areas that are intended to look "natural on the ridge" without strict adherence to width criteria, usually with a roadway as the primary anchor line.

   The second type of management was created after the 1982 Blue Ribbon Report and the 1995 HEF Plan. The 1982 Report recommended fuelbreaks designed to provide a minimum of 100 feet of managed vegetation (including what the homeowner is required to do for defensible space) at the wildland/urban edge. The 1995 HEF Plan recommended fuelbreaks within a 500 foot study area, that in itself became controversial and confusing, designed to provide an area of managed vegetation with less than eight-foot flame lengths at the wildland/urban edge where firefighters could safely work to protect homes.

   While there is no mystery about the reason for reducing live fuels when residential areas are located at the edge of large public parks or other areas of dense natural-like vegetation, there is as yet no clear understanding of what management should be on specific sites since prescriptions have been generic or non-existing. Nonetheless, most park agencies are using some form of vegetation management on public lands at their residential edge to reduce the chance of wildfire moving from public lands into residential areas.

10. **The Sierra Club, CNPS, and Audubon have not been satisfied with the Park District's approach for maintaining its fuel-managed areas. We know that fuelbreaks constitute a combined area of more than 20 miles and 500 acres, often covered by weedy species, mowed below 4" of height, or over-grazed by goats. Also several eucalyptus management, thinning, or conversion projects exist that need attention.** We are concerned that the Park District's consultants and its staff have yet to articulate a clear vision about how they intend to maintain this interface while favoring and increasing the percentage of native plants over weedy, fuel-rich non-natives. This topic will be a subject for further comment and focus by our members and experts during agency Plan/EIR processes.

    From the Park District's perspective, focusing vegetation management efforts in the immediate area adjacent to homes means that larger areas of native-like park vegetation can remain unaffected. Most of the required District fuelbreaks are already in place with missing sections to be identified in the Plan/EIR. However, because very little

attention has been paid to maintaining healthy native habitat, these sections will need to be reviewed for site-specific sustainable practices as part of the vegetation management plan.

a) New fuelbreaks recommended for park grassland areas are either currently grazed or are on sites where brush succession has yet to occur. Continued grazing or mowing should be sufficient to maintain relatively narrow areas of grassland as fuelbreaks. Maintenance to reduce exotics and to increase native flora that will be sustainable should be the prime objective, so close attention must be paid when using goats or personnel unfamiliar with both exotic and native vegetation.

b) Shrublands are another matter requiring intensive management of wider fuelbreak widths when shrub species are retained because of their potential flame heights and rate of spread. Prescriptions usually call for shrub "islands" with about 30% of shrub cover (with retained shrubs pruned at four feet in height and cleared of flammable wood debris), with 70% open areas that are usually mowed. An alternative option for existing shrubland areas is to convert to a narrower fuelbreak width of grassland with regular mowing in the spring and summer.

c) Oak/bay woodlands are a relatively fire-safe plant community, with periodic clearing of ladder fuels being the only maintenance near homes.

d) In areas of non-native vegetation, conversion to the adjacent native-like plant community can be the best solution with over seeding of local ecotypes of native grasses and associated flora when soils are disturbed or left bare during conversion.

e) However, many of the District's earlier fuelbreaks involved a more destructive conversion during logging of eucalyptus and pine groves in the 1970s, followed by 30-years of mowing or goat grazing resulting in weed problems and broom invasion. These areas will require a different approach to re-establish natives, and a maintenance program that will pay attention to the removal of weedy plants and to increase the overall percentage of natives.

11. **Non-native eucalyptus and pine groves can exceed 120' in height and can be prone to dramatic fire behavior. When wind drive wildfire reaches their crown, flames above 150' can be expected with burning embers blowing downwind well beyond one half mile. The capacity to spot new fires that overwhelm firefighting forces during Diablo Wind conditions means these species must receive high priority for treatment.** Non-native plant communities in the hills are today's remnants of the tree planting efforts of two Oakland businessmen who forested the hills for future residential development and for hardwood lumber production. Frank Havens and Borax Smith formed the Realty Syndicate in 1895 to sell lots and homes to new residents who would also buy tickets to ride their trains. They launched a massive tree-planting program to beautify their 13,000 acres of hill land, and a few years later Havens formed the Mahogany Eucalyptus and Land Company to plant gigantic plantations of blue gum eucalyptus on his privately owned water company lands to meet the state's growing demand for hardwood lumber. Both enterprises could not be repeated today, but have

created increasingly significant environmental impacts that residents and agencies must now address that will be increasingly expensive in the future.

We have used "non-native" as the appropriate term for describing Havens bluegum (and redgum) eucalyptus trees from the Island of Tasmania Australia, and for describing pines and cypress from the coastal regions of central California. It is not only the "appropriate term" to use, but it carries broadly significant meaning in terms of the impacts these non-native species created and continue to present to the locally-evolved native biodiversity. It is not sufficient to consider these several non-native species as isolated occupants of the land. They each have large contextual, negative impacts that must be factored into any equation regarding protection and preservation of native resources in areas of locally diminished open space acreage.

Non-native eucalyptus and pine are some of the most dense and flammable plant communities in the hills. Un-maintained eucalyptus groves can have 400 to 900 trees per acre with fuel ladders into the canopy and 30 to 100 tons of flammable fuel on the ground. Wind driven wildfire in these groves can be expected to produce flame lengths and ember throws that will quickly overcome firefighters and significantly reduce evacuation time for homeowners.

Unmaintained pine groves are also extremely flammable with deep needle duff on the ground and dense pine seedling growth within and around the grove. The presence of Monterey pines intermixed with native coastal scrub also provides a source of tinder that contributes to crown fires since the needle duff can be ignited by embers and can burn off the live fuel moistures of species like Baccharis.

The recommended strategy for eucalyptus and pine groves is to manage or remove trees and groves that are close to residential areas that could throw burning embers long distances (including over fuelbreaks, natural barriers, and manmade barriers) into residential areas.

12. **Native-like vegetation and our native woodlands are generally below 40' in height, and are less prone to unmanageable fire behavior. Native-like plant communities form 81% of today's wildland vegetation in the hills comprised of mostly plants that are truly native to the East Bay.** The recommended strategy for protecting residential areas from wildfire coming from native-like vegetation is to establish an understanding of the ecology and fire-behavior of the live fuels site-specific to each individual wildland/residential edge, and then manage these edges to provide safe access for firefighters defending structures to hopefully stop fire before it enters residential areas.

    Most areas offer a range of small to large acreage (sometimes in a mosaic and sometimes as a single type community) of grassland, shrubland, oak/bay woodland, or redwood forest. These plant communities are rather young, achieving their current location, size, and form as a result of both human impacts and plant succession over the past 200-years. Photos at the turn of the 20th century show the hills dominated by grasslands (many of which were maintained by cattle grazing) with smaller areas of shrubs, oaks, redwoods, and riparian vegetation.

Recent research involving the analysis of phytoliths concluded that the historic plant community for well over 1000 years was baccharis-dominated coastal scrub. Thus, the jury is still out in terms of extent and distribution of the true historical vegetation types.

The density and distribution of today's native-like plant communities in the hills are unique to the 20th century and provide excellent habitat for wildlife and other species that make up today's diverse ecosystems. At many locations there are also endemic animals, birds, or plants that have legal standing. These listed species require individual monitoring, protection, and careful management.

Each native-like plant community behaves differently in wind-driven fire. Grassland fires are flashy and move quickly, but are relatively controllable. However, they provide a faster means of ignition and spread of fire into other vegetation, particularly upslope. Shrubland fires can also move quickly and some shrubs can produce flame lengths above 30 feet and, once ignited, are more difficult to control. Unfortunately, there has been little research into the important factors that affect ignition in the unique and various East Bay Hill shrub communities and they are thus far poorly understood. Because of the lack of specific field-conducted studies that would help elucidate both the ecological and fuel-related behaviors of individual species and shrub communities, they have been collapsed into the generic category of "brush," assigned fuel characteristics from other more fire-prone species, and been targeted for aggressive fuels management. Fire in native woodlands produces lower flame lengths but can also crown and produce burning embers under extreme conditions.

13. **The debate about wildfire risks attributed to non-native eucalyptus trees has been a controversial topic for years. In our opinion, there is ample evidence to show that eucalyptus and pine trees, in dense unmanaged groves, are both a wildfire threat and an environmental dilemma that requires attention.** Individuals who love eucalyptus trees aggressively defend the tree, arguing that it has been naturalized to this area, it provides habitat for wildlife, and it is not an unusual fire threat. Narratives about both the threat and the environmental dilemma can be found in the statements, articles, papers and reports contained in Appendix A.

14. **We are most concerned with the process by which decisions will be made about the most flammable and potentially controversial plant communities in today's parklands. We don't endorse generic options but favor site-specific analysis that is grounded in the best possible science. In practice, that means that any one given eucalyptus or pine grove will be managed for its unique characteristics to achieve fire safety, conversion to native plant habitat, or made safe for public use.** However, the threat factor is now relatively clear and can't be denied.

15. **The subject of eucalyptus and pine grove management remains controversial among people of good will. In the interim, the Sierra Club, CNPS, and Audubon offer the following statements for consideration when reviewing agency plans and environmental documents.**

    a) Agencies and private landowners should focus their efforts on removing eucalyptus and pine groves on or near the high ridges and on leeward slopes

(West facing) above homes to allow these spaces to convert to native-like vegetation that is less prone to spectacular wildfire behavior.

b) Eucalyptus areas that were logged between 1972 and 1974 should be revisited to remove all 30-year old stump sprouts and seedlings that will not form good park woodlands, and to allow these areas to convert to native-like vegetation.

c) Groves that are thinned to retain mature eucalyptus trees should keep 30 to 50 trees per acre with shrubs removed and ground fuel maintained at less than two tons per acre. However, everyone should understand that single-age stands do not usually make good permanent park forests because the stand will eventually reach its natural stage of decline and become a hazard that should be removed. At that time conversion to native-like vegetation should take place.

d) When eucalyptus and pine trees are removed, the areas they occupy should be managed to convert without planting new trees and shrubs to a fire-safe native-like vegetation that blends with and expands adjacent plant communities. The type of replacement vegetation and any required maintenance depends on site conditions and the type of plant community desired.

When a healthy understory of oaks, bays, and associated trees are present under the eucalyptus or pine canopy, they should be saved during logging and allowed (without additional tree planting) to become the replacement tree canopy.

When an understory of native trees is not present (especially on ridge tops and dry slopes), grassland and shrubland plant communities should be allowed to re-establish and succeed by appropriately controlling broom, thistle, and other invasive, fuel-rich species. Native shrubland will sometimes reestablish after the eucalyptus canopy is gone if invasive weed species are held in check.

When there is sufficient native grass cover and/or seedbank in areas to allow for establishment of good quality grasslands, these can be carefully restored and managed by grazing or mowing to prevent re-succession of shrublands. However, in the absence of a native grass seedbank, weeds will dominate the resulting "grassland". In this case, re-succession by native shrubs can help restore quality habitat.

e) Thinning young eucalyptus woodlands of suckers and sprouts to create a temporary managed grove is less desirable and may be untrustworthy on our steep and windy hillsides when the goal should be to convert to native vegetation. Thinning eucalyptus and waiting 30-years for native plant establishment under the canopy will allow ladder fuels to become established, and repeated costly logging projects will double environmental impacts.

f) We support efforts to keep mature eucalyptus trees in groves that can be thinned and maintained as a mature tree canopy for existing and future recreational activities, or as a historic tree grove to be retained pursuant to a park's adopted Land Use Plan.

g) We will be particularly interested in the policies that guide when to thin and retain a grove, and when to achieve a conversion to native-like plant communities that are appropriate to the site. As an example, for a grove with 300 trees per acre, it might be short sighted to take out 250 trees per acre to keep a grove when conversion to native vegetation could achieve multiple goals. This would be especially true for areas in parks where native vegetation should the objective.

h) In all cases, logged eucalyptus stumps must be treated and killed to prevent sucker growth.

i) Control of weed species such as broom, euphorbia, and eucalyptus seedlings is essential during all maintenance and conversion projects.

j) Non-native trees (such as eucalyptus and pine) that are small but will become large and are not part of the designed park landscape should be removed at the earliest time possible to keep costs low, minimize resource damage, and allow native-like vegetation to develop as soon as possible.

k) Tree removals (logging) can be very controversial, and the immediate appearance of logged areas can be dramatic, triggering public protest from people who have not responded during the planning process but are motivated to speak out once logging begins. Often the public is unaware of the costs and tradeoffs of large-scale projects such as logging. As a result, tree-logging projects must be made to be very visible during the entire public process. Before logging projects are presented to the Board for approval to seek bids, staff should ensure that the tree project has specific Plan/EIR clearance with a notice posted in the park before the Board meeting and "left posted" until project completion. After the Board approves a contract, District managers and Board members must be ready to support the tree removal project through to the end. After the contract is awarded and the work begins (sometime months later), experience has shown there will always be a member of the public who sees what's happening, pleads to save trees, and will lobby to stop all work.

16. **As each of the East Bay Hills Emergency Forum agencies prepares their individual plans and environmental documents, they will be required to address the cumulative impacts of wildland fire hazard reduction projects by all agencies. This will require active cooperation and long range planning by HEF member agencies.** The HEF will need to provide sufficient coordination to make sure that potential cumulative impacts are clearly described, and that significant cumulative impacts can be avoided. We urge all agencies to consult with their legal advisors for guidance in developing plans that will address the cumulative impact issue. Of course, we will reserve our final opinion about how each agency handles these matters as we review their plans and environmental documents.

a) Agencies should commit that cumulative impacts will be avoided while converting high-risk eucalyptus and pine groves to native vegetation, and that they will consider their projects to be self-mitigating projects that complete the work begun in 1973/74. Most of the involved public agency acreage was logged after

the 1972 freeze. The removal of multiple stump sprouts and dense seedlings in already logged areas is ongoing work that needs to be completed. Sprouts and single age stands of seedlings are unsuitable for forming safe and healthy woodlands.

b) Agencies should commit that cumulative impacts will be addressed and avoided by their projects, when considered separately or together, and that they will involve relatively small acreage dispersed along a 30-mile long wildland corridor that totals more than 18,500 acres of similar vegetation

c) Agencies should commit that cumulative impacts will be avoided by their projects that are coordinated on lands separated by time and space from other agency projects. Coordination will be used to ensure that work will be scheduled over a reasonable period of time, and that there will be no cumulative impacts from overlapping work on the same or adjacent lands.

d) Agencies should commit that cumulative impacts will be avoided when their projects are coordinated to have sufficient distance between projects by others in location and time, and ensure that there will not be significant cumulative unmitigated impacts on common resources such as wildlife and keystone habitat.

e) Agencies should agree that they will not allow vegetation management projects to have a significant cumulative impact on sensitive species or habitat because of existing environmental regulations that will be followed, and because of the biological opinions and mitigations that will be required by state and federal resource agencies.

EBCNPS Conservation Committee

Appendix A

The following quotes, articles, and reports provide additional information and perspective about the fire hazards and the environmental dilemma posed by eucalyptus and pine plantations in the East Bay Hills.

a) In March of 1973, H.H. Biswell, Professor of Forestry and Conservation at the University of California, Berkeley made this prophetic statement. "When eucalyptus waste catches fire, an updraft is created and strong winds may blow flaming bark for a great distance. I think the eucalyptus is the worst tree anywhere as far as fire hazard is concerned. If some of that flaming bark should be blown on to shake roofs in the hills we might have a firestorm that would literally suck the roofs off the houses. People might be trapped".

b) James Roof, Director of the Tilden Botanic Garden, in his detailed paper of February 1973, made observations about the areas wildfire risks, about eucalyptus tree risks and impacts on native flora, and offered his recommendations following the freeze of 1972.

c) Professor Robert Stebbins, Professor of Zoology at UC Berkeley and the curator of the UC Museum of Vertebrate Zoology has been a long-time advocate for retaining eucalyptus groves because of the habitat they provide for local wildlife especially amphibians and birds, and prepared several papers on this subject during the 1995 HEF plan review period.

d) The Temescal EIR Advisory Group in 2000, listed the following guidelines for eucalyptus and pine forests: "Eucalyptus Forest – This introduced forest community is highly controversial because of the extreme fire behavior that it can generate and because a significant number of native species that have adapted to it. It is a high priority for management, particularly in areas where it has the potential for involvement in wildland fires. Management plans must also take into account impacts on those species that have adapted to Eucalyptus. A number of native raptor species including the Turkey Vulture, Red-tailed Hawk and Great Horned Owl seem to prefer Eucalyptus to native forests in a variety of circumstances. Nest and roost trees should be identified and accommodated with appropriate buffers, where feasible, in fuel-break planning. Monterey/Bishop Pine Forests – This transplanted California native plant community occurs in dense stands and as individual specimens in several areas within the study area. Although less widespread than Eucalyptus, these coniferous forest species are also preferentially used by native raptors including the Golden Eagle. As with Eucalyptus, nest and roost trees should be identified and accommodated with appropriate buffers, where feasible, in fuel break planning."

e) The Vegetative Management Plan for the Eucalyptus Freeze Affected Areas in the Berkeley-Oakland Hills was prepared to guide the efforts of agencies working to reduce the potential for wildfire after the freeze of 1972. The Plan was prepared after the hills were declared a disaster area by the State's Governor, and was adopted before the California Environmental Quality Act was amended to include public agencies.

f) The Ubiquitous Eucalyptus article, by Bill O'Brien in the fall 2005 BayNature magazine describes the history of eucalyptus trees in the East Bay as well as statements and opinions by local "experts" about both positive and negative aspects of eucalyptus trees.

g) Respect for the flammability of our hill's dense eucalyptus groves is common knowledge among local fire chiefs. Fire departments have not been willing to use prescribed fire (with prescriptions set for when fire control is theoretically possible) to reduce the flammability of groves by clearing the 50 to 100 tons of ground fuel that can be found under unmaintained eucalyptus groves. Fires in native-like vegetation will not burn well in the hills during most of the year, but fires under eucalyptus with its shredding bark and oily leaves can move to the treetops during almost any season. Professor Biswell tried unsuccessfully, in the 1970's to establish prescribed fire as a local maintenance practice in eucalyptus, as is done in Australia. Regional Park Fire Chiefs have wavered, and remain unwilling to use this technique even today because of the risk of escaped fire, and because of smoke impacts on the air basin.

h) The 1995 HEF Plan (in its final Report and Technical Appendices) determined that eucalyptus and pine trees and the burning embers that they can produce in a wind driven wildfire are an important factor in the wildfire risks faced by hill residents.

i) Javier Trelles, and Patrick J. Pagni UC Berkeley Professors analyzing the role of wind patterns during the 1991 fire, described the Sunday morning fire start as follows. On October 20, at 6:00 a.m., the normal weather pattern was interrupted as winds in excess on 10/ms arose from N 35 degrees E and the relative humidity dropped below 10%. This strong, dry convective current began to dramatically lower the moisture level of the previously soaked burn area of the Saturday fire. The ambient temperature climbed to 90 degrees. The few embers that remained buried overnight were by 10:45 a.m. spotting to new areas of dry fuel. Between 11:15 and 11:30 a.m., extremely rapid fire spread in windward direction overwhelmed fire crews called in to help. The initial brand material came primarily from Monterey pine, Pinus radiata. About 650 meters from the fire origin, the fire engaged a 35-meter high stand of Eucalyptus globules that quickly became an inferno releasing copious brands. Once structures became involved, the shakes and shingles they liberated further exacerbated the flaming brand problem.

j) The East Bay Hills Oakland-Berkeley Fire that was investigated by J. Gordon Outlay. His report was conducted under contract to the United States Fire Administration, Federal Emergency Management Agency. The following excerpts are taken from his report.

"Fire has been a part of the history of the Oakland-Berkeley Hills area throughout its history. As with many other marine climates, fuel moistures are such that during most periods, fires do not cause dramatic damage but rather help maintain a balance of fuel types and reduce fuel loads. The

native flora and fauna had adapted correspondingly with the natural occurrence of fire in the area."

"Additionally, the introduction of vegetative species which are not native to the area has dramatically impacted fuel loading. This is particularly true of the introduction of eucalyptus. Fuel accumulations in some areas under eucalyptus plantations have been estimated between 30 and 40 tons per acre. Monterey Pine was also introduced into the area and contributed significantly to the fuel loading."

"Additionally, eucalyptus is susceptible to freeze damage, as occurred in 1972, when large numbers of eucalyptus were killed due to an extended period of below freezing temperatures, and again in December of 1990. The dead trees and limbs added a significant amount of dry fuel in the area. Also, eucalyptus sprouts back from the stump and this sprouting after freezing or after logging operations has also increased fuels in some areas."

"Between 1986 and 1991 most of California experienced drought conditions. This situation was recognized as creating more and more critical fire risk conditions each year. The unprecedented drought was accompanied by an unusual period of freezing weather, in December of 1990, which killed massive quantities of the lighter brush and eucalyptus."

EBH-EIS-FEMA-RIX

From: Emilie Strauss [desertpeach@earthlink.net]
Sent: Friday, October 01, 2010 3:22 PM
To: EBH-EIS-FEMA-RIX,
Subject: FEMA Firebreak
Attachments: FEMA firebreak.pdf

Please accept my comments regarding the firebreak EIS.

Thank you,

Emilie Strauss

EBH-EIS
POB 72391
Oakland, CA 94612

OCT. 1, 2010

Dear FEMA

I am writing regarding the EIS for Hazardous Fire Reduction, East Bay Hills.

I support the "No Action Alternative". Removing trees and applying herbicide to a significant portion of ridgelands on our public (EBRPD/UC) lands is non-mitigatable. I am a frequently user of Miller-Knox, Tilden, Wildcat Canyon, and Strawberry Canyon.

Instead homeowners should ~~be~~ keep tall vegetation (or fire-prone) away from structures if they reside near parklands. This should be a mandate and be enforced.

Sincerely,
Emilie A. Strauss

Emilie A. Strauss
1468 Grizzly Peak Blvd
Berkeley CA 9470

EBH-EIS-FEMA-RIX

From: Nicole Courtet [NicoleCourtet@yahoo.com]
Sent: Friday, October 01, 2010 3:45 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

Comments on fire risk reduction projects in the East Bay Hills We agree with and command your intent and goal of fire risk reduction in the East Bay Hills, something we think is long overdue. However we also want to express our concerns about what we see as contradictions and counter-productive effects of some of the proposed approaches for the removal of invasive and highly flammable introduced plant species in the area. My husband and I have been residents of Berkeley / North Oakland for 35 years. We are also hikers, and regularly walk on the east Bay Hills trails, including U.C. Strawberry Canyon, all of the East Bay Regional Parks, and the Claremont Canyon Preserve. We care and try to keep informed and educated about our community, our environment and their wellbeing. We see them as interconnected. We are mostly concerned about the following: "application of herbicides": If we can judge by what has been done at the beginning of July 2010 in U.C.Strawberry Canyon, herbicide spraying might make the fire risk even greater by killing the weeds and letting them stand or lie on the ground, completely dry, and thus lengthening the fire risk period. In addition, from what we witnessed, herbicide spraying also kills the greener more fire resistant native plants which should be encouraged to take over in the long run. Preference should be given to the physical removal of highly flammable invasive trees and plants wherever and whenever possible, in order to: - actually and permanently reduce the fire risk and the period of high flammability of plants; - minimize health risks to people, including children who frequently walk on the trails with their family; - promote the replacement of highly flammable introduced plants by safer native species. This should be the long term goal for both fire risk reduction and the health of the environment and people. - minimize health risks to people, including children who frequently walk on the trails with their family; "chipping the downed trees and scattering the chips in portions of the cleared area": . Covering the soil with 'a mulch" of wood chips from cut trees, especially eucalyptus -highly resistant to rot, extremely slow to decompose and toxic to other plants- is contrary to the long term goal which should be the progressive replacement of highly flammable invasive trees and plants by safer and healthier native species. We appreciate and thank you for the sincerity and openness you displayed in the public hearing. We thank you in advance for taking into account our concerns and comments, which we know are shared by many other residents of our area. We hope that you take them seriously in making any decisions. Nicole Courtet NicoleCourtet@yahoo.com Frank Gruliow fgruliow@yahoo.com 6519 Tremont Street Oakland, CA 94609

EBH-EIS-FEMA-RIX

From: nicolecourtet [nicolecourtet@yahoo.com]
Sent: Friday, October 01, 2010 3:49 PM
To: EBH-EIS-FEMA-RIX,
Subject: Comments on fire risk reduction projects in the East Bay Hills

Comments on fire risk reduction projects in the East Bay Hills

We agree with and command your intent and goal of fire risk reduction in the East Bay Hills, something we think is long overdue. However we also want to express our concerns about what we see as contradictions and counter-productive effects of some of the proposed approaches for the removal of invasive and highly flammable introduced plant species in the area.

My husband and I have been residents of Berkeley / North Oakland for 35 years. We are also hikers, and regularly walk on the east Bay Hills trails, including U.C. Strawberry Canyon, all of the East Bay Regional Parks, and the Claremont Canyon Preserve. We care and try to keep informed and educated about our community, our environment and their wellbeing. We see them as interconnected.

We are mostly concerned about the following:

"application of herbicides":

If we can judge by what has been done at the beginning of July 2010 in U.C.Strawberry Canyon, **herbicide spraying might make the fire risk even greater by killing the weeds and letting them stand or lie on the ground, completely dry, and thus lengthening the fire risk period**. In addition, from what we witnessed, herbicide spraying **also kills the greener more fire resistant native plants** which should be encouraged to take over in the long run.

Preference should be given to the physical removal of highly flammable invasive trees and plants **wherever and whenever possible**, in order to:

- **actually and permanently reduce the fire risk and the period of high flammability of plants;**

- **minimize health risks to people,** including children who frequently walk on the trails with their family;

- **promote the replacement of highly flammable introduced plants by safer native species. This should be the long term goal for both fire risk reduction and the health of the environment and people.**

- **minimize health risks to people,** including children who frequently walk on the trails with their family;

"chipping the downed trees and scattering the chips in portions of the cleared area":

Covering the soil with 'a mulch" of wood chips from cut trees, especially eucalyptus -highly resistant to rot, extremely slow to decompose and toxic to other plants- is **contrary to the long term goal which should be the progressive replacement of highly flammable invasive trees and plants by safer and healthier native species**.

We appreciate and thank you for the sincerity and openness you displayed in the public hearing.

We thank you in advance for taking into account our concerns and comments, which we know are shared by many other residents of our area. We hope that you take them seriously in making any decisions.

Nicole Courtet NicoleCourtet@yahoo.com
Frank Gruliow fgruliow@yahoo.com
6519 Tremont Street
Oakland, CA 94609

EBH-EIS-FEMA-RIX

From: Save Strawberry Canyon [savestrawberrycanyon@gmail.com]
Sent: Friday, October 01, 2010 3:55 PM
To: EBH-EIS-FEMA-RIX,
Subject: Comments Hazardous Fire Risk Reduction Environmental Impact Statement East Bay Hills, California
Attachments: FEMA letter Sept 10 pdf.pdf

Please find attached, thank you

SAVE STRAWBERRY CANYON
P.O. BOX 1234
BERKELEY, CALIFORNIA 94701

Save Strawberry Canyon is a citizens' group that seeks to preserve and protect the watershed lands and cultural landscape of Strawberry Canyon. Save Strawberry Canyon was formed out of the urgent need to take action in response to the threat of intrusive, inappropriate development on the Canyon lands.

Strawberry Canyon, opposite the Golden Gate, is a unique link to the East Bay Regional Park District lands and, by its streams and views, to San Francisco Bay. The Canyon itself with its streamside vegetation, oak-bay woodlands, grasslands, and surrounding slopes, is a rich repository of wildlife directly adjacent to the dense urban populations of the UC Berkeley Campus and the cities of Berkeley and Oakland.

Save Strawberry Canyon seeks to inform the public about the impacts of proposed developments, to encourage location of such developments to more suitable sites, and to promote better public access to the beautiful Canyon with its wildlife and scenic resources. Mission Statement

September 30, 2010

Alessandro Amaglio, Environmental Officer
U.S. Department of Homeland Security
Federal Emergency Management Agency (FEMA), Region 9
111 Broadway, Suite 1200
Oakland, California 94607-4052 EBH-EIS-FEMA-RIX@dhs.gov

Re: Comments for Draft Environmental Impact Statement (DEIS) for Hazardous Fire Risk Reduction East Bay Hills, California, and Recommendation of Alternative to Reject PDM-PJ-09-CA-2005-011 and Reject Partially PMD-PJ-09-CA-2006-004

Dear Mr. Alessandro Amaglio:

This letter comes first to express appreciation for FEMA's effort to involve the public and seek input in accordance with the purpose of the National Environmental Policy Act (NEPA). The two Public Scoping Meeting sessions held on August 26, 2010, including the materials shared, were informative and stimulating toward a public understanding of the four proposed individual projects and their potential environmental impacts.

Save Strawberry Canyon recommends not funding the University of California (UC) project PDM-PJ-09-CA-2005-011 and not funding the UC project component of PMD-PJ-09-CA-2006-004. These proposals together comprise a contiguous landscape that crests both Strawberry and Blackberry Canyons, contributing to the defining ridge of the East Bay Hills. Indeed, the 1930 Olmsted Brothers' "Report on Proposed Park Reservations for East Bay Cities (California)," prepared to advocate the establishment of the East Bay Regional Park District, recognized this ridge as integral to the creation of a great public, scenic, and natural resource.

It is relevant to recognize that at the time of the Olmsted Brothers' "Report" the once seasonal "native" condition of the hillsides and its ridges, being once either a beautiful green in the rainy season or "golden brown" in the dry months, had, in fact, already been changed by the planting of non-native trees such as the eucalyptus. The visual and aesthetic effects of an altered landscape were transforming, but not to the detriment or loss of value of a magnificent open space. Furthermore, the fact that UC designated the area, in whole or in part, to be an Ecological Study Area would seem to

mandate a careful reappraisal of the matured landscape, now well established as integral to the area's ecology, including its trees, plants, mammals, birds, reptiles, and insects.

Any DEIS discussion of these two projects must delineate with precise care their boundary lines. It is conspicuous that the maps prepared for the scoping comments do not specifically cite Strawberry Canyon. Strawberry Canyon is significant landscape feature in the broadest of strokes, defining the spectacular geological formation and surrounds of the San Francisco Bay. Directly opposite the Golden Gate, Strawberry Canyon is a dramatic vista point that creates a natural gateway into the Diablo Range beyond.

Strawberry Creek, too, must be delineated. It is an important water body that discharges year round into the waters of the San Francisco Bay. Strawberry Creek's headwaters flow not only from the top of Strawberry Canyon, but also from the top of Blackberry Canyon — the location of the North Fork of Strawberry Creek — to join below the UC campus. Its underground sources seep or spring forth from reservoirs of water that are known to exist deep within the steep hillsides. Any abrupt change to the topography of the canyon ridges deserves careful assessment regarding potential environmental effect on water quality and soil erosion.

Because PDM-PJ-09-CA-2005-011 proposes "...felling all eucalyptus, Monterey pine, and acacia trees on approximately 60 acres..." at the top of Strawberry Canyon there is a cumulative factor that must be acknowledged. Below the ridge there are working facilities, including a large nanotechnology laboratory and a hazardous waste facility, and/or abandoned facilities that contain contaminated and biological materials, all having the potential to threaten environmental and human health. Given the probable occurrence of extreme weather patterns, or of landslides that do by definition occur in the Canyon, or of radical shifts in the earth due to fault activity on either the Wildcat Canyon Fault or the Hayward Fault, the proposal to *clear-cut established tree growth* above deserves very careful risk assessment.

But, the main objective of the proposal is questionable in itself. There is good reason to be concerned that an undertaking to clear-cut mature trees and leave wood chips would *not insure hazardous fire risk reduction at all.* Rather, the removal of established and mature groves of trees in one blow, could potentially become a more serious fire risk scenario. The residue of dry chips and/or the new growth of various non-native invasive brush, grasses, and young trees is, in fact, a more threatening potential for fueling urban wild fires that could rapidly spread out of control.

In regards to PMD-PJ-09-CA-2006-004, it is relevant to cite that the final version of UC's 2020 Long Range Development Plan (LRDP) contains several changes that were removed from an earlier draft of the LRDP proposing to construct 100 units of faculty housing in this hill area. The question must arise whether this FEMA proposal request is a pretext to resurrect, in due time, a new development proposal.

Most emphatically Save Strawberry Canyon joins a growing chorus of concerned citizens regarding the use of herbicides and pesticides in any region of the East Bay Hills. Because the four proposals, each, assume that there is a need for such harmful substances after large tree removal, it puts the entire project in question.

In regards to PDM-PJ-09-CA-2005-011 and PMD-PJ-09-CA-2006-004, a full assessment of the potential effects of the use of herbicides and pesticides must be fully evaluated. To apply toxic substances upon these landscapes at the crest of Strawberry and Blackberry Canyons, the source of Strawberry Creek flowing year round into the San Francisco Bay, is cause for serious concern. Because it can be assumed that Strawberry Creek is an already impaired body of water, any application of toxics within its watershed deserves full scrutiny.

Save Strawberry Canyon encourages an alternative that manages the landscape to reduce fire risk in a careful, thoughtful manner, embracing a long-term plan that establishes a continuum of hand labor, forestry training, and wise-use practices without any quick fixes depending upon clear-cutting or chemicals.

In closing let us express a query regarding whether URS is the most appropriate consultant to conduct this NEPA review. It may or may not be well known that there have been direct connections between URS, the Board of Regents, Lawrence Livermore Laboratory, and elected officials. Such connections could potentially cloud or compromise the thorough assessments needed for this major project review.

Thank you for your careful attention given to this application on behalf of NEPA and the public's expressed concerns.

Sincerely,

Lesley Emmington Jones, for
Save Strawberry Canyon

From: Dan Grassetti <dan.grassetti@gmail.com>
Date: October 1, 2010 2:04:00 PM PDT
To: Alessandro Amaglio <alessandro.amaglio@dhs.gov>
Subject: another shot of the EBMUD property above Grizzly peak

Please note the lack of understory and the resultant lack of fuel ladder. While it's unlikely that there would be a ground-level fire at this site, due to the clearing of the understory, even if there was it would be all but impossible for the fire to travel into the canopy due to the lack of a fire ladder.

B

Name:	Photo 004
Date:	Sep 25, 2010 4:12 pm
Map: (valid until Oct 25, 2010)	View on Map
iPhone/ iPod Map:	Maps Application
Location:	
Latitude:	37° 52' 18" N
Longitude:	122° 13' 07" W
Altitude:	646 ft

There are three files attached to this email:

"Photo 004.kmz"

A Google KMZ waypoint that can be displayed in Google Earth or Google Maps.

"Photo 004.gpx"

An Open Standard waypoint that can be displayed by select mapping software.

"Photo 004.jpg"

A picture attached to the waypoint by Dan.

From: Dan Grassetti <dan.grassetti@gmail.com>
Date: October 1, 2010 2:01:57 PM PDT
To: Alessandro Amaglio <alessandro.amaglio@dhs.gov>
Subject: Fwd: MotionX-GPS Waypoint: Photo 006

Mr. Amaglio. This is an example of how eucalyptus groves can be maintained in a fire safe manner without canopy loss, habitat destruction, or the use of herbicides. EBMUD has been managing their properties on the ridgeline above Grizzly Peak boulevard in this manner for a number of years with great success. We don't understand why UC is so opposed to adopting similar techniques that would be very fire safe (far more so thatn what UC proposes) without clearcutting and massive habitat destruction.

Name:	Photo 006
Date:	Sep 25, 2010 4:13 pm
Map: (valid until Oct 25, 2010)	View on Map
iPhone/ iPod Map:	Maps Application
Location:	
Latitude:	37° 52' 17" N
Longitude:	122° 13' 07" W
Altitude:	1,355 ft

There are three files attached to this email:

"Photo 006.kmz"

A Google KMZ waypoint that can be displayed in Google Earth or Google Maps.

"Photo 006.gpx"

An Open Standard waypoint that can be displayed by select mapping software.

"Photo 006.jpg"

A picture attached to the waypoint by Dan.

EBH-EIS-FEMA-RIX

From: William McClung [williammcclung@mac.com]
Sent: Saturday, October 02, 2010 7:44 AM
To: EBH-EIS-FEMA-RIX,
Subject: FW: Comments
Attachments: 10_1_2010 McClung Statement to FEMA.doc

Sirs:

I sent the attached statement before the deadline, but mis-addressed it as below. I hope it can still be considered.

William McClung

----- Forwarded Message
From: William McClung <williammcclung@mac.com>
Date: Fri, 01 Oct 2010 17:29:56 -0700
To: <EBH-EIS-FREMA-RIX@DHS.GOV>
Conversation: Comments
Subject: Comments

Sirs:

The attached statement is submitted. Please achnkowledge

William McClung
------ End of Forwarded Message

1 October 2010

Federal Emergency Management Agency
EBH-EIS
P.O. Box 72391
Oakland, CA 94612

PUBLIC COMMENT on EIS for Hazardous Fire Risk Reduction Projects submitted by UC Berkeley (45 acres in Claremont Canyon; 60 acres in Strawberry Canyon), the City of Oakland (325 acres of projects), and East Bay Regional Park District (590 acres of brushland fuels management).

FROM: by William J. McClung, Berkeley Fire Commissioner, 1994-1996; Principal of Shelterbelt Builders, an open land management and restoration company, 1998-2009; Board member, Claremont Canyon Conservancy, 2001-2009; Co-chair Vegetation Management Committee, North Hills Community Association, 2010.

1. I have followed and participated in the discussions of vegetation management to reduce the risk of wildfires in the East Bay Hills since the FIRE HAZARD MITIGATION PROGRAM & FUEL MANAGEMENT PLAN FOR THE EAST BAY HILLS (1995 Plan) was issued by the Vegetation Management Consortium.

2. The great fires of 1923, 1946, 1970, and 1991 in the East Bay Hills grew to overwhelming scales in wildland vegetation before they became catastrophic residential fires in three of those four fires. Major studies of wildfire mitigation strategies have followed those fires and the three agencies that are the largest open land owners and applicants for these grants have considerable expertise and a long-term commitment to working to reduce the wildfire risks to our community.

3. There has also been a substantial effort to assess the environmental consequences of wildfire vegetation management and to seek environmentally benign techniques of strategic fuel reduction. Since the 1995 Vegetation Management Consortium's FIRE HAZARD MITIGATION PROGRAM & FUEL MANAGEMENT PLAN FOR THE EAST BAY HILLS there have been extensive and productive discussions among local experts and agencies on these complex issues for 15 years. During that time, many recommended fuel management projects have been postponed for lack of funding or because of debates among stakeholders on what vegetation modifications should be done. We have fortunately been spared another catastrophic wildfire since 1991, but as large public areas long-identified as high hazard remain untreated, we cannot be sanguine about our odds in the next few years.

4. The four projects under review cover over 1000 acres of land, much of it within or close to our community. Prudent fuel management projects for such large areas are an enormous and costly challenge; the environmental impacts of such work are equally large and challenging. Agencies and individuals have devoted many years to trying to strike a reasonable balance between these challenges. The issuing of the EAST BAY

REGIONAL PARK DISTRICT WILDFIRE HAZARD REDUCTION AND RESOURCE MANAGEMENT PLAN and ENVIRONMENTAL IMPACT REPORT, approved in April 2010, followed 10 years of discussions since the first EIR scoping sessions were held in 1999. The EBRPD recommended treatment areas cover some 3,000 acres and apply many of the same strategies and techniques as the proposed FEMA projects.

5. There will be continuing debate about what is to be done to mitigate this known hazard of wildland fires close to our community. The search for environmentally benign and more effective treatments is an ongoing process, but FEMA and its consultants should recognize that the EIS process for these grants is substantially redundant to the recently completed EBRPD EIR process.

For these reasons, I urge that some of the funds for these FEMA-supported projects be released expeditiously and that a good faith effort be made to hasten the completion of the EIS without needlessly repeating agency and expert studies done in the last 10 years.

EBH-EIS-FEMA-RIX

From: Gay Sweet Scott [GayScott@sbcglobal.net]
Sent: Monday, October 04, 2010 4:09 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

In this time of budget crisis there must be wiser uses of funds. I am completely opposed to the "Hazardous Fire Risk Reduction" plan. I am with a short walk of Claremont Canyon and enjoy walking the East Bay hills many days a week. Clear cutting and the application of herbicides endangers all life forms, not just those some one with a budget deems undesirable.

EBH-EIS-FEMA-RIX

From: Madeline Hovland [mhovland@mindspring.com]
Sent: Tuesday, October 05, 2010 12:02 PM
To: EBH-EIS-FEMA-RIX,
Subject: EISCA Autogenerated Email

I submitted a public comment on EBH-EIS by e-mail on October 1. I have not received acknowledgment that my comment was received. I know that at least 16 other comments were sent that were mostly opposed to FEMA's granting funds for the 4 EBH projects. I notice that comments that were sent to the address in the Federal Register notice have been posted on http:www.regulations.gov under the docket number FEMA 2010-0037. Will my comments be posted on the federal website, or on the regional website? Or not? Should I be worried that I have not received acknowledgment that my comment was received? Others who sent comments are also concerned.

EBH-EIS-FEMA-RIX

From: Max Ventura [beneficialbug@netzero.net]
Sent: Tuesday, October 05, 2010 5:38 PM
To: EBH-EIS-FEMA-RIX,
Subject: confirmation of receipt requested

To Whom It May Concern:

I have not yet received confirmation of receipt of comments in response to FEMA wildfire grants requested by UC; East Bay Regional Park District; and Oakland.

East Bay Pesticide Alert sent comments originally sent 9/2/2010; then resubmitted 9/28 and 9/30 due to problems found with broken URL links within the comments.

Comments were sent to the above email address to which other comments were sent, and confirmed received, by a colleague.

Thank you for confirming receipt.

Sincerely,

Maxina Ventura
East Bay Pesticide Alert

Letters Received

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

RECEIVED
JUL 12 2010
BY:

July 9th, 2010

Alessandro Amaglio REO
FEMA, Region IX,
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

Subject: Scoping Comments for the East Bay Hills Hazardous Fire Risk Reduction in Alameda and Contra Costa Counties, California.

Dear Mr. Amaglio:

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act. These comments were also prepared under the authority of, and in accordance with, the provisions of the Federal Guidelines promulgated at 40 CFR 230 under Section 404(b)(1) of the Clean Water Act (CWA).

EPA supports the Federal Emergency Management Agency (FEMA) goals of reducing hazardous fuels adjacent to highly populated areas in the East Bay Hills. We encourage FEMA to minimize any adverse environmental impacts to the full extent possible. EPA recommends that the EIS evaluate a range of alternatives, including an alternative that minimizes adverse impacts to water quality, cumulative watershed effects, aquatic resources, and air quality.

Tree-Removal

EPA recommends that FEMA commit to limiting tree-removal to only non-native species for all four hazard mitigation projects evaluated in the Environmental Impact Statement (EIS). Include a commitment to leave trees greater than a specific DBH in size, and identify how this would be implemented. Diameter and height are, in effect, measures of tree resistance to fire damage. Large diameter trees are generally more able to withstand wildfire, assuming that surface and ladder fuels have been reduced and the severity of the fire is not extreme. By leaving the largest trees and treating surface and ladder fuels, fire tolerant forest conditions can be created.

Water Resources

The NOI describes chipping the downed trees and scattering the chips. The DEIS should include a plan to insure that chipping activities avoid streams and areas prone to flooding. In the event that any portions of projects have unavoidable impacts to waters of the United States (WOUS) an Army Corp of Engineers Clean Water Act Section 404 permit may be required. EPA encourages FEMA to include an extensive evaluation of the impacts of herbicides on the affected

environment. The evaluation should include a description of the type of herbicides, licenses required and methods to apply the chemical. The DEIS should include a description of application strategies to ensure herbicides do not enter WOUS.

The DEIS should also provide information on CWA Section 303(d) impaired waters in the project area, if any. The document should describe existing restoration and enhancement efforts for those waters, how the proposed project will coordinate with on-going protection efforts, and any mitigation measures that will be implemented to avoid further degradation of impaired waters.

To fully characterize the potential impacts to aquatic resources, EPA recommends that the DIES include the following:

- Provide a baseline assessment of the functions and values of the waters of the U.S. in the project area.
- Quantify (i.e., acreage) anticipated temporary and permanent impacts in waters of the U.S. in each identified water of the U.S. for each alternative comparatively.
- Identify specific actions that will occur in each identified waters of the U.S. (i.e., number of bridge replacements, culvert expansion, and dewatering activities) per alternative to access project areas.
- Include the estimated acreages of temporary and permanent impacts and specific actions for affected water bodies in a table to provide a visual comparison of each alternative.
- Describe specific avoidance and minimization measures and proposed best management practices (BMP) to reduce impacts to waters of the U.S. and to address increased stormwater.
- Describe the effects the project will have on specific functions and values and how the proposed mitigation will offset those impacts.

Biological Resources

EPA is concerned that the use of herbicides could have adverse affects on sensitive species, habitats and habitat connectivity. EPA suggests FEMA include a complete evaluation of species affected by project activities in the DEIS. In the event that threatened and endangered species and special status species are present, EPA recommends FEMA consult with the United States Fish and Wildlife Service and California Department of Fish and Game.

Cumulative Impacts

Cumulative impacts analyses examine "the impact of the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions "(40 CFR Part 1508.7). We recommend the DEIS include an

extensive list of projects identified as part of the cumulative impacts analysis. EPA recommends that the following be incorporated into the DEIS:

- Identify cumulative impacts study areas relative to the resources of concern and a baseline from which impacts will be measured;
- Disclose the past, present, and reasonably foreseeable impacts on resources of concern from past, present and foreseeable activities and analyze the rate of loss and magnitude (size and relative importance) of impacts to resources;
- Incorporate other reasonably foreseeable projects planned in the area, as identified above;
- Address the incremental effects to environmental resources, specifically water and biological resources;
- Incorporate resources protected by any local conservation or resource area plans, affected city plans, and other restoration efforts in the project area.

We appreciate the opportunity to review this NOI. When the DEIS is released for public review, please send one hard copy and one CD ROM to the address above (mail code: CED-2). If you have any questions, please contact me at (415) 972-3800 or munson.james@epa.gov.

Sincerely,

James Munson, Environmental Protection Specialist
Environmental Review Office
Communities and Ecosystems Division

Norman La Force
Law Office of Norman La Force
802 Balra Drive
El Cerrito, CA 94530
510-295-7657
Email: n.laforce@comcast.net

July 10, 2010

Environmental Officer
Region IX, FEMA
1111 Broadway, Suite 1200
Oakland, CA 94607

Re: Notice of EIS for East Bay Hills for
Strawberry Canyon Vegetation Management Project
Claremont Canyon Vegetation Management Project
City of Oakland Vegetation Management Project
East Bay Regional Park District Vegetation Management Project

Dear Sir/Madam:

Please put this office on your list for sending required public notices of any and all actions regarding this EIS and these projects. Send the notices to:

Norman La Force
Law Offices of Norman La Force
802 Balra Drive
El Cerrito, CA 94530

Sincerely yours,

Norman La Force

Peter Sorcher
Mill Valley, CA
peter@sorcherfilms.com

14 September 2010

East Bay Hills – EIS
FEMA
PO Box 72391
Oakland, CA 94612

RE: Public Scoping, EIS for FEMA Hazard and Pre-Disaster Mitigation Grants in the East Bay Hills

Dear FEMA Officials:

I am writing to comment on the "public scoping" in preparation for the Environmental Impact Study for FEMA Hazard and Pre-Disaster Mitigation grants in the East Bay Hills.

I am familiar with projects like these because in Marin County, where I live, the National Park Service has been destroying non-native trees as they "restore" their properties to native plants. In the past these projects were straight-forward native plant restorations, such as the massive restoration of Redwood Creek. More recently, in order to qualify for federal stimulus funding, the Park Service is in the process of destroying hundreds of thousands of trees using "fire hazard mitigation" as the justification. Therefore, the strategy of the East Bay applicants for FEMA funding is familiar to me. **The proposed grant projects are native plant restorations masquerading as fire hazard mitigation and should not be funded because they will not reduce fire hazard; in fact, it actually makes conditions less fire safe.**

Based on our local experience with a wildfire in 2004, we observed that the eucalypts played an important role in stopping that fire; they drink much of the ground water and are waterlogged. Since the eucalypts also provide a windbreak, they can stop a wind-driven fire by blocking the wind that carries the fire. Any "native" species burned in seconds. That was our local experience in 2004.

The eucalypts perform many valuable functions in our landscape. In addition to providing a windbreak, they are a sound barrier and a visual screen between our community and the busy highway through our community.

Since we have experience with the destructive projects of the Park Service, we know the end result of these projects. The areas being cleared or drastically thinned of trees are not being replanted. Those areas are quickly occupied by grassy weeds that are far more flammable than the trees that were removed. These grassy weeds ignite more readily and the fire spreads more quickly through them. And adding insult to injury, they are an unsightly mess. The shade of the tall trees retards the growth of these grassy weeds. Both visually and from the standpoint of fire safety, the trees are the preferable landscape.

If FEMA denies these grants on the grounds that they will not reduce fire hazard, I ask that the National Park Service be informed of this decision. If federal funds for the purpose of fire hazard mitigation are not appropriately used for the East Bay projects, they should not be available in Marin Country either.

Thank you for this opportunity to comment and for your consideration.

Sincerely,

Peter Sorcher 10/16/10

1046 Erica Rd. Mill Valley, CA 94941

P. Sorcher
1046 Ethel Rd.
Mill Valley, CA.
94941

NORTH BAY CA 949
06 SEP 2010 PM 2 T

EAST BAY HILLS - EIS
FEMA
PO BOX 72391
OAKLAND, CA 94612

Dave Maloney
PO Box 475776
San Francisco, CA 94147

15 September 2010

East Bay Hills – EIS
FEMA
PO Box 72391
Oakland, CA 94612

RE: Public Scoping, EIS for FEMA Hazard and Pre-Disaster Mitigation Grants in the East Bay Hills

Dear FEMA Officials:

Before I retired from the Fire Service, I was Chief of Fire Prevention at the Oakland Army Base, Oakland, California. I was a member of the Mayors' Task Force on Emergency Preparedness and Community Restoration, which was formed to determine the causes of the Oakland-Berkeley firestorm of 1991, and make recommendations to prevent its recurrence.

Based on my professional understanding of the principles of Fire Science, my experience, my knowledge of the 1991 fire, and the results of the Task Force's investigation, I can assure you that the 1991 firestorm was not caused by non-native trees. It was caused by highly combustible material used in the construction of houses within the affected area. The Task Force's conclusions resulted in significant changes to the California State Fire and Life Safety Regulations and Building Standards.

This letter is asking you to reject the applications by the University of California, the East Bay Regional Park District, and the City of Oakland for FEMA funding of projects which claim to mitigate fire hazard in the East Bay Hills. These are land transformation projects which are clumsily disguised as fire mitigation projects. These land transformation projects are ideologically driven, and if allowed to become a reality, they will actually *increase* fire hazards in the East Bay hills. Unless these projects are substantially revised to address real fire hazards, they should not be funded.

Sincerely,

David Maloney

David Maloney

attachment

September 15, 2010

FROM:

David Maloney
PO Box 475776
San Francisco CA 94147
E mail: david.maloney@rocketmail.com

TO:

East Bay Hills – EIS
FEMA
PO Box 72391
Oakland CA 94612

Dear FEMA Officials:

I retired from the Oakland Fire Department in 1988. In 1989 I was appointed by the United States Department of the Army to be Chief of Fire Prevention at the Oakland Army Base. In 1991, I was appointed to serve on the Task Force on Emergency Preparedness and Community Restoration. This task force was formed to investigate the causes of the most destructive wildland/urban interface fire in the history of the United States; the Oakland-Berkeley Fire of 1991, and make recommendations to prevent its recurrence.

Following are my comments about the East Bay Regional Park District's Wildfire Hazard Mitigation Plan (the Plan), and EIR.

An inordinate amount of the Plan is an attempt at land transformation disguised as a wildfire hazard mitigation plan. If it is implemented it will endanger firefighters and the general public, and it will be an outrageous waste of the taxpayer's money.

The objectives of a land transformation plan are different than the objectives of a wildfire mitigation plan. The only way a land transformation plan can succeed in masquerading as a wildfire mitigation plan, is if it treats important data needed to compose a sound wildfire mitigation plan in a superficial manner, or ignores such data, or circulates misinformation.

The East Bay Regional Park District's Wildfire Hazard Mitigation Plan, and EIR do all three. They omit important Fire Science principles, disseminate misinformation about selected fuels, and ignore data that would be contrary to its aim of land transformation.

1
Maloney response to Wildfire Mitigation Plan

CLEAR CUTTING

Section IV: Fuel Treatment Methods; subsection A.2 of the Plan advocates clear cutting of trees. Not only does it advocate clear cutting with the phrase "...completely removing an overstory canopy;" it justifies this by standing fire science on its head by ignoring the significant role that tree canopies play in facilitating moisture which dampens ground fuels; and disregarding that removing an overstory canopy will severely reduce the amount of moisture in the grasses that were under the canopy, and result in these grasses becoming much more volatile.

Clear cutting is anathema to the Fire Service. Clear cutting to effect wildfire hazard mitigation violates every Fire Science principle relative to wildfire mitigation. Clear cutting dramatically increases the chance of a wildfire by eliminating the trees that produce the canopy. Clear cutting is a tool of land transformation. Therefore the Plan has a prominent self-contradiction

Fire Science has proven that every living tree - **regardless** of its species - due to its moisture content and canopy coverage of ground fuels, contributes to wildfire hazard mitigation.

"The shade and protection afforded by timber stands influence fuel type ratings due to favorable fuel moisture conditions that are created. In a dense forest, ground fuels are protected from the sun and wind. Temperatures and wind velocities are lower so that moisture does not evaporate as readily from the dead fuels situated beneath dense timber canopies." The Fire Protection Handbook, (20th edition, 2008) published by the National Fire Protection Association, Volume II, pg. 13-63.

"If too much wood was in the forests, it seemed intuitive, to some people, that cutting down tress must help the situation. Many pointed to the massive fires in the 1990's as evidence that not enough logging was going on. Yet, throughout the [20th] century large fires had followed logging." Burning Questions: America's Fight With Nature's Fire, pg. 253, by David Carle.

(It was the logging of trees, and the consequent destruction of the tree canopy on Angel Island in 1999, that caused the massive fire spread of the Angel Island Fire of 2008.)

"While fuel is a key ingredient for any blaze, and fuel accumulations can exacerbate fire intensity, most large blazes result from drought and wind – not fuels. Yet, because fuel treatments are emphasized in management prescriptions, the general public is led to believe that fuels are the driving force in large blazes and, by inference, that fuel reduction by tree thinning will prevent large fires." Wild Fire: A Century of Failed Forest Policy. Pg. xiii, part of the section entitled 'Myth: Big Fires Are the Result of Too Much Fuel.' Edited by George Wuerthner.

There is not one single fire science authority who supports clear cutting for the sake of wildfire hazard mitigation.

MOISTURE

"Fuel moisture content is overwhelmingly crucial to forest fire behavior." Fire in Forestry, Vol. I, pg. 33, Chandler, et. al.

"Two conditions of fuel moisture have major influence on the rating of fuel types. One concerns the greenness, or curing stage, of vegetation. The other relates to the shade and protection furnished by green timber." The Fire Protection Handbook, previously cited, pg. 13-63

The Plan ignores the relationship between: specific tree moisture, size of canopy protection afforded to ground fuels by copses of trees, due to the shade and windbreak these trees provide, amount of ground moisture which is created and dependent on the tree canopy above the ground, and ground moisture created by the size and type of the leaves of trees. (One of the major contributions leaves make to wildfire hazard mitigation is collecting moisture and dripping it onto the ground.)

Even though moisture is a critical element in evaluating wildfire hazard, there is no mention of use of a hygrometer to evaluate how much moisture, according to season, is present in the various sections of the EBRPD, especially those sections where clear cutting is to be used..

Additionally, there is no mention of the specific hygroscopocity, according to season, of the various species of trees within the Park, especially of those species of trees for which clear cutting is recommended.

There is no discussion, or even a mention, of the average daily, weekly, and monthly dew, dewfall and dew point in those sections of the EBRPD affected by the Plan.

The plan confuses cloud cover and precipitation with moisture. Moisture is different than cloud cover and precipitation. Cloud cover and precipitation contribute to moisture levels, but they are not the sole determinants of moisture. The Plan barely mentions the moisture content of the lands and sections of the East Bay Regional Park District. Again, it cannot be over emphasized, moisture content is the most important factor in determining wildfire risk.

The EBRPD is located in a moisture rich environment. Its location is the envy of wildfire managers across our nation. Yet, because no moisture measurements were taken on the ground with a hygrometer, there is not one chart or graph that shows the average weekly and monthly moisture content within the Park's boundaries or within specific sections of the Park, especially within those sections where it is proposed that clear cutting of trees

take place. There is not one chart that compares the amount of moisture in the holdings of the EBRPD with the moisture content of other areas in California and the United States.

Are these omissions because showing the moisture content of the EBRPD, would lead to a downsize of the Plan, thereby negatively impacting land transformation?

(It was the moisture laden air coming from the Pacific Ocean through the Golden Gate, crossing San Francisco Bay and interfacing with the Oakland Hills Fire of 1991 that lowered the temperature of the fire sufficiently to halt its spread and allow firefighters to contain it. The fire began in grasses, spread to the rooftops of houses, where it attained sufficient heat to dry out the moisture in the trees of the East Bay Hills, and then caught the trees on fire.)

PRESCRIBED BURNING

The Plan recommends prescribed burning in a cavalier manner. Prescribed burning is a very serious and dangerous undertaking. It is only to be used narrowly and judiciously. It is only to be used to effect wildfire hazard mitigation by clearing underbrush and ground fuels, and even then it is used sparingly. It is never to be used to effect land transformation by preventing trees from sprouting.

Due to the fact that so many prescribed burns have "escaped" the boundaries to which it was thought they would be confined, there is more and more momentum in the Fire Service to use prescribed burns less and less. A moratorium was put on prescribed burns after the Bandelier National Monument Fire in the year 2000. That fire was a prescribed fire that got out of control and burned 47,650 acres and destroyed 235 homes. The moratorium was lifted after new, more stringent guidelines governing prescribed burns were promulgated.

Still, prescribed burns continue to get out of control with alarming frequency. In August of 2009 the Big Meadow Fire in Yosemite began as a prescribed fire which was planned to burn 91 acres. It got out of control and burned 7,425 acres. That same month a prescribed burn in Scofield, Utah, got out of control and almost burned down 50 homes.

The Plan states in Appendix G page 5, "The California Invasive Plant Council has published a manual on the use of fire as a tool for controlling invasive plants that should be referred to for further information than that provided here."

The California Invasive Plant Council is not a fire prevention or a fire suppression organization. Its primary goal is land transformation. Why is an organization that is not a fire service organization, but primarily a land transformation organization, being used as a reference for the very dangerous undertaking of prescribed burning? Is it because the objective is not wildfire hazard mitigation, but land transformation?

Again, this Plan treats prescribed burning in a cavalier manner, which is inconsistent with safe wildfire hazard mitigation.

INVASIVE SPECIES

Sound wildfire hazard mitigation does not make a distinction between whether a species was here before or after Columbus landed in the Caribbean. Sound, effective, wildfire hazard mitigation does not determine that a plant or species is a fire hazard because of where it originated.

Such a determination is putting ideological or economic considerations ahead of the safety of firefighters and the public, and gives rise to propagandistic statements which are designed to scare the public, but which have no basis in fire science. Below are several examples of such statements from the Plan.

"Eucalyptus is well known for its long distance ember distribution, casting firebrands miles from the flaming front to ignite spot fires in grass, brush or roofs ahead of the main fires."

"The presence of volatile oils in the trees increases the speed of fire spread, total output and overall ignitability. Ignited leaves and bark are easily lofted into the air by heavy winds and increase the potential for starting new fires long distances from a fire."

"The size of leaves and bark from mature eucalyptus trees are typically large enough to ensure that the ember is still burning (versus small particles that could be extinguished in flight) when it lands. Heat output from mature eucalyptus fires is high when sufficient fuel has accumulated in the area."

To refute these statements it is worth quoting extensively from Vol. II, page 13-62 of the Fire Protection Handbook.

"Aerial Fuels: Tree Branches and Crowns. " The live needles of coniferous trees are a highly flammable fuel. Their arrangements on the tree branches allow free circulation of air. In addition, the upper branches of trees are more freely exposed to wind and sun than most ground fuels. These factors, plus the volatile oils and resins in coniferous needles, make tree branches and crowns important components in aerial fuels."

Nowhere in the twenty editions and tens of thousands of pages of the Fire Protection Handbook is there a mention of the leaves or bark of the Eucalyptus trees. The only aerial fuel singled out for mention because of its high flammability and volatility are the needles of coniferous trees. The oils and resins of Euclyptus leaves and barks are not mentioned because they are not as flammable as the oils and resins of the needles of coniferous trees.

If the leaves and bark of Eucalyptus trees were more of a fire hazard than the thousands of other species of trees that are in California it would be noted in the Fire Protection Handbook.

(Any tree, no matter what its species, that is close to ignition point, or is on fire, is going to have its sap, resins, and oils boiling.)

Again, from Vol. II, page 13-62 of the Fire Protection Handbook,

"Snags, or tree stumps, are one of the most important aerial fuels that influenced fire behavior. Although green trees greatly outnumber snags in most forests, more fires start in snags because they are drier and are arranged for easier ignition."

"Burning embers blown from shaggy-barked snags are prolific starters of spot fires."

There is no mention of any particular species of tree. The entire passage concerns dead fuels. Some people have it backwards. They want to give a high fire hazard rating to green (living) trees and cut them down, because they did not originate in California; when it has been shown over and over again that green trees, regardless of where they originated, are a bulwark against wildfire because of the moisture they contribute to the ground fuels and because they act as windbreaks.

From page 13-63 of the Fire Protection Handbook: *"As the amount of flammable materials in a given area increases. The amount of heat a fire produces also increases. The hottest fires, as well as those most difficult to control, occur in areas containing the greatest quantity of fuel."*

The statement from the Plan: "Heat output from mature Eucalyptus fires is high when sufficient fuel has accumulated in the area" is misleading and disingenuous. It strongly, and erroneously, implies that the heat from a Eucalyptus forest fire is greater than the heat from a forest fire involving other species of trees. In fact, the heat generated by a forest fire is not dependent on the species of tree involved in the fire, but on the quantity of fuel in the area of the fire.

The Fire Protection Handbook on page 13-63 of volume II addresses the issue of spot fires.

"The development of spot fires depends not only on topographic and weather factors but also on the character of the fuels in the main fire and fuels beyond the main fire. In the main fire, rotten, shaggy barked snags, such as broken-topped hemlock snags, and large quantities of ground fuels, such as heavy logging slash, are the fuels most likely to cause spot fires."

No species of living tree is singled out as being more likely to cause spot fires than ground fuels or dead fuels, because ground fuels and dead fuels are more likely to cause spot fires than living trees no matter what their species.

On page 13-64, Vol. II, of the Fire Protection Handbook is a section dealing with the characteristics of crown fires. None of the various species of Ecualyptus tree is mentioned in this section. Why not? Because any species of living tree that has had the moisture dried out of it by a fire, and then catches fire, can "throw burning embers far out ahead of the main fire.".

Table 13.5.3 on page 13-63 vol. II of the Fire Protection Handbook gives the time lag relationship to fuel size for dead fuel moisture. This table should have been used as a reference point by the authors of the Plan, and coordinated with the moisture levels of the land holdings of the EBRPD.

The fuel hazard ratings in the Plan relative to Eucalyptus trees are ideologically driven and therefore cannot be trusted.

In fact one of the Eucalyptus species mentioned, the Blue Gum, is very fire resistant.

As S.T. Michaletz and E.A. Johnson showed in their article "Heat Transfer Processes Linking Fire Behavior and Tree Mortality," the three characteristics that determine a tree's ability to withstand fire are the thickness of its bark, the height of its branches from the ground and its bark water content.

The Blue Gum has a thick bark, branches that are high from the ground, and because it evolved in the arid and fire rich climates of northern Australia and Tasmania, an astounding ability to retain moisture, which ability gives it a high bark water content.

The Plan makes no mention of the ratio of surface area to volume of a wildfire fuel. This is an important ratio in contributing to determining the flammability of a wildfire fuel.

"The third most important characteristic of a fuel particle with respect to its combustion rate is its surface/volume ratio which, for a given particle density, is directly related to particle thickness."
Fire in Forestry, vol. I, pg. 11.

"Thin fuels ignite more easily than thick fuels because they have less mass to be heated."
Fire in Forestry, Vol. I, pg.10

Grasses are thin fuels. Trees, regardless of species, are thick fuels.

RECOMMENDATION ON HOW TO IMPROVE THE PLAN:

Prepare a grid map for EBRPD land holdings. Set up a rotational schedule so that every four or five years ground crews have gone into each section and removed ground fuels

and ladder fuels. This is ecologically safe and will cost the taxpayer a fraction of what the other methods and schedules in the proposed Plan will cost.

Pay attention to the causes of wildfires as listed in the Fire Protection Handbook, Vol II. Page 13-56, table 13.5.2:

1) Arson: 25-39% of wildfires are caused by arsonists.
2) Trash Burning – 18-23%
3) Careless Smoking – 17-19%
4) Miscellaneous/unkown- 10-14%
5) Lightning- 9%
6) Machine use – 7-8%
7) Railroads- 5%
8) Campers- 3-6%

Develop programs that will specifically address and preclude fires due to the above reasons.

CONCLUSION: The Plan has serious flaws that need to be addressed and rectified. Among these flaws are erroneous explanations of fire dynamics.

These erroneous explanations lead the public to believe statements such as, "The leaves of Eucalyptus trees are oily and so are highly flammable," which simplify and reduce fire science and fire dynamics to a highly inaccurate sound bite; and apparently are designed to mislead the public, and thereby enlist public support for a fundamentally flawed wildfire hazard mitigation agenda, which, if implemented, will have major negative ecological and financial repercussions on the taxpayer.

There is nothing wrong with advocating for native plant restoration. There is nothing wrong with advocating for land transformation. There is everything wrong with trying to effect either one or both under the guise of wildfire hazard management. It injures the reputation of the fire service; endangers the firefighters, who will be called to fight the fires that will be caused by improper wildfire hazard management due to putting ideology ahead of fire science; and imperils the public.

Peter Gray Scott
architect

1047 Alvarado Road
Berkeley, California 94705
Phone or Fax 510•843•3082

John Hamill

FEMA

EBH – EIS

P.O.Box 72391

Oakland, Ca 94612

23 September 2010

Re: Vegetation Management projects

in the East Bay hills

Dear Mr. Hamill:

This addresses the EIS process that has now been required for the UCB Strawberry Canyon project, as well as the City of Oakland and East Bay Regional Parks District projects to follow.

I am disturbed that the engineering firm selected to draft the EIS is URS, the same firm that wrote UCB's Environmental Assessment (EA) as well as earlier assessments for the EBRPD. In the past URS has produced sloppy, inadequate and misleading reports; it has simply been a mouthpiece for the advocates for transforming the hills environment into a replica of circa 1830's landscape: bare grass slopes with spotted oaks, plus oaks, bays and buckeye in the draws.

The goal of FEMA-funded work should be to mitigate the risk of ignition and fire in the wildland-urban interface, with the least possible environmental damage. Clearly, the "oak savannah" does not meet that criteria. Recognize that an oak savannah is primarily flammable grass and brush, and the trees are ground-hugging fire ladders.

First, none of the proposed vegetation management projects include any plan for planting replacement trees, or proactively introducing new (safer?) grass species. It is imagined that this new growth will magically evolve once the tall tree canopy is removed – and then will be a permanent, stable environment from then on – presumptions that are clearly not true.

Second, the oak savannah is assumed to be a more fire safe environment, when no credible supporting evidence is presented. It is in fact more ignition-prone, especially in the high fire season. It contains a higher percentage of fine fuel; fire-fighters will not challenge a grass/brush fire because it travels and changes direction faster than they can – and in a Diablo wind, the flame lengths are twice those of a healthy tall tree forest. Why would one want create a landscape resembling Southern California's that burns so fiercely and frequently? Also, there is no scientific basis for the claim that native plants are more fire-resistant than non-natives.

Third, the proposed projects have not adequately addressed significant, irreparable environmental damages: habitat, climate change, air quality, erosion, long-term use of pesticides, aesthetics, etc. EBRPD actually completed an alternative vegetation management protocol in Claremont Canyon (Mid-Canyon, phase 2) that was less expensive and less environmentally damaging, but it was not considered as a viable alternative by any agencies in their proposed Plans.

I live in the Claremont Canyon. My house nearly burned in the '70 fire, and did burn in the '91 fire (my mother died). After rebuilding, I instigated the Alameda County Grand Jury investigation of the fire, spent 13 years on Oakland's CORE task force. I am currently a member of the Claremont Canyon Conservancy, on the executive board of the **Hills Conservation Network**, and am co-chair of the Vegetation Management Committee of the North Hills Community Association. **No one is more passionate in reducing the risk of ignition and fire in our hills, and the sooner the better.** I recognize FEMA is getting a lot of pressure to rush the EIS process, but because URS (not credible) is doing the EIS, **I recommend just the opposite**: hold EIS' feet to the fire! Insist on modifications to the Plan(s) until URS and the sponsoring agency substantiates their assumptions and proposes a Plan that actually reduces fire risk, and doesn't just chop down mature healthy trees.

Please let me know if you have questions or comments.

Yours truly,

Peter Scott

Peter Gray Scott, architect
1047 Alvarado Road
Berkeley, California 94705
John Hamill
FEMA
EBH - EIS
P.O. BOX 72391
OAKLAND, CA. 94612
94612+8591

North Hills
Community Association

23 September 2010

Mr. John Hamill
Federal Emergency Management Agency
EBH-EIS
P.O. Box 72391
Oakland, CA 94612

PUBLIC COMMENT on the 2010 FEMA EIS regarding the Hazardous Fire Risk Reduction Projects submitted by UC Berkeley, City of Oakland, and the East Bay Regional Park District.

The North Hills Community Association (NHCA) recommends that FEMA and the applicant agencies complete the NEPA process in the minimum time necessary to define environmental mitigations. NHCA further recommends that subsequent wildfire reduction actions proceed as soon as possible.

The NHCA recognizes there will be continuing debate about what is to be done to mitigate the known wildfire hazards close to our community. We acknowledge that the search for more effective and more environmentally benign treatments will be an on-going process.

However, the time required to develop the new FEMA EIS must be balanced with the fact that fuel load maintenance actions are being delayed once again. The NHCA strongly urges a swift EIS review to avoid continuing delays that increase the already-severe wildfire risk to lives and property.

The Board of the North Hills Community Association

David Kessler (Chair)
John Colbert
Jim Dexter
Maria Distler
Teresa Ferguson
Nancy Lane
William McClung and Peter Gray Scott, co-chairs Vegetation Management Committee
Nancy Mueller
Barry Pilger
Pam Swafford

Mr David Kessler
116 Vicente Rd
Berkeley, CA 94705-1606

OAKLAND CA 946
24 SEP 2010 PM 5 L

Mr. John Hamill
Federal Emergency Management Agency
EBH-EIS
P.O. Box 72391
Oakland, CA 94612

94612+8391

Office of Chief Counsel, Federal Emergency
Management Agency, 500 C Street, SW.,
Room 835, Washington, DC 20472–3100

September 25, 2010

Docket ID: FEMA–2010–0037
Hazardous Fire Risk Reduction, East Bay Hills, CA
AGENCY: Federal Emergency Management Agency, DHS.

This packet contains scoping comments and information submitted to FEMA by Jerry Kent as part of the Environmental Impact Statement (EIS) process for hazardous fuel reduction grant projects in the East Bay Hills. This letter and attachments are intended to be part of the public record for the EIS.

For the most part, I have limited my scoping comments to general wildfire safety issues, and to hazard mitigation topics involving eucalyptus and pine groves because tree projects have frequently generated the most passion and controversy. However, trees are not at the top of my list of priorities for reducing wildfire risks in the East Bay Hills. I would rate the following priorities at the top.

1. Requiring all homeowners in high-risk areas to make their homes more resistant to flames and burning embers, and not just for new construction.
2. Creating appropriate defensible and survivable space around homes and neighborhoods to make them more fire adapted. Unfortunately, 30 feet of defensible space still seems to be the standard in LRA areas of the hills when the state requires a minimum of 100 feet in SRA areas.
3. Significantly improving multi-agency firefighting capability, equipment, and tactics for containing one day "sprint" Diablo wind wildfires.
4. Implementing a state-of-art wildfire evacuation plan and program for the East Bay Hills.

Passion, priorities, and controversy aside, the following FEMA grant projects address a wide range of important fire hazard reduction projects for agency lands. I urge FEMA and its consultants to thoroughly review each project, base recommendations on sound science and experience, complete the EIS process with appropriate mitigation, and quickly release requested funding to allow the following projects to be completed.

PDMC-PJ-09-CA2005-011: UC Berkeley, Strawberry Canyon- 60 acres

PDMC-PJ-09-CA-2005-003: UC Berkeley, Claremont Canyon- 45 acres

PDMC-PJ-09-CA-2006-004: City of Oakland, Regional Fuel Management Project- 325 total acres made up of: (North Hills Skyline 68 acres), (Caldecott Tunnel 54 acres), (UC Berkeley 84 acres) (Tilden Grizzly 60 acres), (Sibley Island and Triangle- 42 acres), (Claremont Stonewall 17 acres)

HMGP 1731-16 EAST BAY REGIONAL PARKS DISTRICT MANAGEMENT PROJECT- 550 total acres made up of: (Sobrante Ridge 4.1 acres), (Wildcat Canyon- 65.7 acres), (Tilden Park 96.7 acres), (Claremont Canyon 21.5 acres), (Sibley Preserve 43.6 acres), (Huckleberry Preserve 17.5 acres), (Redwood Park 58.2 acres), (Leona Canyon 4.6 acres), (Anthony Chabot 222.6 acres), (Lake Chabot 32.9 acres), (Miller/Knox 22.2 acres)

ATTACHMENT K

Note:
the video included in the
Packet sent to Washington D.C. was
misdirected and arrived blank. I said a
copy would be delivered to the Oakland office
for local use.
J. Kent

Dear FEMA Representative,

I am writing you as a long term resident and hiker in the East Bay hills who is absolutely opposed to the proposed grants to UC Berkeley and the EBRPD for "hazardous mitigation assistance." I have already seen the results of previous "mitigation" projects in the Berkeley hills, and the word is clearly a euphemism for clear cutting and pesticide dumping.

A well-considered plan of fire mitigation would put the focus on clearing underbrush, and perhaps very selective thinning of trees close to structures. What UC and the EBRPD are proposing is a broad "slash and chip" operation which would be devastating to the current ecosystem. I'm talking about the disruption of wildlife habitat, the increased sedimentation of streams as the topsoil runs off the clear cut hillsides, the pesticide run-off poisoning our waters, and the *increased* fire danger from the undergrowth that will fill the stump-filled landscape, and then dry out without the canopy to shade it.

Please do not fund such folly.

Sincerely,

Anna Griffin

626 El Dorado Avenue, #1

Oakland, CA 94611

Anna Griffin
CPR and First Aid Instructor
626 El Dorado Avenue, Suite 1
Oakland, CA 94611

OAKLAND CA 946
28 SEP 2010 PM 3 T

EBH-EIS
P.O. Box 72391
Oakland, CA 94612

94612-8391

URGENT

Committee to Minimize Toxic Waste

Federal Emergency Management Agency
Region IX
Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

September 28, 2010
Mailed via USPS:
to: EBH, P.O. Box 72391
Oakland, CA 94612

Attn: Mr. Alessandro Amaglio, Environmental Compliance Officer
via FAX: (510) 627-7270
Mr. David N. Kennard, H.I.R.A. Branch Chief, Mitigation Div.
via FAX: (510) 627-7147

RE: Scoping Comments on the Hazardous Fire Risk Reduction Environmental Impact Statement (EIS) East Bay Hills, California Project.

Dear Sirs,

These comments are specifically addressing 3 of the 6 components of the above referenced project, i.e.:

1. UC Berkeley (UCB), PDM-PJ-09-CA 2005-003
2. UC Berkeley (UCB), PDM-PJ-09-CA 2005-011
3. UC Berkeley (UCB), PDM-PJ-09-CA 2006-004

We are respectfully asking that you DO NOT FUND any of the 3 grant applications submitted by UC Berkeley for the following reasons:

In the UCB 2020 Long Range Development Plan (LRDP) EIR, all these 3 areas: the Northwest Promontory, Chapparal Hill and Claremont Canyon, were designated for Faculty (Family) Housing (100 units of 2,3, and 4 bedroom housing), a Campus Retreat Center for Conference Venues and continued expansion /construction of research facilities extending outward from the Silver Space Sciences Laboratory, the Mathematical Science Research Institute, the Field Station for Behavioral Research (a controversial Hyena project) etc., all along the narrow, winding Grizzly Peak Boulevard next to Tilden Regional Park to Claremont Canyon.

It is clear that UCB is intending to use FEMA funds for clearcutting these 3 areas in anticipation for future development and expansion, which is in direct opposition to the FEMA guidelines, as is the clearcutting, which the guidelines prohibit.

Continued development on the ridges of Strawberry and Claremont Canyons only increase the fuel load and FEMA should have NO part in facilitating UCB's ill-conceived plans!

In addition, the headwater streams of both the North and South Fork of Strawberry Creek originate from the areas no. 2 and 3 (see above) of UCB's grant application. Clearcutting in these areas would create erosion, and the application of Garlon or any other herbicide must be absolutely forbidden near headwater streams!

UCB should continue the management and reduction of fire risk on their own lands with their own budgets, using goats, as has been the case in the past, eliminating tall grasses and underbrush.

All large trees should be left in place (no tree greater than 8" in diameter should be cut) so that the tree canopies can continue to prevent the growth of flammable, invasive weeds and shrubs! The spaces between large trees should be about 10 feet.

In conclusion, please DO NOT include any of the 3 UCB grant proposals in the EIS process. These funds ⟶ should be reserved in favor of other more deserving projects.

Sincerely,

Pamela Sihvola, Co-Chair
CMTW
P.O. Box 9646
Berkeley, CA 94709

PS. I am enclosing the text of a petition signed by hundreds of neighbors in 2004 fighting UCB's proposal to build 100 high-density (2, 3 and 4 bedroom) housing units in the Northwest Promontory (area 2, see above) of the current application for FEMA funds. As a result of the community opposition one section of the housing project was changed to "reserve" (for future development) and the other was changed to research (potentially for immediate development)

URGENT

SAVE SUMMIT ROAD/GRIZZLY PEAK BOULEVARD NEIGHBORHOOD FROM UC DEVELOPMENT/ENCROACHMENT

1. **STOP Further Destruction of the Upper Strawberry Creek Watershed. UC Berkeley is proposing to build 100 high-density (2,3 and 4-bedroom) housing units at the intersection of Grizzly Peak Boulevard and Centennial Drive, i.e. the cul-de-sac at the end of lower Summit Road, along Grizzly Peak Boulevard south of Centennial Drive (Site H1) and in the parking terraces across from Lawrence Hall of Science (site H2).**
2. **MAINTAIN adequate <u>firebreak</u> and <u>buffer zone</u>, ready access and egress at Grizzly Peak Boulevard and Centennial Drive, between the regional parklands, University of California property and our neighborhood – in the high-risk fire zone.**
3. **PREVENT more traffic congestion and loss of parking in our neighborhoods.**
4. **UTILIZE existing available housing, and research sites on and near campus to prevent further degradation to the community from increasing traffic gridlock, un-taxed use of city services (sewer, utilities, emergency, police and fire agencies), elimination of open space/ natural habitat.**

We, the undersigned, oppose the University of California Berkeley's 2020 Long-Range Development Plan as seriously flawed and harmful to our community safety and well being. We urge UC to work with the City of Berkeley, and its community organizations and stop further development in our neighborhoods and adopt the alternatives for expansion we have proposed in our May 24, 2004 comment letter to Jennifer Lawrence at UC's Facilities Services.

PAMELA SIHVOLA
CMTW
P.O. BOX 9646
BERKELEY, CA 94709

U.S. POSTAGE
PB10
BERKELEY, CA
94709
OCT 01 '10
AMOUNT
$0.44
00031487-10

1000 94612

FEMA / EBH-EIS
P.O. BOX 72391
OAKLAND, CA 94612

94612+6391

Dear FEMA,

I went to the first meeting and it was clear to me that those asking for money for this project are simply interested in conning FEMA for money, and are not interested in the safety of people or the environment. I believe that the well-intentioned people who support the project don't know the details of what will happen if it is implemented. (This won't be the first time than many people in good faith supported something that was the opposite of what they were told.)

This plan will not only not prevent fire danger, but will make the East Bay far more vulnerable to devastating fires.

The tall exotic Monterey pines, Eucalyptus, Acacias, etc., precipitate inches of water from the fog during the dry season -- preventing, not causing fires, and providing moisture for native animals and plants. (Go under these trees even in the summer and see how green the ground is with plants supported by the non-native trees.) One woman at the meeting said she'd seen the Nineties firestorm come right up to her home and surround her old enormous Eucalyptus, yet the tree didn't even begin to catch fire, disproving the myth of Eucalyptus' flammability.

Fires typically begin in grasslands, which is where the 1991 Firestorm started. This project will result in extensive new dry grasslands in the East Bay hills, once the 1000 acres of beautiful trees are destroyed. These grasses are also not native and are far more flammable than the trees. The erosion and resulting landslides will be catastrophic. At that point, FEMA money will REALLY be needed.

We have an established eco-system that our native animals have adapted to. Once the trees are destroyed, the already-burdened wildlife will die, from hunger and loss of habitat. I'm also not seeing any mention of the harm done to the environment from eliminating so many oxygen-producing trees, and how much carbon will be released by their corpses. Also, are they planning to chip and mulch the hills, effectively eliminating the bare ground needed by native bees? I'm not only horrified by the plan to kill 1000 acres of trees in an environment that desperately needs more trees, but also by the apparent lack of awareness of our local eco-system.

Do people not understand what the plan is or do they really not care? Everyone I've spoken with believes that only a few dead or dying trees will be eliminated, and do not know the actual plan to clear cut much of our beautiful wilderness, so close to our cities in the East Bay hills, stretching from Richmond to Castro Valley. The devastation from the heavy equipment that will be used is being ignored also.

Most people also don't even seem to know the plants involved or the local environment. They haven't seen how raptors, woodpeckers, and other birds use the dead trees for their survival. They haven't watched how young pines are growing up from the base of their dead mothers, keeping the hills green with new trees. They are also not remembering that many native trees are dying from Sudden Oak Death and that we should be grateful for having these resistant, beautiful exotic trees.

The people who are not going to monetarily benefit from this plan believe the myths and have no idea the devastation that will result. Most people don't know that large sections of our parks in the East Bay hills are almost entirely exotic trees and that their clear-cutting will leave bare, ugly hillsides with poisoned stumps, impending erosion and landslides, the wildlife left homeless, many native plants destroyed, the topsoil damaged, and the beauty gone forever. Few urban areas have such amazing wilderness. What a tragedy to mindlessly destroy it.

I've seen re-planting of native trees in parks, but have yet to see these trees doing very well. Many die, wasting more money and creating more habitat for exotic broom that people so hate.

I believe most people would object to this clear-cutting plan as well as the plan to continuously apply herbicide to the stumps of the butchered trees, if they knew the details. Eucalyptus will take an enormous amount of poison to stop its attempts to stay alive and resprout. And what about the acacias? You cut one down, and you have dozens sprouting along the ground, yards away from the original tree. They continue to try to live years after their mother tree was killed.

I do not believe any herbicide or the other petrochemicals added to it are safe. Every banned pesticide was once declared safe from studies funded by the pesticide industry. Some Bay Area counties refuse to use herbicides, while others still do, ignoring the hazards. I've seen California Newts dying horrible deaths after crawling through roadside areas sprayed with "safe" herbicides. I believe that "applying" herbicides across the hills will result in incalculable deaths of native animals, including protected species, as well as contaminating the earth, reservoirs, groundwater, streams, and bay. Some of the poison will evaporate into the air, adding to our air pollution problem. How many cases of cancer, auto-immune and other illnesses will result from the use of these poisons? I also believe this plan won't work, knowing the amazing regenerative capabilities of these magnificent trees. So the use of poison will be far more continuous than planned.

It's also being ignored that many native species have become dependent on and prefer non-native trees, shrubs, herbs, etc.

I want to ask, "Why the selective logging?" For those who want our parks and UC Berkeley lands clear-cut, I suggest they start with the expensive ornamental non-

natives that are the majority trees at the UC Botanical Gardens, Oakland Zoo, and people's private gardens and yards – which, like the hills, would leave almost no vegetation since most of the green we see are from non-natives. Why the inconsistency – why are those businesses being spared? At the East Bay Regional Park headquarters where the meeting was held, there were many introduced ornamentals.Those olive trees, Arbutus Unedo, etc, aren't going to be eliminated, so why destroy the trees on trails that many of us know personally and love? Why doesn't the plan include annihilating all the non-native trees in people's yards in the hills, or even elsewhere? Let's be fair and cut down every non-native plant, including all street trees, and the expensive landscaping at federal, state, county, and city areas, city parks, etc. Why should only the native animals suffer?

There will be many persuasive arguments for committing this irreparable environmental devastation, but please don't believe them. I've seen terrible harm already done in the name of environmentalism, such as the boardwalk constructed in the middle of the endangered clapper rail habitat at Abbott's Lagoon, Pt. Reyes, which was supposedly for the rail, but I don't see them there any longer. (The previous trail was along the edge of the habitat). "Experts" told Audubon to cut down every plant (they didn't know native from non-native) in the tiny Burrowing Owl habitat at Cesar Chavez Park in Berkeley. Those of us who had been watching the owls for years knew that was the opposite of what the owls need and want. When the owls arrived, one left immediately, while the other two stood forlornly by the stumps of their shrubs from the previous year. Weeding the water plants in the Japanese pool at the UC Botanical Gardens several years ago resulted in almost the entire year's eggs of California Newts being killed. I go to the pond every year and have never seen the numbers of newts there as there were previously. A few hours of well-intentioned work can result in permanent ecological damage.

For those in the hills who do want the trees cut, I suggest we trade houses and they live in the tree-denuded wasteland that is much of the East Bay.

For those who insist on eliminating non-native plants, I suggest we start with the humans, dogs, and cats. (Each cat is capable of killing 800 small animals a year, which is why many species of small animals are missing from neighborhoods and even the parks where cats hunt.) And why not kill all the honeybees as well since they're from Europe?

The animals, as well as the trees, are not just "things" in humans' territory. We are planning the killing of living, feeling beings. When people are often depressed from the dark and rain in winter, the gorgeous acacias bloom brilliant golden for two months. The broom with their yellow, exquisitely fragrant blossoms bloom for months during winter and spring.

Please learn who this project will actually benefit. Find out the details before it's too late.

Please know that if this "project" begins, it will be far more destructive than they have told anyone. Expect the worst.

Expect to look up into the hills and see burnt grass where we know see extensive woodlands. Recognize the trees in the parks you love and realize some parks will be completely empty of trees. Expect catastrophic fires and terrible landslides when the trees are gone. Expect damage to the waterways from the erosion.

The FEMA money is desperately needed elsewhere. Please don't waste this money by making a few people rich at the expense of the people, animals, environment, beauty of our parks. Please don't create a new environmental disaster under the guise of preventing one.

Ariel Spilsbury
415-454-6769
Ariel Spilsbury
PO Box 1199
Woodacre, Ca 94973

PUBLIC SUBMISSION

As of: October 05, 2010
Tracking No. 80b16532
Comments Due: July 12, 2010

Docket: FEMA-2010-0037
Hazardous Fire Risk Reduction, East Bay Hills, CA

Comment On: FEMA-2010-0037-0001
Environmental Impact Statements; Availability, etc.: Hazardous Fire Risk Reduction, East Bay Hills, CA

Document: FEMA-2010-0037-0002
Comment Submitted by Mary McAllister

Submitter Information

General Comment

I am writing in support of FEMA's requirement that an EIS be prepared for the four Pre-Disaster Mitigation Grants referenced in this docket in the East Bay hills of the San Francisco Bay Area. As this docket describes, these are large, destructive projects that will destroy tens of thousands of non-native trees, spray them repeatedly with toxic herbicides and cover the denuded hills in flammable wood chips. These and other methods used in this project will have a profound impact on the environment and the animals—including humans—who live in it.

More importantly, these projects are in addition to similar projects already completed and even larger projects planned in the future for which FEMA grant applications have not been applied. The cumulative impact of all of these projects will have devastating effects on the environment and its inhabitants.

I am planning to attend the scoping meetings for this EIS and hereby request that I be notified of the date, time, and place of these meetings.

Thank you for this opportunity to comment on this issue. I have asked what comment is appropriate at this stage of the process, but have not received a reply to my question. Therefore I am making my best guess about what comment is appropriate at this time. I hope this will be adequate to inform you of my support for and my interest in the EIS for these projects.

SIERRA CLUB
FOUNDED 1892

San Francisco Bay Chapter
Serving Alameda, Contra Costa, Marin and San Francisco Counties

REPLY TO:

802 Balra Drive
El Cerrito, CA 94530

Telephone: (w) 415-227-2322
(Cell) 510-295-7657 Email: n.laforce@comcast.net

September 12, 2010

Office of Chief Counsel,
Federal EmergencyManagement Agency,
500 C Street, SW., Room 835
Washington, DC 20472–3100

Docket ID: FEMA–2010–0037
Hazardous Fire Risk Reduction, East Bay Hills, CA
AGENCY: Federal Emergency Management Agency, DHS.

Dear Sir/Madam:

I represent the Sierra Club and make the following comments on behalf of the Sierra Club in regard to the Environmental Impact Statement (EIS) draft that will evaluate the environmental impacts of funding a combination of hazardous fuel reduction projects within the East Bay Hills area of Alameda and Contra Costa Counties, California.

1. We urge FEMA to discount the views of any individual or group that uses sophomoric name calling tactics in the press or in their FEMA scoping comments to categorize people or advocacy groups as "nativists" (or other similar pejorative labels) that confuse and abuse. We will be civil during this FEMA process, but will also be aggressive in protecting and expanding our local native species that make up more than 80% of the complex and varied plant communities found today in the East Bay Hills. We obviously prefer our local native species and plant communities when compared to planted groves of introduced species from Australia or Monterey that will likely be labeled as fire hazards in the FEMA EIS, just as they were in the 1995 Hills Emergency Forum Fire Hazard Mitigation Plan and the 2010 Park District Fire Plan/EIR.

2. We urge FEMA to ensure that the Environmental Impact Statement (EIS) is based on verifiable wildfire science, reliable resource protection/management science, and expert opinions in ways that will provide a sound foundation for recommended project work. We also urge that the EIS fully and carefully evaluate agency recommended projects as well as alternative fire and resource management projects to determine their effectiveness and environmental impacts. Solutions should be founded on peer reviewed science, and reliable long-term agency objectives, goals, and sound land management practices. Alternatives and recommendations for each grant should not be limited by project work that might look awful for the first 1 to 5 years, but will mature to eventually blend in with adjacent desired long-term vegetation.

3. We urge FEMA to ensure that the EIS will be based on factual wildfire history and not on revisionist "fire history" developed to support someone's personal agenda for protecting planted "exotic" trees. Descriptive reports are available for fire behavior in grassland fires of the early 1990s as well as fire behavior in planted forests and for local native vegetation during the past 80-years. Reliable information about dramatic and frightening fire behavior in hill residential areas is also available.

4. We urge FEMA to ensure that the EIS will include reasonable predictions about how fire behavior will change for project areas over the next 100-years as vegetation matures, becomes more dense and flammable, and is effected by global warming. We suspect weather extremes will have impacts on vegetation and potentially increase fire risks. The events of the 20th Century suggest that it would not be unreasonable to forecast three Diablo Wind mega-fires, seven minor Diablo Wind fires, possibly as many as 400 "normal" West or no-wind fires, four El Nino events, four extended freezes, and four drought cycles that will all impact wildland vegetation and residential areas during the 21st century.

We know that there have been four major freezes in the past century that have damaged or even killed eucalyptus trees, and that many fires have killed pine trees. In both cases, substantial seedling and sprout growth resulted to groves of increased fire hazard. The best we can say at this point is that we do not always know how native-like wildland plant communities will respond in detail to future fires, weather extremes, and climate change. However, we prefer to limit the possibilities for changes to our natively evolved regional flora and to not retain species of distant origins that will complicate the process and remain as potential high-risk fire hazards.

5. We urge FEMA to ensure that the EIS will be based on accurate and understandable fire behavior attributes for local conditions in our hills during Diablo winds. Federal agencies will be familiar with and want to use American fire behavior models that are often based on vegetation from other areas of this country. As a result, the fire attributes that we have seen for flame lengths, rates of spread, and spotting distances that were

developed with BEHAVE and FARSITE computer modeling in the 1995 HEF Plan and the 2010 Park District Plan continue to be questioned, confusing and incomprehensible when extrapolated for use in the East Bay, especially for eucalyptus. Unfortunately, there has been little research into the important factors that affect ignition and fire behavior for our unique and various plant communities, and they are thus poorly understood. Because of the lack of specific field-conducted studies that would help elucidate both the ecological and fuel-related behaviors of individual species and local communities, they are often collapsed into generic categories and assigned fuel characteristics from other species and areas. We would prefer models actually based on our local vegetation. However if that is not currently possible, we at least urge FEMA to incorporate and use the most recent Project Vesta research from Australia to develop comparative attributes for fire behavior in blue gum eucalyptus forests after applying local weather and topography inputs for the East Bay Hills.

6. We urge FEMA to ensure that the EIS fully describes and requires appropriate mitigation for protected species based on the required biological opinions and recommendations of other Federal Agencies and includes the restoration of native habitat for areas where vegetation removal occurs. We also urge FEMA to ensure that natural resource protection is given equal status with fire hazard reduction work when final projects are being developed. Baseline data layers for the study area should include the distribution of listed and important plant and animal species. It will be important to consider ecological communities along with the required focus on rare, threatened or endangered species. Ecological communities represent much greater ecosystem complexity than do individual species, and should be mapped with fire behavior attributes developed for each community.

Shrub-dominated communities

a) Wet North Coastal scrub (a.k.a. Northeast-facing scrub or North Coastal Franciscan scrub) - This community is a high priority for protection because it supports one of the highest levels of biodiversity of any shrub habitat type in the East Bay hills. The reasons for this level of diversity are complex but include structure, extent and food value (high percentage of fruit/nut bearing species).

b) Dry North Coastal scrub (a.k.a.) Southwest-facing scrub or Coyote Brush-Sagebrush scrub) - This community occurs commonly on southwest facing slopes in the study area. It is occasionally found without Coyote Brush, dominated by California Sagebrush such as on the flanks of Wildcat Peak. The fire hazard associated with this community is markedly higher than wet north coastal scrub largely due to the influence of aspect and species composition.

c) Manzanita-Chinquapin Chaparral – This "hard chaparral" is relatively uncommon in the study area and is known for the significant number of rare and protected plant species is supports, including the Alameda Manzanita (Arctostaphylos pallida). This community is fire adapted and can burn with great intensity, similar to related communities in southern California.

d) Emergent Coyote Brush scrub – This community most frequently occurs where grazing or fire have been removed from the landscape and represents general succession a grass-dominated to shrub-dominated community. It presents significant fire management challenges because of aspect, vegetation structure and the tendency to accumulate drier, flammable material as the stands mature in the absence of disturbance.

Grass-dominated communities

e) Serpentine grassland - Uncommon in the study area, this community is significant because of the high percentage of rare and protected endemic species it supports.

f) Predominantly native grassland (may contain red or Idaho Fescue, California Brome, Wild Rye, Purple Needlegrass, California Melic and California Oatgrass) – This community and elements of it occur sparingly in the study area. Isolated patches of this community that have a high percentage of native species are remnants of the coastal prairie vegetation that once dominated the east bay hills.

g) Emergent Coyote Brush grassland – This community is normally encountered where fire and grazing have been removed from grassland communities, most often non-native grasslands. This stage of development, to monocultural Coyote Brush, is a transition from earlier grazed grasslands. There is evidence, however, that it provides a nursery for emerging Live Oak-Bay Woodlands on north and east facing slopes.

Forest or Woodland communities

h) Live Oak-Bay Woodland - This community is a high priority for protection because it also supports one of, if not the highest levels of biodiversity of any forest or woodland habitat type in the East Bay hills. Importantly, this habitat type has a high resistance to wildland fire.

i) Redwood Forest – This community is encountered only in Redwood Regional Park and areas immediately adjacent and is widely regarded as the most spectacular forest type in the East Bay.

j) Willow-Riparian Forest - This and related communities are high priorities for protection because of their biological significance and low fire hazard potential. They are important as wildlife corridors. The flowing water provides habitat for a number of listed and candidate species including Steelhead Rainbow Trout, Red-legged Frog and Western Pond Turtle.

Rare Plant Associations

k) Prunus woodlands – This rare native plum (Prunus emarginata) occurs in small dense stands in a few locations within the study area. One well-known stand occurs within the Caldecott Corridor.

l) Woodland and brushland habitats containing Western leatherwood – Western leatherwood (Dirca occidentalis) is one of the best known of the rarer shrubs in the East Bay.

Non-native Communities

m) Eucalyptus Forest – This introduced forest community is highly controversial because of the extreme fire behavior it can generate and because the number of native species have adapted to it a variety of circumstances

n) Monterey/Bishop Pine Forests – This transplanted plant community occurs in dense stands and as individual specimens in several areas within the study area.

o) Predominantly non-native grasslands – These are the most common grassland communities in the East Bay. They are most often managed through livestock grazing. Non-native grasslands have largely replaced native grasslands in the East Bay, although native species can often be found within this community-type. Wildland fires occur in these grasslands more than other plant communities because of the relative ease of ignition, yet they are generally less difficult to suppress than fires occurring in heavier fuels. Many native vertebrate and invertebrate species have adapted to this community.

p) Broom - (French, Scotch, Spanish and Canary Island Broom). These introduced species escaped from freeway plantings and have been aggressively invading the native plant communities for decades. They invade and establish monocultures with exceptionally low biodiversity and high fire hazard potential. It is important to map their occurrence to facilitate removal, and to avoid spreading them through fire hazard reduction activities.

Other Landscape Features

r) Springs and Seeps - These upland wetlands often represent the only sources of water during the East Bay "Mediterranean" summer. As a result they are generally indicators of high diversity, frequently contain listed species and are highly regulated.

s) Landslides – These common features of the east bay hills are an important element of biodiversity because of the "disturbance" they provide to the environment. Their occurrence in the study area is particularly significant when they occur in proximity to urban development. Vegetation management in these areas must take into account the potential activation of landslides that may threaten dwellings. These areas may need management after slides occur due to changes of vegetation types and species, which are often weedy or fire-prone.

t) Ecotones – These are biologically significant areas that often support increased biodiversity as two or more communities intersect. Management activities in ecotones, including wildlife corridors, can have significant impacts on species movements and subsequent genetic viability. Ecotones occur throughout the study area.

u) Disturbed Areas (trails, roads, developed use areas, etc.) - These highly managed features that are significant because of they can facilitate invasion by non-native weedy and woody species, contribute to sediment and pathogen transport and are a frequent site of wildland fire ignition. Trails and fire roads are also important because they facilitate human access through the landscape for maintenance, firefighting, recreation and related activities. Grazed areas help to prevent the spread of wildland fire. Wildlife movements can be both facilitated and impeded in these areas depending on the circumstances.

v) Landscaped areas (homes, golf courses, etc) - These are also highly management areas that can serve both as fuel breaks (i.e. golf courses and appropriately landscaped homes) or important ignition sources for urban wildland fires. Residential communities next to the regional parks are one of the main drivers for fuel break development. It is also important to note that proper fire hazard management (i.e. fire hardening of structures, fire safe residential landscaping, etc.) in these areas is a critical element in protecting fire spread from these residential areas. As with disturbed areas, developed areas can both facilitate and impede wildlife movements depending on circumstances.

7. We urge FEMA to ensure that the EIS fully describes and evaluates alternative fire safety and ongoing management actions for hazardous eucalyptus and pine forests for the purpose of determining project effectiveness and environmental impacts for managing these high-risk species. A small but vocal group has been opposing thinning or conversion of eucalyptus and pine trees even when they are in unnaturally dense and flammable groves. It may be impossible to arrive at a complete public consensus, but we urge that the recommendations in the EIS are based on peer-reviewed science by qualified experts. These introduced forest communities are highly controversial because of the extreme fire behavior that can be generated, because residents value tall trees and forests, and because of the number of native species that have adapted to them.

We offer the following suggestions for consideration.

a) Agencies and private landowners should focus their efforts on removing eucalyptus and pine groves on or near the high ridges and on leeward slopes (West facing) above homes to allow these spaces to convert to native-like vegetation that is less prone to spectacular wildfire behavior.

b) Eucalyptus areas that were logged between 1972 and 1974 should be revisited to remove all 30-year old stump sprouts and seedlings that will not form good public woodlands, and to allow these areas to convert to native-like vegetation that will require little ongoing maintenance other than exotic weed control.

c) Groves that are thinned to retain mature eucalyptus trees should keep 30 to 50 trees per acre with selected native shrubs and trees preserved, and ground fuel maintained by hand at less than two tons per acre. Single-age stands do not usually make good permanent park forests because the stand will eventually reach its natural stage of decline and become a hazard that should be removed. At that time conversion to retained native- vegetation should take place.

d) When eucalyptus and pine trees are removed, the areas they occupy should be managed to convert without planting new trees and shrubs to a fire-safe native-like vegetation that blends with and expands adjacent plant communities. The type of replacement vegetation and any required maintenance depends on site conditions and the type of plant community desired.

1) When a healthy understory of oaks, bays, and associated trees are present under the eucalyptus or pine canopy, they should be saved during logging and allowed (without additional tree planting) to become the replacement tree canopy.

2) When an understory of native trees is not present (especially on ridge tops and dry slopes), grassland and shrubland plant communities should be allowed to re-establish and succeed by appropriately controlling broom, thistle, and other invasive, fuel-rich species.

3) When there is sufficient native grass cover and/or seedbank in areas to allow for establishment of good quality grasslands, these areas can be carefully restored and managed by grazing or mowing to prevent re-succession of shrublands. However, in the absence of a good quality grass seedbank, weeds will dominate the resulting "grassland" unless over-seeded with desirable replacement grassland species occurs soon after project disturbance.

e) Thinning young eucalyptus woodlands of suckers and sprouts to create a temporary managed grove is less desirable and may be untrustworthy on our steep and windy hillsides when the goal should be to convert to native vegetation. Thinning eucalyptus and waiting 30-years for native plant establishment under the canopy will allow ladder fuels to become established, and repeated costly logging projects will double environmental impacts.

f) We support efforts to keep mature eucalyptus trees in groves that can be thinned and maintained as a mature tree canopy for existing and future recreational activities, or as a historic tree grove to be retained pursuant to an agencies adopted Land Use Plan.

g) We will be particularly interested in the policies that guide when to thin and retain a grove, and when to achieve a conversion to native-like plant

communities that are appropriate to the site. As an example, for a grove with 300 trees per acre, it might be short sighted to take out 250 trees per acre to keep a grove when conversion to native vegetation could achieve multiple goals. This would be especially true for areas in parks where native vegetation should the objective.

8. We urge FEMA to ensure that the EIS addresses controversial stump treatment chemical issues in light of the experiences and capabilities of our local agencies. Considerable flexibility for choosing treatments must be allowed based on project size, agency capability, and the existence of successful, established integrated pest management policies or programs. We are not currently opposed to the careful use of Garlon as a stump treatment on eucalyptus or even broom when applied by a licensed applicator that will prevent spread into adjacent soils or waters. However, we also urge and continue to support alternative solutions that do not rely on chemicals.

9. We are very concerned about any project disturbances that will increase weed invasions and fire risks, and recommend that this issue be given full review and consideration for all recommended projects in the EIS. We also urge FEMA to ensure that the EIS will address ongoing concerns about goat grazing in project areas will that increase flammable weed invasion and damage native flora. We know that goats seem like a cheep solution at $700 per acre, but they are non-selective in their browsing and interfere with restoration of sustainable native habitat. We also do not believe that they are currently cost effective given the amount of mowing and weedeating that is now being done by agency employees or by small contractors working at reasonable cost for agencies or homeowners. On public lands, we would prefer to see more people with appropriate training and skills working on plant conversions and habitat restoration instead of paying for goats.

10. We urge FEMA to include as its guiding principles those that are found in the attached document entitled, "Managing the East Bay Hills Wildland/Urban Interface to Preserve Native Habitat and Reduce the Risk of Catastrophic Fire." The Sierra Club worked with California Native Plant Society and Golden Gate Audubon Society to develop these principles for the East Bay. The reflect solid science and analysis.

Sincerely,

Norman La Force,

Managing the East Bay Hills Wildland/Urban Interface to Preserve Native Habitat and Reduce the Risk of Catastrophic Fire

An Environmental Green Paper- March 27, 2009

Sierra Club, California Native Plant Society, Golden Gate Audubon Society

This paper has been prepared by the San Francisco Bay Chapter of the Sierra Club (Sierra Club), East Bay Chapter of the California Native Plant Society (CNPS) and the Golden Gate Audubon Society (Audubon) to document our point of view about how best to meet the twin goals of managing the urban wildland interface to enhance and preserve habitat for native plants and wildlife species while reducing the threat of catastrophic fire at the interface.

This topic is of timely importance because of the pending release of the environmental review documents being prepared by the East Bay Regional Park District, FEMA grants for vegetation management, and other agency documents that are to follow. This paper contains the major guiding principles, which are further elaborated on in the attached background paper and appendix.

It is important to note at the outset that we embrace an Integrated Fire Management (IFM) approach to this issue. An IFM approach addresses the total scope of fire hazard both from problems with the human infrastructure and those from wildland vegetation.

We apply this theme at both the landscape level as well as at individual sites, whether they are homes at the interface or public parks and open space. While the human infrastructure including roads, water supply, defensible neighborhoods, etc., is expensive to maintain or improve, only well-planned infrastructure can assure safety from catastrophic fire. Without that fundamental understanding, vegetation management projects are doomed to fail in meeting the twin goals of fire safety and conservation of native habitat.

GUIDING PRINCIPLES

Background

We recognize that there is a frightening wildfire potential each fall for some residents living in the East Bay Hills. This potential exists because of the combination of extreme weather events (Diablo winds), the pattern of residential development in the hills, the proximity of flammable homes to fire-prone vegetation, and the lack of adequate preparation to the urban infrastructure, including defensible space.

Natural wildfire in wildland areas can be viewed as an event without serious consequences to humans, but at the wildland/urban interface where man has altered natural conditions, it can lead to a disaster. There are natural cycles that are unavoidable that we must pay attention to, prepare for, and be ready to respond to appropriately and sometimes quickly. As an example, during the 21st century the East Bay Hills will not be lucky enough, even with exceptional fire fighting, to get by with zero uncontrollable wildfires and zero extremes in weather. Diablo winds in the fall months are the key environmental factor for extreme fire behavior, and it will be impossible to know the exact location, source, and timing of an ignition that will transform high winds into a raging wildfire.

During some Diablo Wind wildfires there will not be enough firefighters, fire trucks, helicopters, or aircraft to save every house or even control the fire until the winds slow. Unlike "normal" fires that can be fought, to a certain extent on the ground, Diablo Wind fires prevent the placement of firefighters on steep slopes or other hazardous locations due to the

speed of wind-driven fire. Under these circumstances, quick evacuation and homeowners insurance will be the only protection for residents who have lost property.

Recent reports compiled by firefighters and researchers in "lessons learned" from other catastrophic wildland/urban interface fires in California have shown that the most important factor in preventing homes from burning in wildland fires is hardening of structures and the creation of defensible space. Conversely, unprepared residential areas will likely not be saved during a wind-driven wildfire and will contribute to the rapid spread of wildfire into adjacent residential areas as happened during the 1991 Oakland/Berkeley Tunnel Fire.

The 1995 Hills Emergency Forum Plan did not receive full acceptance from the environmental community because it contained insufficient field collected data to support the designations of fuel characteristics of our local vegetation, did not take into account the importance of conserving native habitat, and did not include a legally required environmental document along with the Plan.

The 1995 HEF Plan recommended that public agencies and large acreage landowners create and maintain two different types of areas managed for fuel reduction in the East Bay Hills. The first are the ridgetop fuelbreaks that were begun after the freeze of 1972 by removing freeze damaged eucalyptus to achieve a 300' wide zone of managed vegetation where firefighters could attempt to stop a fire that started in wildland areas to the east, before it could race over the ridge into residential areas. The second type of management was created after the 1982 Blue Ribbon Report and the 1995 HEF Plan. The 1982 Report recommended fuelbreaks designed to provide a minimum of 100 feet of managed vegetation (including what the homeowner is required to do for defensible space) at the wildland/urban edge. The 1995 HEF Plan recommended fuelbreaks within a 500 foot study area, that in itself became controversial and confusing, designed to provide an area of managed vegetation with less than eight-foot flame lengths at the wildland/urban edge where firefighters could safely work to protect homes.

The Sierra Club, CNPS, and Audubon have not been satisfied with the Park District's approach for maintaining its fuel-managed areas. We know that fuelbreaks constitute a combined area of more than 20 miles and 500 acres, often covered by weedy species, mowed below 4" of height, or over-grazed by goats, with little concern about species or habitat values. Also several eucalyptus management, thinning, or conversion projects exist that need attention. We are concerned that the Park District's consultants and its staff have yet to articulate a clear vision about how they intend to maintain these areas while favoring and increasing the percentage of native plants over weedy, fuel-rich non-natives.

The debate about wildfire risks attributed to non-native eucalyptus trees has been a controversial topic for years. In our opinion, there is ample evidence to show that eucalyptus and pine trees in dense unmanaged groves are both a wildfire threat and an environmental dilemma that requires attention. Non-native eucalyptus and pine groves can exceed 120' in height and can be prone to dramatic fire behavior. When wind- driven wildfire reaches tree crowns, flames above 150' can be expected with burning embers blowing downwind well beyond one half mile. The capacity to spot new fires that overwhelm firefighting forces during Diablo Wind conditions means these species must receive high priority for treatment. Selected and representative quotes, articles, and reports that provide additional information and perspective about the fire hazards and the environmental dilemmas posed by eucalyptus and pine plantations in the East Bay Hills can be found in the Background to the Environmental Green Paper.

Recommendations and Solutions

In our opinion, decisions about how best to manage our east bay hill vegetation on the wildland side should be based on the twin goals of reducing the risk of catastrophic fire and maintaining the fragile native habitat found in the wildland/urban interface. To accomplish these goals, agencies should formulate well-conceived plans that integrate natural resource sciences and fire science.

All plans to reduce vegetation on the wildland side must be site specific, taking into account a range of critical variables that result in an individual profile for each site. We do not endorse generic fuel prescriptions because they do not take into account the unique threats and values of each site. In order to accomplish the twin goals of reducing the risk of catastrophic fires and of maintaining sustainable native habitat, agencies must recognize that effective management of live fuels is a subset of sound land management (and not the other way around) primarily because of the high degree of variability of living landscapes.

We urge the Hills Emergency Forum (HEF) and its member agencies to prepare updated mapping systems for the East Bay hills that identify wildland plant communities in site-specific detail as well as the type and density of vegetation intermixed with home landscapes.

Native vegetation communities, including our native woodlands, are generally below 40' in height, and are less prone to unmanageable fire behavior. These communities are comprised predominantly of plants that are native to the East Bay and form more than 80% of today's wildland vegetation in the hills. The recommended strategy for protecting residential areas from wildfire coming from native vegetation is to establish an understanding of the ecology and fire-behavior of the fuels site-specific to each individual wildland/residential edge, and then manage these edges to provide safe access for firefighters defending structures that are able to resist burning embers and to hopefully stop fire before it enters residential areas.

As each agency prepares their individual plans and environmental documents, they will be required to address the cumulative impacts of wildland fire hazard reduction projects by all agencies. This will require active cooperation and long range planning by HEF member agencies. We will reserve our final opinion about how each agency handles these matters as we review their plans and environmental documents.

Enhancing and Preserving our Natural Environment
While Reducing the Risk of Catastrophic Fire
Background to the Environmental Green Paper

This Background Paper has been prepared by the Sierra Club (Sierra Club), East Bay Chapter of the California Native Plant Society (CNPS) and the Golden Gate Audubon Society (Audubon) to document our positions on several of the issues that are important to us as we explore options for meeting the twin goals of enhancing and preserving native plants and wildlife while reducing the threat of catastrophic fire at the Wildland Urban Interface in the East Bay Hills.

This topic is of timely importance because of the pending release of the environmental review documents being prepared by the East Bay Regional Park District, FEMA grants for vegetation management, and other agency documents that are to follow.

We would have preferred working with and commenting on a single draft wildfire hazard reduction plan and environmental document for the East Bay Hills with a free exchange of ideas, concepts, and details presented to and discussed with experts and stakeholders who have been involved in these matters for the past 15-years. This would have provided for an Integrated Fire Management approach at all levels, both in content and process, and among all-important stakeholders. This was the type of process that we expected after the Park District's Temescal workshops of 2000, and is consistent with our understanding of how the Park District Plan/EIR/EIS should have been developed. With that understanding, we supported Measure CC in 2004 including the $10 million for District projects and a joint fire hazard mitigation plan that was to involve Hills Emergency Forum (HEF) agencies.

Thus, we were disappointed that the HEF decided three years ago that each agency should proceed with individual plans and environmental documents. The East Bay Municipal Utility District and the University of California had already completed their Land Use Master Plans, with Berkeley, Kensington, and El Cerrito not contemplating plans for their residential areas. The next to emerge will be the Park District's Plan/EIR that has been under development during the past two years. The consultant's draft Plan is currently being reviewed by Park District staff that will recommend several changes in the draft, followed by a public review document that is nearing completion. We also understand that Oakland intends to prepare its plan and environmental document following completion of the Park District Plan/EIR.

In our opinion, staff and consultants have developed the Draft Park District Plan in relative isolation instead of taking more time to "get specific" with recognized experts and stakeholders. True, there were four informational meetings at the Trudeau Center with consultant and staff presentations, and time for public comment. However, the District's Plan/EIR process to date, has offered little detail, so it's anyone's guess about what will be in the draft documents soon to be released for public review. We have seen very little in the way of detailed resource information, and have not been informed about which federal agency the District will use to obtain required biological opinions necessary to make its Plan/EIR complete. In the event the draft, which we have not seen, requires substantial changes or additions, we support the use of additional Measure CC funds, District funds, or use of grant funds to complete a Plan/EIR document that will be useful and supported by the environmental community and other stakeholders.

In the meantime, the District has proceeded with fuels management based on very little oversight by its own stewardship department and with a FEMA EA that covered only

federally listed plant and animal species. The result has been fuels management executed without the benefit of clearly derived policy.

Meanwhile the actual vegetation management projects taking place in some areas have been fraught with controversy. We also are aware that three Federal Emergency Management Agency (FEMA) competitive grants have been awarded to the University (Strawberry and Claremont Canyons), to the City of Oakland (Frowning Ridge), and to the Park District (East Bay Hills Area) for fire hazard reduction projects. These grants will require three different project level FEMA Environmental Assessments. As with EBRPD, one of the consequences of this kind of haphazard approach has been the creation of de facto policy on the part of UC, the City of Oakland, and various stewardship groups in terms of on-the-ground management of vegetation. These policies have not had the benefit of public, scientific vetting and in some cases have now found their way into federal policy. Without proper vetting, these activities have resulted in mixed results.

It is important to note at the outset that an Integrated Fire Management approach means that the total scope of fire hazard (both from human infrastructure and from vegetation) will be considered as a first step, both in the wide scope of the East Bay Hills Wildland Urban Interface and in individual sites that are identified for some form of action. While vegetation management is surely an important part of the total picture, it must not be the tail that wags the dog as it has been in the past, particularly after the '91 fire. While the human infrastructure including roads, water supply, defensible neighborhoods, etc., is expensive to maintain or improve, only well-planned infrastructure can assure safety from catastrophic fire. The National Firewise Communities program has made that clear. By its very nature, the living landscape involves far more variability and therefore attempting to manage it means a certain lack of predictability. Without that fundamental understanding, vegetation management projects are doomed to fail in meeting the twin goals of fire safety and conservation of native habitat.

It is clear to us that the approach taken by HEF agencies will result in duplication of effort as well as an understandable level of confusion as agencies work through fire hazard and resource management plans that address their unique situations. However, in the spirit of moving forward, we offer the following guiding principles for consideration by agencies and others interested in these issues.

GUIDING PRINCIPLES

1. **We recognize that there is a frightening wildfire potential each fall for some residents living in the East Bay Hills.** Our local wildfire history suggests that there are different levels of risk faced by hill residents depending on their location. Of the approximately 30,000 homes in the hills, the actual number of homes that have been lost or families personally threatened by a wildfire has been relatively small. However, agencies and residents should not be apathetic because wildland/urban interface wildfires are becoming all to common during the past two decades, and global warming with its extremes of weather will make this century even more risky.

    a) Too many homes were lost during the Berkeley Fire of 1923, the Fish Ranch Road Fire of 1970, and the Oakland/Berkeley Tunnel Fire of 1991. These three Diablo Wind Fires destroyed homes, took lives, and caused substantial property and economic damage, and played a role in massive weed invasion of East Bay Hill native habitat. Seven other Diablo Wind Fires and many West Wind Fires have also occurred in the past along the 30-mile hill corridor without significant property loss, many before residential developments were fully extended into the hills. The

above three Diablo Wind mega-fires destroyed a total of 3,600 homes during less than seven hours of rapid expansion for each fire. Wind driven fires can be impossible to control at the fire head, leaving firefighters to only work on a fires flanks until the winds slow. The 1991 fire destroyed 700 homes in one hour, a total of 3,000 homes in seven hours, and 26 lives were lost, mostly during the first hour of the fire.

b) Predictions about what might happen in the way of wildfire, weather extremes, and climate change during the 21st century should be part of the public discussions leading to agency planning processes that will ensure appropriate preparation for wildfire and appropriate planning for wise management of natural resources. As an example, during this century the East Bay Hills will not be lucky enough to get by with zero mega-fires and zero extremes in weather. Diablo Winds in the fall months are the key environmental factor, and it will be impossible to know the exact location and timing of an ignition that will transform high winds into a frightening wildfire. The events of the 20th Century suggest that it would not be unreasonable to forecast something like three Diablo Wind mega-fires, seven "normal" Diablo Wind fires, possibly as many as 150 "normal" West Wind fires, four El Nino events, four extended freezes, and four drought cycles that will all impact wildland vegetation and residential areas during the 21st century. Agency and homeowner preparation or lack of preparation will be directly related to the amount and extent of damage that these events can cause.

2. **Natural wildfire in wildland areas can be viewed as an event without serious consequences to humans, but at the wildland/urban interface where man has altered natural conditions, it can lead to a disaster.** When wildfire is in control, all involved vegetation and residential areas that lie in its path can be taken back to an earlier stage, to start all over again. Wildfires are different in scope and impact than controlled burns, but their potential for weed invasion can be the same. Given the level of weed invasion that is directly related to disturbance–whether it's fire or vegetation removal–, it is unlikely that native vegetation will re-set to "an earlier stage." Rather, we are likely to see an increase in weed invasion and a disruption of our East Bay Hill native habitat unless appropriate steps are taken to control invasive weeds.

In the hills, wind driven wildfire will not distinguish between vegetation and unprepared residential structures. Virtually all development in the East Bay Hills occurred during a 100-year period when agencies and homeowners did not understand or respect the potential wildfire danger created by Diablo Winds. The patterns of residential development combined with the hills unique natural features have increased the potential for home loss during wind driven wildfire.

a) Roads are on steep hillsides, narrow, and usually congested.

b) Homes are in dense residential areas, mostly constructed of wood, and often surrounded by other potentially flammable homes and vegetation.

c) Homes are on steep hillsides with limited access for fire fighters.

d) Public agencies and large acreage landowners have allowed non-native vegetation to develop "unnaturally" with little maintenance, and with increasing levels of flammability.

e) Above ground power lines are common in the hills and water supply for firefighting is less than desirable.

These are all recognized aspects of unsophisticated residential development in the hills, in comparison with today's standards. Public officials and fire safety activists, all to often, want to focus on fixing the "vegetation problem" without fixing the "residential problem". Both need short and long term attention and fixing.

3. **During some Diablo Wind wildfires there will not be enough firefighters, fire trucks, helicopters, or aircraft to save every house or even control the fire until the winds slow. Unlike "normal" fires that can be fought, to a certain extent on the ground, Diablo Wind fires prevent the placement of firefighters on steep slopes or other hazardous locations due to the speed of wind-driven fire.** Under these circumstances, quick evacuation and homeowners insurance will be the only protection for residents who have lost property.

   a) We believe that cities and area fire departments must develop more reliable fire-fighting strategies for combating Diablo Wind wildfire with more attention paid to identifying and expanding predetermined areas in both wildland and residential areas where wildfire might be stopped.

   b) Cities through their police departments must develop neighborhood evacuation plans, known to all residents and agencies, that recognize the potential for rapid spread of wildfire moving through hill residential areas with narrow and congested streets.

   c) Insurance is also necessary and critical for homeowners choosing to live in high-risk settings; however, having insurance should not be a reason for not appreciating and preparing for the actual risks being faced.

It is surprising to hear some resident's say they like the hills and their homes just the way they are, and that they accept the risk of wildfires. This sentiment is not usually shared by most, but remains one of the more important concerns if it threatens future stability of fire hazard reduction efforts. If true and persuasive, further efforts in wildland vegetation management may not be supported during tough economic times, and less substantial efforts will result in marginal wildfire risk reduction benefit. If the status quo condition for the hills were followed, future fire losses for both large and small wildfires would be a matter for insurance coverage if it can be obtained.

Fortunately, residents have recently voted to support two significant measures that will improve their fire safety. Oakland's Wildfire Prevention District and the Park District's Measure CC have provided funding to address fire risks by two of the largest landowning public agencies in the hills. **During these funding measures, the Sierra Club, CNPS and Audubon have supported strategic vegetation management programs in our neighborhoods, regional, and local parklands that reduce wildfire risks while conserving, recovering, and sustaining native habitats.**

4. **Recent reports compiled by firefighters and researchers in "lessons learned" from other catastrophic wildland/urban interface fires in California have shown that the most important factor in preventing homes from burning in wildland fires is hardening of structures and the creation of defensible space. We concur that the best way to protect homes from wildfire is for cities to make sure that all homes and all structures have 100' of defensible space, and that homes can resist**

burning embers. We strongly encourage and support programs by agencies and homeowners on local and private lands that will protect homes from wildfire. The recently revised State Standards for defensible space and home construction can be relatively easy to inspect and achieve in rural areas, but not so easy in our densely occupied hill residential areas. Cities should determine how best to apply these standards for both individual homes and groups of homes, especially at the wildland/urban interface where property ownership is complex.

Too often, homes are permitted and constructed within 15' or less of the property line without enough space to comply with the intent of state law that homeowners should create and maintain their own defensible space. Cities must continue to ramp up their inspections to get compliance and continue their inspections even in times of economic difficulty.

Further, building codes must be updated to cover the construction and maintenance of fire safe structures that can resist burning embers. Waiting 50 years for remodels to bring new codes into force is unacceptable. Unprepared residential areas will likely not be saved during a wind-driven wildfire, and will contribute to the rapid spread of wildfire into adjacent residential areas.

As a very important matter of public policy, cities and counties should make sure that homes and other structures are not built within an indefensible distance from public-park and open space without appropriate mitigation, nor from the open space borders of other public lands. Cities should also prioritize for inspection and compliance those structures already located within an indefensible distance from public parklands. Public agencies should not have to use their limited funds and staff resources to create and maintain defensible space for new homes constructed too close to park boundaries or other public lands.

5. **In our opinion, decisions about how best to manage our east bay hill vegetation should be based on the twin goals of reducing the risk of catastrophic fire and maintaining the fragile native habitat found in the wildland/urban interface. To accomplish these goals agencies should formulate well-conceived plans that integrate natural resource sciences and fire science.** Very little of today's East Bay Hill wildland vegetation is truly pristine because of the dramatic landscape changes that have occurred during the past 200 years. Returning to the vegetation of 1800 or 1900 is not realistic or even remotely possible with today's population of 2.5 million east bay residents and the extensive hill residential areas that were developed during the past 100 years.

Existing native plants and habitat are the result of the unique and complex history of plant species and habitat evolution in this geographical area. Most of today's East Bay Hill public land vegetation (by counting numbers of species represented in that vegetation) is composed of "truly native" species. However, most of the plant communities, in their current locations and size, are relatively young and will continue to change. As change occurs, we believe that today's natively-evolved local species and their tendencies to aggregate into recognized "native habitats" can persist very well if allowed and assisted by dedicated land managers. These persistent, recognized habitats will indeed not remain static, and will go through stages of succession, development and rebirth during the next 200 years.

We know that "exotic" vegetation in the hills has experienced four major freezes that have killed or damaged eucalyptus trees, and that many fires have killed pine trees.

Since the spread of both blue-gum eucalyptus and Monterey pines is assisted by fire, the presence of these trees pose a growing threat. We also know that global warming will result in further extremes in weather that will make the 21st century even more risky. The best we can say at this point is that we do not really know how native-like wildland plant communities will respond in detail to future climate change. However, we prefer to limit the possibilities to changes brought about by our natively evolved regional flora, and to not intermix or include species of distant exotic origins that will complicate the process and remain as potential fire hazards.

6. **Any and all fuels management plans must be site specific, not simply vegetation and fire risk specific. In order to accomplish the twin goals of reducing the risk of catastrophic fires and of maintaining sustainable native habitat, agencies must recognize that effective management of live fuels is a subset of sound land management (and not the other way around) primarily because of the high degree of variability of living landscapes. Each site is unique and is constantly undergoing multiple processes of change and evolution. Agency plans must be based on sound environmental concepts and not just the developing science of wildfire behavior in wildland/urban interface settings.** This is the issue that caused us the most concern during the discussions following the 1995 HEF plan. We are not so sure about how much useful fire science there is that will really apply to our unique wildland/urban setting since to date very little science has been based on field collected data. Instead, there has been heavy reliance on modeling which is subject to error based on sometimes-incorrect assumptions.

   We suspect that the Plan will be based on a combination of relevant local and statewide experiences with wildland/urban fire, and with some adapted fire science. However, we doubt that it will take into account detailed field-collected data on the unique characteristics of our local vegetation types. The application of sound environmental concepts will be especially important for any vegetation management program undertaken by the Regional Park District where informed knowledge about the environment must guide what it can and should do to reduce fire risks.

   Since 1995 we have consistently urged the Park District to seek solutions that will be effective with minimum impacts on the park environment in managed areas that are designed to sustain native habitat. We have also urged that a comprehensive Resource Management and Fire Hazard Reduction Plan be prepared, along with its legally required environmental document.

7. **We urge the HEF and its member agencies to prepare updated mapping systems for the East Bay hills that identifies wildland plant communities as well as the type and density of vegetation intermixed with home landscapes.** Since vegetation is a key factor in wildfire behavior, we should have accurate information about the type of vegetation that exists in both wildland and residential areas. We do not currently have a good mapping system with data on the fire-prone vegetation that is intermixed with home landscapes. If we are expected to reduce the risks associated with wildland vegetation, we should definitely be reducing the risks of vegetation to be found in residential areas.

   The 1995 HEF Plan is the only mapping system (other than the Park District vegetation maps of 2006 that only cover Regional Parks) available today that attempted to describe the type of wildland vegetation found throughout the 18,500 acres of undeveloped property in the Oakland/Berkeley hills (the 1995 acreage numbers do not include wildland vegetation in Kensington to Richmond residential areas or Wildcat Canyon Regional Park). The Behave computer wildfire modeling of the 18,500 acres of wildland

vegetation predicted that 43% would burn with flame lengths of 8' or less that could theoretically be fought and controlled by firefighters on the ground. The other 57% of wildland vegetation would burn with flame lengths between 9' and 60', with fire fighters unable to control wind driven wildfires in these areas until the winds abate. Polygons were developed for each plant community, and the summary acreage of each type of plant community is organized in this paper as follows:

Acres	Native-like Plant Communities (mostly natives by species count)
4,100	Oak/Bay Forest- Mixed
3,847	Grassland (mostly areas that are grazed)
3,309	Dry North Coastal Shrubland
1,418	Redwood Forest
918	Successional Shrubland
855	Oak/Bay Woodland- Mixed
332	Wet North Coastal Shrubland
79	Chaparral- Mixed
71	Riparian Forest
10	Oak Savannah
14,940	Subtotal (81% of wildland vegetation)

Acres	Non-Native Plant Communities (dominated by trees with few species)
1,379	Eucalyptus- 20-year old stump sprouts (now 30-years old)
859	Pine Forest- Mature
836	Eucalyptus Woodland- Mature
233	Pine/Eucalyptus Mature, Mix
222	Eucalyptus- 5-year old seedlings (now 15-years old)
47	Pine Forest- Plantation
6	Acacia
6	Cypress
1	Other
3,590	Subtotal (19% of wildland vegetation)

This initial attempt to map and classify vegetation in the East Bay Hills has proved to be inadequate for the task because it did not accurately describe our diverse local vegetation types in site-specific detail, as well as for their individual and community fuel characteristics. There are newer mapping and classification protocols developed by the State Vegetation Program of the California Native Plant Society and adopted by the National Park Service and other government agencies that can be utilized to map and describe the vegetation in these areas accurately.

However, this is only one of several important factors to be taken into account when developing a management strategy for any given polygon. Location within a watershed, slope, aspect, wind mapping (under "normal" and Diablo conditions), live fuel moisture field sampling, description of understory (not only of woodlands but of shrublands as well), soil type, soil moisture, utilization by wildlife, type and degree of weed invasion, and proximity to structures. These are the important factors that go into understanding how best to manage a given area.

We are aware that the Park District's mapping project for Hill parks between Lake Chabot and Wildcat Canyon (and all Measure CC Parks) was finished in 2006, and that fire modeling has been completed for these parks. We will be particularly interested in reviewing the data, mapping results, assumptions used, and the fire attributes for park vegetation. We understand that the District's 13,818 acres of hill park vegetation have

been grouped into the following park plant communities, and we have organized these groups into two major classes as follows:

Acres	Native-like Plant Communities (mostly natives by species count)
3,675	Oak/Bay Woodland
2,439	Woodland Succession
1,688	Grassland (mostly areas that are grazed)
1,505	Shrubland
1,022	Shrub Succession
474	Redwood
110	Willow
30	Riparian/Wetland
11,034	Subtotal (80% of park vegetation)

Acres	Non-Native Plant Communities (dominated by trees with few species)
1,862	Eucalyptus
363	Developed Park Areas and Turf
341	Pine
30	Mowed Annual Grass
5	Acacia
2,784	Subtotal (20% of park vegetation)

It appears that the fuels management done by the HEF agencies and EBRPD to date has been conducted in accordance with the old Behave (flammap) fuel models that are untested at the wildland/urban interface. If so, it has driven management decisions in ways that cannot support the goals of either achieving safer fuel loads or maintaining native habitat. If the old classification of maintaining an 8-foot flame length in all vegetation is adhered to, very little but mowed or grazed annual grassland can qualify as "safe" to maintain. The empirical result of following that prescription has often meant that the type conversion of native shrublands, such as Baccharis-dominated north coastal scrub, has created their replacement with fuel-rich French broom and light flashy fuels such as thistle, which also have poor habitat value.

On the other hand, field-collected data, including sampling for live fuel moisture, might indicate that, in some instances it's wiser to leave vegetation in place rather than to remove it. One example would be to contemplate leaving Baccharis, which contains relatively high levels of moisture, in some sites where it acts as a green sponge, holding moisture within the plant as well as within the soil.

It is critical that if fuel modeling is to be used, it contain accurate inputs from our local vegetation under differing conditions. We do not know what the current models are that are being used to inform the conclusions of the EIR or what information is being used as input to the models.

8. **The 1995 HEF Plan did not receive full acceptance from the environmental community because it contained insufficient field collected data to support the designations of fuel characteristics of our local vegetation, did not take into account the importance of conserving native habitat, and did not include an environmental impact report as required by state law.** However, the 1995 HEF Plan identified the specific wildfire threats faced by homeowners in the hills, and recommended a mitigation program for agencies and private property owners based on the following concepts.

a) The Plan recommended that homeowners fully comply with state law that currently requires a minimum of 100 feet of defensible space surrounding structures, and that all homes in high risk areas should be constructed or renovated and maintained to resist burning embers.

b) The Plan recommended that public agencies continue maintenance of ridgetop fuelbreaks, and create a new type of managed area at the residential edge, that will involve both public and private lands. The width for residential edge buffer zones has been a topic of ongoing controversy for the past 15 years. Currently, most research suggest that a maintained zone of vegetation 100' to 200' from structures (including homeowner defensible space) is appropriate, depending on slope, type of vegetation, and site conditions. These maintained areas will not necessarily stop all wildfires, but will be essential for providing safe locations for firefighters defending homes at the wildland/urban interface.

c) The Plan recommended that public agencies and large acreage land owners manage or convert their eucalyptus and pine groves to reduce the chance of burning embers being blown into residential areas.

9. **The 1995 HEF Plan recommended that public agencies and large acreage landowners create and maintain two different types of areas managed for fuel reduction in the East Bay Hills.** The first are the ridgetop fuelbreaks that were begun after the freeze of 1972. These fuelbreaks were created along the west boundary of regional parks with some sections along Skyline and Grizzly Peak Boulevards on city or other agency lands. Ridgetop fuelbreaks were created by removing freeze damaged eucalyptus to achieve a 300' wide zone of managed vegetation where firefighters could attempt to stop a fire that started in wildland areas to the east, before it could race over the ridge into residential areas. Public agencies that currently manage ridgetop breaks are now creating even wider resource management areas that are intended to look "natural on the ridge" without strict adherence to width criteria, usually with a roadway as the primary anchor line.

   The second type of management was created after the 1982 Blue Ribbon Report and the 1995 HEF Plan. The 1982 Report recommended fuelbreaks designed to provide a minimum of 100 feet of managed vegetation (including what the homeowner is required to do for defensible space) at the wildland/urban edge. The 1995 HEF Plan recommended fuelbreaks within a 500 foot study area, that in itself became controversial and confusing, designed to provide an area of managed vegetation with less than eight-foot flame lengths at the wildland/urban edge where firefighters could safely work to protect homes.

   While there is no mystery about the reason for reducing live fuels when residential areas are located at the edge of large public parks or other areas of dense natural-like vegetation, there is as yet no clear understanding of what management should be on specific sites since prescriptions have been generic or non-existing. Nonetheless, most park agencies are using some form of vegetation management on public lands at their residential edge to reduce the chance of wildfire moving from public lands into residential areas.

10. **The Sierra Club, CNPS, and Audubon have not been satisfied with the Park District's approach for maintaining its fuel-managed areas. We know that fuelbreaks constitute a combined area of more than 20 miles and 500 acres, often covered by weedy species, mowed below 4" of height, or over-grazed by goats.**

Also several eucalyptus management, thinning, or conversion projects exist that need attention. We are concerned that the Park District's consultants and its staff have yet to articulate a clear vision about how they intend to maintain this interface while favoring and increasing the percentage of native plants over weedy, fuel-rich non-natives. This topic will be a subject for further comment and focus by our members and experts during agency Plan/EIR processes.

From the Park District's perspective, focusing vegetation management efforts in the immediate area adjacent to homes means that larger areas of native-like park vegetation can remain unaffected. Most of the required District fuelbreaks are already in place with missing sections to be identified in the Plan/EIR. However, because very little attention has been paid to maintaining healthy native habitat, these sections will need to be reviewed for site-specific sustainable practices as part of the vegetation management plan.

a) New fuelbreaks recommended for park grassland areas are either currently grazed or are on sites where brush succession has yet to occur. Continued grazing or mowing should be sufficient to maintain relatively narrow areas of grassland as fuelbreaks. Maintenance to reduce exotics and to increase native flora that will be sustainable should be the prime objective, so close attention must be paid when using goats or personnel unfamiliar with both exotic and native vegetation.

b) Shrublands are another matter requiring intensive management of wider fuelbreak widths when shrub species are retained because of their potential flame heights and rate of spread. Prescriptions usually call for shrub "islands" with about 30% of shrub cover (with retained shrubs pruned at four feet in height and cleared of flammable wood debris), with 70% open areas that are usually mowed. An alternative option for existing shrubland areas is to convert to a narrower fuelbreak width of grassland with regular mowing in the spring and summer.

c) Oak/bay woodlands are a relatively fire-safe plant community, with periodic clearing of ladder fuels being the only maintenance near homes.

d) In areas of non-native vegetation, conversion to the adjacent native-like plant community can be the best solution with over seeding of local ecotypes of native grasses and associated flora when soils are disturbed or left bare during conversion.

e) However, many of the District's earlier fuelbreaks involved a more destructive conversion during logging of eucalyptus and pine groves in the 1970s, followed by 30-years of mowing or goat grazing resulting in weed problems and broom invasion. These areas will require a different approach to re-establish natives, and a maintenance program that will pay attention to the removal of weedy plants and to increase the overall percentage of natives.

11. **Non-native eucalyptus and pine groves can exceed 120' in height and can be prone to dramatic fire behavior. When wind drive wildfire reaches their crown, flames above 150' can be expected with burning embers blowing downwind well beyond one half mile. The capacity to spot new fires that overwhelm firefighting forces during Diablo Wind conditions means these species must receive high priority for treatment.** Non-native plant communities in the hills are today's remnants of the tree planting efforts of two Oakland businessmen who forested the hills for future

residential development and for hardwood lumber production. Frank Havens and Borax Smith formed the Realty Syndicate in 1895 to sell lots and homes to new residents who would also buy tickets to ride their trains. They launched a massive tree-planting program to beautify their 13,000 acres of hill land, and a few years later Havens formed the Mahogany Eucalyptus and Land Company to plant gigantic plantations of blue gum eucalyptus on his privately owned water company lands to meet the state's growing demand for hardwood lumber. Both enterprises could not be repeated today, but have created increasingly significant environmental impacts that residents and agencies must now address that will be increasingly expensive in the future.

We have used "non-native" as the appropriate term for describing Havens bluegum (and redgum) eucalyptus trees from the Island of Tasmania Australia, and for describing pines and cypress from the coastal regions of central California. It is not only the "appropriate term" to use, but it carries broadly significant meaning in terms of the impacts these non-native species created and continue to present to the locally-evolved native biodiversity. It is not sufficient to consider these several non-native species as isolated occupants of the land. They each have large contextual, negative impacts that must be factored into any equation regarding protection and preservation of native resources in areas of locally diminished open space acreage.

Non-native eucalyptus and pine are some of the most dense and flammable plant communities in the hills. Un-maintained eucalyptus groves can have 400 to 900 trees per acre with fuel ladders into the canopy and 30 to 100 tons of flammable fuel on the ground. Wind driven wildfire in these groves can be expected to produce flame lengths and ember throws that will quickly overcome firefighters and significantly reduce evacuation time for homeowners.

Unmaintained pine groves are also extremely flammable with deep needle duff on the ground and dense pine seedling growth within and around the grove. The presence of Monterey pines intermixed with native coastal scrub also provides a source of tinder that contributes to crown fires since the needle duff can be ignited by embers and can burn off the live fuel moistures of species like Baccharis.

The recommended strategy for eucalyptus and pine groves is to manage or remove trees and groves that are close to residential areas that could throw burning embers long distances (including over fuelbreaks, natural barriers, and manmade barriers) into residential areas.

12. **Native-like vegetation and our native woodlands are generally below 40' in height, and are less prone to unmanageable fire behavior. Native-like plant communities form 81% of today's wildland vegetation in the hills comprised of mostly plants that are truly native to the East Bay.** The recommended strategy for protecting residential areas from wildfire coming from native-like vegetation is to establish an understanding of the ecology and fire-behavior of the live fuels site-specific to each individual wildland/residential edge, and then manage these edges to provide safe access for firefighters defending structures to hopefully stop fire before it enters residential areas.

Most areas offer a range of small to large acreage (sometimes in a mosaic and sometimes as a single type community) of grassland, shrubland, oak/bay woodland, or redwood forest. These plant communities are rather young, achieving their current location, size, and form as a result of both human impacts and plant succession over the past 200-years. Photos at the turn of the 20th century show the hills dominated by

grasslands (many of which were maintained by cattle grazing) with smaller areas of shrubs, oaks, redwoods, and riparian vegetation.

Recent research involving the analysis of phytoliths concluded that the historic plant community for well over 1000 years was baccharis-dominated coastal scrub. Thus, the jury is still out in terms of extent and distribution of the true historical vegetation types.

The density and distribution of today's native-like plant communities in the hills are unique to the 20th century and provide excellent habitat for wildlife and other species that make up today's diverse ecosystems. At many locations there are also endemic animals, birds, or plants that have legal standing. These listed species require individual monitoring, protection, and careful management.

Each native-like plant community behaves differently in wind-driven fire. Grassland fires are flashy and move quickly, but are relatively controllable. However, they provide a faster means of ignition and spread of fire into other vegetation, particularly upslope. Shrubland fires can also move quickly and some shrubs can produce flame lengths above 30 feet and, once ignited, are more difficult to control. Unfortunately, there has been little research into the important factors that affect ignition in the unique and various East Bay Hill shrub communities and they are thus far poorly understood. Because of the lack of specific field-conducted studies that would help elucidate both the ecological and fuel-related behaviors of individual species and shrub communities, they have been collapsed into the generic category of "brush," assigned fuel characteristics from other more fire-prone species, and been targeted for aggressive fuels management. Fire in native woodlands produces lower flame lengths but can also crown and produce burning embers under extreme conditions.

13. **The debate about wildfire risks attributed to non-native eucalyptus trees has been a controversial topic for years. In our opinion, there is ample evidence to show that eucalyptus and pine trees, in dense unmanaged groves, are both a wildfire threat and an environmental dilemma that requires attention.** Individuals who love eucalyptus trees aggressively defend the tree, arguing that it has been naturalized to this area, it provides habitat for wildlife, and it is not an unusual fire threat. Narratives about both the threat and the environmental dilemma can be found in the statements, articles, papers and reports contained in Appendix A.

14. **We are most concerned with the process by which decisions will be made about the most flammable and potentially controversial plant communities in today's parklands. We don't endorse generic options but favor site-specific analysis that is grounded in the best possible science. In practice, that means that any one given eucalyptus or pine grove will be managed for its unique characteristics to achieve fire safety, conversion to native plant habitat, or made safe for public use.** However, the threat factor is now relatively clear and can't be denied.

15. **The subject of eucalyptus and pine grove management remains controversial among people of good will. In the interim, the Sierra Club, CNPS, and Audubon offer the following statements for consideration when reviewing agency plans and environmental documents.**

    a) Agencies and private landowners should focus their efforts on removing eucalyptus and pine groves on or near the high ridges and on leeward slopes (West facing) above homes to allow these spaces to convert to native-like vegetation that is less prone to spectacular wildfire behavior.

b) Eucalyptus areas that were logged between 1972 and 1974 should be revisited to remove all 30-year old stump sprouts and seedlings that will not form good park woodlands, and to allow these areas to convert to native-like vegetation.

c) Groves that are thinned to retain mature eucalyptus trees should keep 30 to 50 trees per acre with shrubs removed and ground fuel maintained at less than two tons per acre. However, everyone should understand that single-age stands do not usually make good permanent park forests because the stand will eventually reach its natural stage of decline and become a hazard that should be removed. At that time conversion to native-like vegetation should take place.

d) When eucalyptus and pine trees are removed, the areas they occupy should be managed to convert without planting new trees and shrubs to a fire-safe native-like vegetation that blends with and expands adjacent plant communities. The type of replacement vegetation and any required maintenance depends on site conditions and the type of plant community desired.

When a healthy understory of oaks, bays, and associated trees are present under the eucalyptus or pine canopy, they should be saved during logging and allowed (without additional tree planting) to become the replacement tree canopy.

When an understory of native trees is not present (especially on ridge tops and dry slopes), grassland and shrubland plant communities should be allowed to re-establish and succeed by appropriately controlling broom, thistle, and other invasive, fuel-rich species. Native shrubland will sometimes reestablish after the eucalyptus canopy is gone if invasive weed species are held in check.

When there is sufficient native grass cover and/or seedbank in areas to allow for establishment of good quality grasslands, these can be carefully restored and managed by grazing or mowing to prevent re-succession of shrublands. However, in the absence of a native grass seedbank, weeds will dominate the resulting "grassland". In this case, re-succession by native shrubs can help restore quality habitat.

e) Thinning young eucalyptus woodlands of suckers and sprouts to create a temporary managed grove is less desirable and may be untrustworthy on our steep and windy hillsides when the goal should be to convert to native vegetation. Thinning eucalyptus and waiting 30-years for native plant establishment under the canopy will allow ladder fuels to become established, and repeated costly logging projects will double environmental impacts.

f) We support efforts to keep mature eucalyptus trees in groves that can be thinned and maintained as a mature tree canopy for existing and future recreational activities, or as a historic tree grove to be retained pursuant to a park's adopted Land Use Plan.

g) We will be particularly interested in the policies that guide when to thin and retain a grove, and when to achieve a conversion to native-like plant communities that are appropriate to the site. As an example, for a grove with 300 trees per acre, it might be short sighted to take out 250 trees per acre to keep a grove when

conversion to native vegetation could achieve multiple goals. This would be especially true for areas in parks where native vegetation should the objective.

h) In all cases, logged eucalyptus stumps must be treated and killed to prevent sucker growth.

i) Control of weed species such as broom, euphorbia, and eucalyptus seedlings is essential during all maintenance and conversion projects.

j) Non-native trees (such as eucalyptus and pine) that are small but will become large and are not part of the designed park landscape should be removed at the earliest time possible to keep costs low, minimize resource damage, and allow native-like vegetation to develop as soon as possible.

k) Tree removals (logging) can be very controversial, and the immediate appearance of logged areas can be dramatic, triggering public protest from people who have not responded during the planning process but are motivated to speak out once logging begins. Often the public is unaware of the costs and tradeoffs of large-scale projects such as logging. As a result, tree-logging projects must be made to be very visible during the entire public process. Before logging projects are presented to the Board for approval to seek bids, staff should ensure that the tree project has specific Plan/EIR clearance with a notice posted in the park before the Board meeting and "left posted" until project completion. After the Board approves a contract, District managers and Board members must be ready to support the tree removal project through to the end. After the contract is awarded and the work begins (sometime months later), experience has shown there will always be a member of the public who sees what's happening, pleads to save trees, and will lobby to stop all work.

16. **As each of the East Bay Hills Emergency Forum agencies prepares their individual plans and environmental documents, they will be required to address the cumulative impacts of wildland fire hazard reduction projects by all agencies. This will require active cooperation and long range planning by HEF member agencies.** The HEF will need to provide sufficient coordination to make sure that potential cumulative impacts are clearly described, and that significant cumulative impacts can be avoided. We urge all agencies to consult with their legal advisors for guidance in developing plans that will address the cumulative impact issue. Of course, we will reserve our final opinion about how each agency handles these matters as we review their plans and environmental documents.

a) Agencies should commit that cumulative impacts will be avoided while converting high-risk eucalyptus and pine groves to native vegetation, and that they will consider their projects to be self-mitigating projects that complete the work begun in 1973/74. Most of the involved public agency acreage was logged after the 1972 freeze. The removal of multiple stump sprouts and dense seedlings in already logged areas is ongoing work that needs to be completed. Sprouts and single age stands of seedlings are unsuitable for forming safe and healthy woodlands.

b) Agencies should commit that cumulative impacts will be addressed and avoided by their projects, when considered separately or together, and that they will involve relatively small acreage dispersed along a 30-mile long wildland corridor that totals more than 18,500 acres of similar vegetation

c) Agencies should commit that cumulative impacts will be avoided by their projects that are coordinated on lands separated by time and space from other agency projects. Coordination will be used to ensure that work will be scheduled over a reasonable period of time, and that there will be no cumulative impacts from overlapping work on the same or adjacent lands.

d) Agencies should commit that cumulative impacts will be avoided when their projects are coordinated to have sufficient distance between projects by others in location and time, and ensure that there will not be significant cumulative unmitigated impacts on common resources such as wildlife and keystone habitat.

e) Agencies should agree that they will not allow vegetation management projects to have a significant cumulative impact on sensitive species or habitat because of existing environmental regulations that will be followed, and because of the biological opinions and mitigations that will be required by state and federal resource agencies.

Appendix A

The following quotes, articles, and reports provide additional information and perspective about the fire hazards and the environmental dilemma posed by eucalyptus and pine plantations in the East Bay Hills.

a) In March of 1973, H.H. Biswell, Professor of Forestry and Conservation at the University of California, Berkeley made this prophetic statement. "When eucalyptus waste catches fire, an updraft is created and strong winds may blow flaming bark for a great distance. I think the eucalyptus is the worst tree anywhere as far as fire hazard is concerned. If some of that flaming bark should be blown on to shake roofs in the hills we might have a firestorm that would literally suck the roofs off the houses. People might be trapped".

b) James Roof, Director of the Tilden Botanic Garden, in his detailed paper of February 1973, made observations about the areas wildfire risks, about eucalyptus tree risks and impacts on native flora, and offered his recommendations following the freeze of 1972.

c) Professor Robert Stebbins, Professor of Zoology at UC Berkeley and the curator of the UC Museum of Vertebrate Zoology has been a long-time advocate for retaining eucalyptus groves because of the habitat they provide for local wildlife especially amphibians and birds, and prepared several papers on this subject during the 1995 HEF plan review period.

d) The Temescal EIR Advisory Group in 2000, listed the following guidelines for eucalyptus and pine forests: "Eucalyptus Forest – This introduced forest community is highly controversial because of the extreme fire behavior that it can generate and because a significant number of native species that have adapted to it. It is a high priority for management, particularly in areas where it has the potential for involvement in wildland fires. Management plans must also take into account impacts on those species that have adapted to Eucalyptus. A number of native raptor species including the Turkey Vulture, Red-tailed Hawk and Great Horned Owl seem to prefer Eucalyptus to native forests in a variety of circumstances. Nest and roost trees should be identified and accommodated with appropriate buffers, where feasible, in fuel-break planning. Monterey/Bishop Pine Forests – This transplanted California native plant community occurs in dense stands and as individual specimens in several areas within the study area. Although less widespread than Eucalyptus, these coniferous forest species are also preferentially used by native raptors including the Golden Eagle. As with Eucalyptus, nest and roost trees should be identified and accommodated with appropriate buffers, where feasible, in fuel break planning."

e) The Vegetative Management Plan for the Eucalyptus Freeze Affected Areas in the Berkeley-Oakland Hills was prepared to guide the efforts of agencies working to reduce the potential for wildfire after the freeze of 1972. The Plan was prepared after the hills were declared a disaster area by the State's Governor, and was adopted before the California Environmental Quality Act was amended to include public agencies.

f) The Ubiquitous Eucalyptus article, by Bill O'Brien in the fall 2005 BayNature magazine describes the history of eucalyptus trees in the East Bay as well as

statements and opinions by local "experts" about both positive and negative aspects of eucalyptus trees.

g) Respect for the flammability of our hill's dense eucalyptus groves is common knowledge among local fire chiefs. Fire departments have not been willing to use prescribed fire (with prescriptions set for when fire control is theoretically possible) to reduce the flammability of groves by clearing the 50 to 100 tons of ground fuel that can be found under unmaintained eucalyptus groves. Fires in native-like vegetation will not burn well in the hills during most of the year, but fires under eucalyptus with its shredding bark and oily leaves can move to the treetops during almost any season. Professor Biswell tried unsuccessfully, in the 1970's to establish prescribed fire as a local maintenance practice in eucalyptus, as is done in Australia. Regional Park Fire Chiefs have wavered, and remain unwilling to use this technique even today because of the risk of escaped fire, and because of smoke impacts on the air basin.

h) The 1995 HEF Plan (in its final Report and Technical Appendices) determined that eucalyptus and pine trees and the burning embers that they can produce in a wind driven wildfire are an important factor in the wildfire risks faced by hill residents.

i) Javier Trelles, and Patrick J. Pagni UC Berkeley Professors analyzing the role of wind patterns during the 1991 fire, described the Sunday morning fire start as follows. On October 20, at 6:00 a.m., the normal weather pattern was interrupted as winds in excess on 10/ms arose from N 35 degrees E and the relative humidity dropped below 10%. This strong, dry convective current began to dramatically lower the moisture level of the previously soaked burn area of the Saturday fire. The ambient temperature climbed to 90 degrees. The few embers that remained buried overnight were by 10:45 a.m. spotting to new areas of dry fuel. Between 11:15 and 11:30 a.m., extremely rapid fire spread in windward direction overwhelmed fire crews called in to help. The initial brand material came primarily from Monterey pine, Pinus radiata. About 650 meters from the fire origin, the fire engaged a 35-meter high stand of Eucalyptus globules that quickly became an inferno releasing copious brands. Once structures became involved, the shakes and shingles they liberated further exacerbated the flaming brand problem.

j) The East Bay Hills Oakland-Berkeley Fire that was investigated by J. Gordon Routley. His report was conducted under contract to the United States Fire Administration, Federal Emergency Management Agency. The following excerpts are taken from his report.

"Fire has been a part of the history of the Oakland-Berkeley Hills area throughout its history. As with many other marine climates, fuel moistures are such that during most periods, fires do not cause dramatic damage but rather help maintain a balance of fuel types and reduce fuel loads. The native flora and fauna had adapted correspondingly with the natural occurrence of fire in the area."

"Additionally, the introduction of vegetative species which are not native to the area has dramatically impacted fuel loading. This is particularly true of the introduction of eucalyptus. Fuel accumulations in some areas under eucalyptus plantations have been estimated between 30 and 40 tons per

acre. Monterey Pine was also introduced into the area and contributed significantly to the fuel loading."

"Additionally, eucalyptus is susceptible to freeze damage, as occurred in 1972, when large numbers of eucalyptus were killed due to an extended period of below freezing temperatures, and again in December of 1990. The dead trees and limbs added a significant amount of dry fuel in the area. Also, eucalyptus sprouts back from the stump and this sprouting after freezing or after logging operations has also increased fuels in some areas."

"Between 1986 and 1991 most of California experienced drought conditions. This situation was recognized as creating more and more critical fire risk conditions each year. The unprecedented drought was accompanied by an unusual period of freezing weather, in December of 1990, which killed massive quantities of the lighter brush and eucalyptus."

Office of Chief Counsel, Federal Emergency Management Agency, 500 C Street, SW., Room 835, Washington, DC 20472–3100

September 20, 2010

Docket ID: FEMA–2010–0037
Hazardous Fire Risk Reduction, East Bay Hills, CA
AGENCY: Federal Emergency Management Agency, DHS.

Dear Sir/Madam:

Does FEMA have a policy within either the Pre-Disaster Mitigation (PDM) program, the Hazard Mitigation Grant Program (HMGP) program, or in any federal policy or law that would prevent the use of FEMA grant funds for removal of high fire-risk Australian blue gum eucalyptus forests in the East Bay Hill wildland/urban interface while converting to more fire-safe native oak/bay woodland?

This question is timely because FEMA is beginning a two-year environmental impact statement process that will be controversial and undoubtedly covered in the media. For the past two years we have witnessed the media trying to interpret the controversy surrounding the Strawberry Canyon EA project as argued by FEMA, the University of California, and a vocal group of eucalyptus tree advocates.

The University wanted to remove the overstory of eucalyptus trees on its property to achieve a long-term conversion to an understory of native oaks and bays similar to what U.C. has successfully done in Claremont Canyon along the South side of Claremont Ave. Unfortunately, the media in short articles, never got beyond quoting a FEMA representative saying that the University had not convinced FEMA that its project was more fire-safe, and that it "doesn't favor one tree over another".

While difficult to precisely calculate, the fuel load cross-section for the Claremont Canyon U.C. project has been reduced by more than 80%, and the tons of fuel load today have been reduced by more than 90%. I recognize the fact that the fuel models used in American Forestry are not finely tuned to compare eucalyptus forests and oak/bay woodlands because the models are generic with almost no research done specifically on east bay vegetation on steep slopes. I recently used two fire hazard models from Australia, and found that flame lengths, rates of spread, and maximum spotting distances were ten times greater for eucalyptus than for oaks when using the same inputs for east bay fire weather. Several Australians who I have taken on tours of Regional Parks, where they observed local eucalyptus forests, also have said east bay forests are more dense and flammable than Australian eucalyptus forests.

I know that the EIS process will provide a more detailed basis for FEMA's eventual decision, and that the EIS process will not be a debate about which tree FEMA favors or which type of forests or woodlands FEMA feels are equal from a horticultural or landscape perspective. Hopefully, FEMA at the out set, isn't implying that our typical East Bay Hill Australian blue gum eucalyptus forest would be favored equally in terms of wildfire risk to a typical California live oak woodland.

Wildfire is, and always has been, a natural part of wildland areas in the East Bay Hills where people now live in high-risk locations. Wildfires, when fueled by a build-up of dry vegetation, especially under densely planted pine and eucalyptus trees on ridges or on steep slopes above homes and driven by hot, dry winds, are extremely dangerous and in many instances impossible to control until the winds slow.

Of course, some individuals will argue that eucalyptus trees in dense groves should be made safe and retained in the hills. Australians have tried for years to make their eucalyptus forests safe by burning every five years or so for the purpose of removing the tons of flammable bark, branches, leaf debris, and understory vegetation that gather under these extremely flammable forests. Yet, this practice is so controversial that they can't seem to burn often enough to prevent the horrendous fires that keep reoccurring on an irregular cycle. Prescribed burning in East Bay eucalyptus groves has been advocated many times during the past 40-years, but prescribed fire in eucalyptus groves, for a number of reasons, has not been a practical or politically acceptable technique at the wildland/urban interface.

The FEMA Environmental Impact Statement will be the perfect vehicle for enriching public knowledge about fire safety in the East Bay Hills, and for bringing the best available wildfire science and verifiable resource management to the eucalyptus forest and oak/bay woodlands alternatives debate. Selections about which alternative to use should rest with each agency for each specific location to achieve the best short and long-term wildfire reduction strategy for a century where global warming will bring longer periods of extreme weather and a more fire-prone future.

The past news articles on the Strawberry and Claremont Canyon debates may have resulted in false impressions about FEMA's restrictions and intentions. So, the public needs clarification about which FEMA rules will govern tree options during the EIS process. It appears to me that FEMA has already expressed a preference for thinning during the Strawberry EA process that was not acceptable to U.C., and may or may not be realistic or preferred by other agencies for all locations. Therefore, at the onset of the environmental impact process, it would be especially helpful to know if FEMA has a policy or set of regulations under either the Pre-Disaster Mitigation (PDM) program, the Hazard Mitigation Grant Program (HMGP) program, or any existing federal rule that would prevent the removal, following certification of the required EIS, of high fire-risk Australian blue gum eucalyptus forests while converting to more fire-safe native oak/bay woodlands?

Respectfully,

Jerry D. Kent
3359 North Lucille Lane
Lafayette CA. 94549

Office of Chief Counsel, Federal Emergency
Management Agency, 500 C Street, SW.,
Room 835, Washington, DC 20472–3100

September 24, 2010

Docket ID: FEMA–2010–0037
Hazardous Fire Risk Reduction, East Bay Hills, CA
AGENCY: Federal Emergency Management Agency, DHS.

Scoping comments submitted to FEMA by Jerry Kent, concerning its Environmental Impact Statement (EIS) for hazardous fuel reduction grant projects in the East Bay.

For the most part, I have focused and limited my scoping comments to general wildfire safety issues, and to hazard mitigation topics involving eucalyptus and pine groves because tree projects have frequently generated the most passion and controversy. However, trees are not at the top of my list of priorities for reducing wildfire risks in the East Bay Hills. I would rate the following priorities at the top.

1. Requiring all homeowners in high-risk areas to make their homes more resistant to flames and burning embers, and not just for new construction.
2. Creating appropriate defensible and survivable space around homes and neighborhoods to make them more fire adapted. Unfortunately, 30 feet of defensible space still seems to be the standard in LRA areas of the hills when the state requires a minimum of 100 feet in SRA areas.
3. Significantly improving multi-agency firefighting capability, equipment, and tactics for containing one day "sprint" Diablo wind wildfires.
4. Implementing a state-of-art wildfire evacuation plan and program for the East Bay Hills.

Passion, priorities, and controversy aside, the following FEMA grant projects address a wide range of important fire hazard reduction projects for agency lands. I urge FEMA to thoroughly review each project, base recommendations of sound science and experience, make changes only for substantial issues, complete the EIS process with appropriate mitigation, and quickly release requested funding to allow the following projects to be completed.

PDMC-PJ-09-CA2005-011: UC Berkeley, Strawberry Canyon- 60 acres

PDMC-PJ-09-CA-2005-003: UC Berkeley, Claremont Canyon- 45 acres

PDMC-PJ-09-CA-2006-004: City of Oakland, Regional Fuel Management Project- 325 total acres made up of: (North Hills Skyline 68 acres), (Caldecott Tunnel 54 acres), (UC Berkeley 84 acres) (Tilden Grizzly 60 acres), (Sibley Island and Triangle- 42 acres), (Claremont Stonewall 17 acres)

HMGP 1731-16 EAST BAY REGIONAL PARKS DISTRICT MANAGEMENT PROJECT- 550 total acres made up of: (Sobrante Ridge 4.1 acres), (Wildcat Canyon- 65.7 acres), (Tilden Park 96.7 acres), (Claremont Canyon 21.5 acres), (Sibley Preserve 43.6 acres), (Huckleberry Preserve 17.5 acres), (Redwood Park 58.2 acres), (Leona Canyon 4.6 acres), (Anthony Chabot 222.6 acres), (Lake Chabot 32.9 acres), (Miller/Knox 22.2 acres)

I urge FEMA to ensure that the EIS process for the above grants will:

1. **Recommend approval of the list of above projects, with required modifications and mitigations, to reduce wildfire hazards for area that has a history of one-day wildfires that have destroyed significant numbers of homes and resulted in deaths.**

SUMMARY FIRE HISTORY
The 1923 Berkeley Diablo-Wind fire held the dubious record for the most homes destroyed in a California wildfire until surpassed by the 1990 Paint fire in Santa Barbara County. The very next year the 1991 Oakland/Berkeley Diablo-Wind fire regained the record now held for the past 19-years for the most homes and lives lost in a single wildfire. The East Bay Hills have held the state's record for having the most homes lost in single wildfires for 86 of the past 87 years.

Fire records for the East Bay Hills are sketchy, yet newspaper clips and old fire planning studies document the following active fire history (also see the attachment A map). Losses from any Diablo wind fire today in these same locations, or for that matter any area that has not yet experienced a wildfire, would be disastrous because of the number of homes that have now spread across the hills.

Freezing weather and Diablo winds are major environmental factors connected to many fires. Freezes occurred in 1922, 1931, 1949, 1972, and 1991. In some cases, fire reports noted both a freeze and winds as contributing factors.

Fires of 1921 and the winter of 1922- the heaviest snows in 30 years had fallen in the Berkeley Hills. This event and fires in Claremont and Tunnel Canyons are described in the OAKLAND TRIBUNE MAGAZINE article entitled "Peril of the Oakland Hills" by Louis Allen, and edited and reformatted here to summarize key points.

> "THOUSANDS of acres of splendid eucalyptus groves, much of it crowning the range of hills at the rear of Berkeley and Oakland, await almost, certain destruction this summer unless the cities of Oakland and Berkeley, or hiking or civic clubs come to the rescue."
> "Fire, that bugaboo of the Berkeley hills last summer, promises greater conquests than ever this summer. Never within the memory of early day residents of the Eastbay cities have the conditions in the hills been so propitious for disastrous fires. Last January the heaviest snows in thirty years visited this region. Over the hills to the eastward Jack Frost draped a beautiful snow mantle, and the weather so conspired as to keep the hills snow clad for almost a week, causing tremendous' damage."
>
> "At the summit of Grizzly Peak the snow lay from one to three fee deep. The great groves of eucalyptus trees, all set out within the past thirty years, carried heavy loads of snow for days, the weight gradually bearing the young braches earthward, and finally breaking them. In many cases the slender, fast-growing eucalyptus trees snapped of half way between root and top, but in the majority of instances the broken limbs were those near the ground"
>
> "It makes the hiker who loves trees sick at heart to see the destruction wrought in the grove at the northwest base of Little Grizzly Peak, the trees in all stages of destruction lining the north side of the regular trail leading from the Big C to Grizzly Peak. Here a side trail to the north and leading down into Wildcat Canyon is so strewn with broken off: branches as to be almost obliterated. Farther south along Chaparral Peak, which is the slight hillock about a half mile southeast of Grizzly Peak, the same evidence of broken down eucalyptus trees prevails. Everywhere is the clutter of snapped-off dead limbs and

drying leaves, all waiting the moment when a spark lands among them to precipitate a fire that will sweep acres of valuable timber."

"Practically all the eucalyptus trees now gracing the Berkeley and Contra Costa hills were set out within the past thirty years. Hence none of these swift-growing and none too hardy trees ever underwent such trial as that of last January. There have been, of course, in other year snows in our hills to the eastward, but never before such heavy and long continuing snows as last winter's. So never before have our eucalyptus trees been forced to face such damaging weather conditions as during the past year. Because the eucalyptus is not built to stand the heavy weight of snow that bore many branches to the ground and even broke off slender trunks, we find tons of debris strewing the ground in all directions in these groves."

"Heavy fires are predicted unless these broken off or partly broken off limbs are cleared away before the active forest fire season of mid-summer arrives, there will be fire losses that will make the fires that devastated Claremont canyon and hillsides along the Tunnel road last year seem puny indeed."

"So severe, indeed, was last winter's snow visitation that even the hardy pine trees always pictured in connection with snow and potent deifiers of wintry blasts succumbed to the onslaught, as witness many a limb wrenched from evergreens on the slopes of the Berkeley Alps."

"Eucalyptus trees surrounded by dead branches must soon become a torch scattering infinitesimal sparks in all directions, if a tiny match or ember happens to fall in the dry grass or leaves at its base. There is only one safeguard for these groves- removals of every contributing factor to the spread of fire. Underbrush that makes a funeral pyre for trees must not be tolerated. Hundreds of acres of valuable eucalyptus groves, set out to conserve the rain water in the hills, will be burned over this summer just as sure as campers are careless and a spark or two falls into dead brush at the base of these trees- unless remedial action taken, and at once."

"Will Oakland and Berkeley permit repetition of the Tunnel road fires of last summer on a larger and grander scale on the high roaches of the ridge at our back door? Every tourist who is driven over the Skyline boulevard and who passes along the Tunnel road can, not help but view the charred skeletons of what once were eucalyptus and pines dotting the hillsides of Claremont canyon. Many acres of blackened pines, complete except for their needles, remain on the sides of the main divide at the head of the canyon, but none of those fire-blasted trees will ever again be green. They stand as mute protests against utter failure of the Eastbay cities to cope with brush fires last summer."

September 17, 1923 Berkeley- The fire began on San Pablo Ridge at 12 noon near a P.G.&E. power line on private East Bay Water Company land close to what is today's inspiration point in Tilden Park. The fire passed through grasslands and eucalyptus plantations above Berkeley to then, in two hours, blow down steep slopes destroying 580 homes on 60 square blocks that included homes, apartments, student housing, hotels, schools, a fire station, and a church. The fire was reported to be ¼ mile wide as it came over the ridge consuming hillside homes and planted landscapes until the fire could be stopped near the campus. The fire also spread southward to include an additional 3,000 acres along ridge and hillside grasslands before reaching Tunnel Road where it was

controlled around 4:30 PM. Fire fighting forces were overwhelmed, water supplies ran out, and it was not possible to control the fire until the winds slowed. Fortunately, no lives were lost. "No conflagration was ever more out of control. None ever demonstrated more vividly its power to defy all defensive resources once it gained headway. It was extinguished only by an act of providence."

May 20, 1931 Leona Hillsides- Five homes were lost and 1,800 acres burned by a fire that started at 7 a.m. The fire charred a three square-mile area bounded by Redwood and Burnell Roads, and Mountain Boulevard at the head of 35th Avenue in Leona Heights. The fire split into two huge infernos leaving hundreds of fire fighters almost helpless to combat the double conflagration. It imperiled scores of homes and drove hundreds to safety.

November 13, 1933 Redwood/Joaquin Miller- On Monday morning one person died, five homes were destroyed, and seven homes were partially burned when a 1,000 acre fire spread quickly from Redwood Peak down Shepard and Diamond Canyons into the Pinehaven and Thorn Road districts. The fire was started on the ridge at 7 a.m. by a careless smoker and was controlled by firefighters around 2:00 PM. The fire, pushed by 36 mile per hour Diablo winds, threatened the old Oakland Zoo, scores of homes and businesses in the Diamond area as it raced down heavily wooded Canyons along a two mile front. "The fire traveled along the tops of the thick groves of pine trees for great distances, never reaching the ground until after the main blaze had passed." The wind constantly shifted and blew ashes as far away as Alameda. Many smaller fires were ignited throughout the Diamond and Allendale area.

September 25, 1937 Broadway Terrace to Skyline Boulevard- On a Saturday afternoon, a backyard fire escaped and raged for 24 hours to burn 1,000 acres, destroy 4 homes and menace at least 50 other homes in the hills near the Broadway Tunnel. "Scores of residents left their homes empty-handed, too excited to gather up any of their belongings; others snatched up pet animals, blankets and cash." Lack of water caused by exhaustion of reservoirs in the hills hampered fire fighters. This West wind fire at times crept slowly through the brush and at other times leaped from treetop to treetop. Acre upon acre of brush and trees, including eucalyptus and pine sent a pungent pall of smoke pouring over much of Oakland.

1946 Buckingham/Norfolk- 1,000 acres in Claremont and Tunnel Canyons were burned by a rekindled ridge top Diablo wind fire at 5 a.m. on a Monday morning in September. "Sheer-walled canyons were quickly raging infernos. Flames raced so fast in the stiff wind they formed a fiery canopy over stands of pine and eucalyptus." By noon, the fire had blackened an area three miles, long and two miles wide. This was a steep, craggy, heavily wooded area bounded by Claremont Avenue, Fish Ranch Road, and old Tunnel Road.

1960 Leona Hillside- Two homes were lost and 1200 acres were charred by a Diablo wind fire that started at 11 a.m. on a Saturday morning on October 15th. The blaze threatened hundreds of homes, and for at least two hours was in danger of spreading throughout the entire hill area. As it was, the fire burned a swath 21/2 miles long that was parallel to and just above Mountain Blvd. "The 84-degree temperature and low humidity aided the flames which roared with express train speed up steep slopes. Flames roared 50 ft. into the air."

September 22, 1970 Tunnel, Vicente, and Claremont Canyons- The fire started in the dry grass on Fish Ranch Road around 10 am. The fire swept over the ridge and hillsides into residential areas where 37 homes were destroyed and 36 damaged by a 204 acre Diablo wind fire. " I watched my neighbors homes burn to the ground. It was a stunning, sickening, tragic spectacle. As I stood in the center of the intersection, buffeted by strong winds, hot ashes and searing heat-laden smoke, five houses were flaming around me. Each was a gigantic bonfire with sheets of fire reaching high into the surrounding trees, torching the pine and spreading the blaze."

This fire was the first fire in a siege of fires that spread across California in 1970 when 733 individual fires burned over the next 13 days. 722 homes were destroyed; 500,000 acres burned, and 16 lives were lost in what was called "California Aflame". Since the Fish Ranch Fire was first fire during this siege of fires, 11 CDF aircraft were available to respond to support firefighters on the ground in controlling the fire before it could do even more damage. This area would not have been so lucky, had the fire started midway in the siege of statewide fires. California has now experienced similar multiple fire sieges in 1985, 2003, and 2007.

1980 Berkeley Hills above the Tilden Merry-Go-Round - Five ridge top homes, above Wildcat Canyon Road, were lost in a December Diablo wind fire that started around 2 PM under powerlines. "The blaze, fed by thick underbrush and eucalyptus tree debris, was so hot and fast that homes literally exploded."

October 19th and 20th, 1991 Oakland/Berkeley Hills- On a Saturday afternoon around 12 noon, a fire started in grass and brush behind a house on private land and burned uphill across the steep slopes of the city's Grizzly Peak Open Space. The fire area turned out to be relatively small, but this fire was certainly not routine because it was burning up a very steep hillside that was 60% or greater in slope. It took several hours to mop up and soak the burned area with helicopter water drops, water from fire engines with long hose lays, and to construct a cleared break around the entire fire area. Hand crews worked the burned area until 6:40 when darkness made it too dangerous to work on the hillside's steep slopes. Before leaving, a Battalion Chief checked the area for any visible signs of hot spots, and directed responding units to leave their fire hose in place for use in the morning. During the night, local fire units returned to the scene to look for hot spots, and no signs of smoke or flames were observed.

Fire crews returned early Sunday morning to monitor the area, deal with any embers and smoke that developed, and collect hose left on the hill. As they were taking the hose lays apart, winds began to stir up hot spots in several locations. Between 10 and 11 in the morning, Diablo winds, that had developed overnight, reached an estimated 30 to 40 mph and began to fan and then blow burning embers down steep hillsides into unburned areas. The fire was rekindled at 10:45 a.m. when a series of small flare-ups occurred that seemed controllable, until too many embers blew into dry brush and pine trees overwhelming the eleven firefighters and three engines that were working the hill.

The fire then blew down the steep slopes along Buckingham Road through unsuspecting homes with dense residential landscapes under pine trees and a scattering of eucalyptus trees. At the same time the fire ran up the ridge through homes and then toward Hiller Highlands. Firefighters who were actually present and involved as the fire began on Sunday morning tell of the valiant efforts made by firefighters and citizens who attempted to contain a fire that turned out to be un-stoppable. Forty mile per hour Diablo winds

were blowing embers into flammable grass, brush, trees, and unprepared homes creating a wildfire that could not be controlled until the winds slowed and a mutual aid response of 440 engine companies with more than 1,500 firefighters were amassed to surround the fire in the late afternoon.

Of the 11,055 people living in the 1991 Oakland/Berkeley fire area, 25 were killed, 150 injured, and at least 5,000 left homeless. Three thousand homes and apartment units and 2,000 automobiles were destroyed. 10,000 people were evacuated from the area, the Red Cross answered 3,000 inquiries from concerned family members, and non-profit groups served 100,000 meals. 4,407 families registered for assistance, 1,221 temporary housing grants were issued, 842 individual family grants were issued, and 3,921 Small Business Administration loan applications were filed. The total estimated cost of the fire in 1991 was more than 1.5 billion dollars.

40% of the 1,500 acre fire area involved homes and other urban development, and 55% of the area involved wildland vegetation with 30% of the area covered by eucalyptus and pine forests. (Source: Comparison of Fuel Load, Structural Characteristics and Infrastructure Before and After the Oakland Hills "Tunnel Fire". USDA forest Service Gen. Tech. Rep. PSW-GTR-158, 1995).

40% of the acres involved 3,355 structures (including dense landscapes and tall trees)
21% of the acres involved Eucalyptus trees
18% of the acres involved Northern coast scrub
9% of the acres involved Monterey pine
5% of the acres involved Coastal scrub, grassland mosaic
3% of the acres involved Coast live oak & coastal scrub mosaic
3% of the acres involved highways
.5% of the acres involved Grassland
.4% of the acres involved Monterey pine and coastal scrub mosaic

See attachment "J" *IN HINDSIGHT, THE FIRE LOOKS ALMOST INEVETABLE* from the Chronicle on November 18, 1991, one month after the fire.

2. **Recommend the grant projects listed on page 1 to mitigate fire hazards on ridgetops and hillsides covered with dense urban development, and for fuelbreak projects at the residential/wildland edge or on public land near other values at risk where flame lengths are greater than 8 feet.**

The East Bay Hills represent a very unique fire mitigation and fire suppression problem for a densely occupied area of urban California. The area that FEMA will study for project adequacy and cumulative impacts is rather small at about 25 miles in length, 3 miles in width, an estimated 48,000 acres with about 30,000 homes scattered along its ridges and West facing hillsides. Nowhere in this State is there so much residential density in so small a mountain area, with pockets of high-risk vegetation, and a comparable wildfire history. Over the past 100 years the East Bay Hills have been developed to the point that it is one of this states more serious high-risk wildfire areas. Trees were planted on steep hillsides and ridges to create tall forests of eucalyptus and pine mixed with native vegetation. Homes were gradually added for new residents who wanted to live in the mountains surrounded by natural vegetation. This was not a case of residential areas expanding into pristine wildland. It was a created hodgepodge of planted forests, wildland vegetation, homes made of wood, and inadequate infrastructure, all added over the past 70 year period. Unfortunately, few recognized the havoc that future Diablo wind fires would cause for some homeowners who just wanted to live in the hills while enjoying the views and natural setting.

However, after the 1991 fire we rediscovered both the common and unique facts about fire behavior in the East Bay Hills. We know that fire physics will theoretically be the same whether a wildfire is burning in San Diego, a suburban area near Melbourne Australia, or in the hills above Oakland and Berkeley California. We know that there are common safety steps that should be taken in high-risk areas by cities and homeowners. We also know that the type and density of vegetation, the topography, the type and location of residential development, and the wind direction and speed will vary greatly and become key factors as firefighters attempt to stop a fire. In the East Bay Hills, all of these factors can be on the extreme end for an area that also has a significant history of wildfire and home loss.

As a result, CAL FIRE (the State's fire protection agency) has placed East Bay hill residential areas, regional parklands, and undeveloped wildlands in two of the state's Very High Fire Hazard Severity Zones. One Zone covers state responsibility areas (SRA) for undeveloped areas, and the second Zone covers local responsibility areas (LRA) for cities and developed areas.

RECENT FIRE HAZARD REDUCTION PLANS

After the 1991 fire, the East Bay Hills Emergency Forum was formed and sponsored research that is documented in the 1995 East Bay Hills Fire Hazard Mitigation Plan and Program. The 1995 Plan used up-to-date fire science concepts and recommended a unified approach for public agencies and homeowners to follow in reducing the considerable fire risks that threaten "values at risk " in hill residential areas, and wildlands.

The 1995 Plan included a detailed map of wildland vegetation in the study area. The Plan considered flame lengths during Diablo winds greater than 8' to be "out of control" which was possible on 10,500 acres within the HEF study area. Approximately 8,000 acres of wildland vegetation had less than 8' flame lengths where fire would be possible to control. The key 1995 Plan strategies for preventing wildland fires from invading residential areas included a system of ridgetop and residential edge fuelbreaks, and the management or conversion of flammable eucalyptus and pine forests to reduce or even eliminate their ability to burn in ways that exceed local firefighting efforts. Fuelbreaks at the residential/urban interface and along evacuation routes were to be maintained to keep flame lengths below 8' in the areas where firefighters are most likely to attempt to protect residences and other "values at risk."

The Park District's 2010 Wildfire Hazard Reduction and Resource Management Plan (Plan) states that it will "provide sound, long-term strategies for protecting public health and safety by reducing fuel loads and managing vegetation within the East Bay Regional Park District's parks to minimize the risk of Diablo wind-driven catastrophic wildfire along the wildlandurban interface while ensuring the protection and enhancement of ecological values and resources within EBRPD's jurisdiction."

> "The Plan also builds upon the District's ongoing fuels management activities, as well as the 1982 Blue Ribbon Report, the 1995 Fire Hazard Mitigation Program & Fuel Management Plan for the East Bay Hills (1995 Plan), and other District plans and policies, including those for individual parks. The focus of the Plan is on specific areas of high hazard fuels and the identification of fuel management methods and actions to be undertaken to meet the goals of the Plan."
>
> "The Plan is one of a number of EBRPD projects funded through the passing of Measure CC by the voters in EBRPD Zone 1 (which includes nine cities in western Alameda and

Contra Costa counties) in November 2004. The Plan serves to assist EBRPD in protecting life and property by managing vegetation to reduce wildfire hazards, and doing so in coordination with protecting and enhancing bio-diversity, providing defensible space near structures, managing invasive plant species, and promoting plant and animal communities with inherently low fuel loads."

"The primary focus of the Plan centers on reducing wildfire hazards in areas that have been identified through a wildfire hazard assessment process as having a "high wildfire hazard" (i.e., areas with vegetation that would produce a flame length over 8 feet in height) or that would generate a large number of embers and firebrands) that would threaten neighboring homes and property. However, the objective of achieving reasonably stable and fire-safe plant communities is also critical to EBRPD's ongoing management efforts as well as its overall goal of protecting natural resources. Resource management and native plant restoration efforts are included in the Plan where synergies exist between wildfire hazard reduction and resource management objectives."

Both the 1995 Plan and the 2010 Plan were developed using qualified consultants, with expert advice, HEF member involvement, and with public input and comment. In my opinion they form a sound basis for the FEMA fire hazard reduction grant projects, and should be given due respect by the Federal Government.

3. **Provide authoritative recommendations that will hopefully end debates about what to do with dense and flammable eucalyptus and Monterey pine groves in project areas.**

The 1995 HEF Fire Hazard Mitigation and Fuel Management Plan determined that eucalyptus and pine trees and the burning embers that they can produce in a wind driven wildfire are an important factor in the fire risks faced by hill residents. The recently approved 2010 Park District Fire Plan/EIR noted that 1,507 acres of eucalyptus and pine stands were determined to be of high hazard. Of the 1,507 acres, approximately 74% have high crown fire potential, and 82% were located on ridgetops.

Trying to predict the distance that burning embers and firebrands would travel and where will they land is like predicting where and how strong the wind will blow. In Australia, strips of burning eucalyptus bark and leaves have been reported to travel more than five miles ahead of a quick moving wind driven wildfire. Burning embers in the 1991 Tunnel Fire blew across highway 24 to ignite fires that then burned on into upper Rockridge Neighborhoods. Therefore, the distance between a grove and its closest residential neighborhood will not be the limiting factor in home exposure to embers and firebrands from eucalyptus trees because the shortest distance could be a few feet and the longest distance might be over 2 miles. However ember flight distance may be a very critical factor in how and were firefighting will occur as well as the evacuation time for homeowners.

Flammable trees in the East Bay Hills are a major urban wildfire factor. Trees are important aesthetic and environmental features that are treasured by all residents in the hills. However, when uniquely flammable trees like eucalyptus and pine form a tall canopy on high ridges or overtop residential areas with inadequate spacing between tree crowns, any summer or fall fire under windy conditions could quickly become an uncontrollable "forest fire" of tall trees and houses that make firefighting impossible. Any eucalyptus or pine grove fire that occurred under these conditions would produce firebrands that could blow over fuelbreaks and other cleared areas and then drop to ignite natural areas above homes or also reach residential areas.

DESCRIBING HOW VEGETATION WILL BURN

There are major differences in how our native vegetation will burn in a wildfire. But the fire hazard debate has not really been about our native oak/bay woodlands, it's largely about eucalyptus and pine groves that can exceed 120' in height and are prone to dramatic fire behavior. When wind driven wildfire reaches their crown, flames above 150' can be expected with burning embers blowing downwind well beyond ½ mile. Non-native eucalyptus and pine are some of the most dense and flammable plant communities in the hills. Un-maintained pine groves are also extremely flammable with deep needle duff on the ground and dense pine seedling growth within and around the groves.

The FEMA EIS must do an exceptional job in interpreting fire attributes for our east bay hill vegetation. Unfortunately, the fuel models used in American Forestry and the 1995 and 2010 Plans (Attachments D, E, & F) were not finely enough tuned, for some critics, for comparing eucalyptus forests and oak/bay woodlands or for that matter most of our local flora. Local critics feel that the models are generic with little research done specifically on east bay vegetation on steep slopes. The posted numbers just don't look realistic!

I recently used two fire hazard models from Australia (Attachments H & I), and found that flame lengths, rates of spread, and maximum spotting distances were significantly greater for eucalyptus than for oaks when using the same inputs for east bay fire weather. I suspect that American models do a good job with American forest species and Australian models do a good job with Australian forest species. Normally, fire hazard models are developed and used only in the country of origin, but we should be able to benefit from the extensive research done in Australia and their extensive experience with eucalyptus bushland fire. Since eucalyptus attributes are a key issue, I suggest that FEMA use the best models and research from both American and Australian models for comparison purposes.

Australians have no illusions about the flammability of their native eucalyptus vegetation, and would never assert that their tall forests are naturally fire-safe. The Australian approach is to regularly burn their bushlands and forests on a regular cycle of 5 to 20 years. However, It's commonly accepted that prescribed fire is not feasible, safe, or appropriate in the East Bay Hills between the high ridge (along Grizzly Peak and Skyline Boulevard) or near the heavily developed residential areas along the hills leeward West-facing slopes.

PARTS OF THE CONTROVERSY WE SEE TODAY HAVE BEEN RAGING FOR 19 YEARS

The HEF completed its $500,000 three year Fire Hazard Mitigation planning process in 1995, and the Park District just completed its $1 million dollar, six year Fire Hazard Mitigation/EIR. All participating agency boards and councils accepted the HEF Plan, and the Park Plan was adopted unanimously by its elected Board of Directors, and supported by a wide range of groups and individuals. However, It's not unusual today to find information from either Plan at the center of an argument or controversy.

FEMA should approach each of the controversies about fire hazard reduction and vegetation management alternatives with the best available wildfire science, and not over react to wishful ideas about relative fire hazards created by citizens who happen to love all trees. Both the HEF and the Park District used the best available fire science and policies for their Plans, but apparently the information and explanations were not understood or persuasive enough for everyone. So the debates and even a lawsuit rages on. In my view the fire science used in the recent Park District Plan/EIR was adequate for the task, but was not effective in providing the scientific information in layman's terms in a way that key individuals and groups could understand and accept.

The FEMA EIS is a step up in difficulty because it will deal with three different agencies with a different mix of policies and publicly owned lands. To keep the focus on fire hazard reduction, FEMA should not become embroiled in general tree discussions, and must focus on site-specific conditions. FEMA should base its recommendations on documented, actual project grove conditions and tree details that affect fire risks and long-term maintenance. Even though all of the eucalyptus trees and most pine groves were planted around the same time, there is a wide range in the condition and tree details for each grove that will likely affect fire behavior. Some groves were logged after the 1972 freeze and regenerated as 80 foot multiple stems on one stump. Some groves are bluegum and some are redgum. Some groves are a mixture of eucalyptus and pine. Some groves have dense tree spacing and some have old trees with open spacing. Some groves have heavy ground fuel loading above 50 tons per acre, and some groves have less than 20 tons per acre. Some groves have dense thickets of trees with many seedlings, and some are primarily large trees with just a few seedlings. Some groves have a dense understory of oaks, bays, and native shrubs, and some have little understory vegetation. Some groves are less than ½ acre in size, and some groves are over 100 acres in size.

SAMPLE DESCRIPTIONS OF AREA FIRES IN EUCALYPTUS AND PINE

Both blue gum eucalyptus and Monterey pine trees have also earned their local reputation as high-risk trees. As an example the following quote is taken from the 2005 Marin County Fire Management Plan.

> "Forests comprised of fire-prone trees create especially hazardous conditions characterized by accumulated down material and leaves rich in volatile oils that burn hotter than wood. In Marin, a vast Bishop pine forest near Inverness helped fuel the 1995 Mount Vision Fire that destroyed 45 homes and burned 12,000 acres. Blue gum eucalyptus planted extensively in Marin for a variety of reasons helped fuel the 2004 Mother's Day Fire in upper Tamalpais Valley."

Bob Sieben, fire prevention coordinator for Hiller Highlands provided the following account of the June, 2008 fire, between Tunnel Road and Hiller Highlands. He credits prior removal of Monterey pines, the creation of survivable space, and effective firefighting for minimizing what might have been a much more damaging fire:

> "This potentially catastrophic fire began at or before 11:15 am on Thursday June 12th on a declared Red Alert day with high winds. There was dense re-growth of Monterey pines in the exact area of this fire following the firestorm of 1991. Prior to the firestorm the pines were so dense that one could not see across this canyon. Survivors of the firestorm reported hearing one pine tree after another exploding in fire. Monterey pines may ignite simply from being heated without an actual flame. All 200 Monterey pines in Hiller Phase V and all 600 on the adjacent property just East of it were removed in 2003 by volunteers and workers paid with funds raised from the entire Hiller Highlands community. There were easily 600 pines in the area occurring in dense, at times impenetrable, groves of as many as a dozen or more in a square yard. Many were already 20 to 30 feet tall. The lower branches died back as the trees reached for light and there was dense pine duff underneath, constituting an extreme fire danger.
>
> I personally walked this area before the June 12th fire and cut the few pines that had reseeded. The fire of June 12th would have been far worse had these pines not been removed. The fire burned into the exact steep area where pine trees had been. The fire in the recovering sparse woodland of live oaks, bays and elderberries was therefore

manageable by firefighting forces. In fact, it was successfully contained in this area and prevented from spreading northeastward toward homes on Charing Cross Road, and beyond.

The part of the fire threatening homes on Charring Cross entered a very steep area where coyote brush had not been cleared, trees had not been laddered and planting poles still attached to redwoods contributed to the fire crowning into the trees. A patch of prostrate coyote bush used in landscaping helped leapfrog the fire up the hill. These problems have been reduced or eliminated since the fire. From personal experience I can attest that this is a very steep and risky hill to work on. There was only one ember caused fire at a distance from the fire front. A water drop put out the resulting spot fire promptly by an alert East Bay Regional Parks helicopter flying overhead.

The speedy response of the OFD was laudatory. They could not have contained this fire in the 90 minutes they did if the residents had not eliminated the Monterey pines from this area well before the fire occurred, giving the firefighters the chance to control it. In other words the vegetation management plan was successful in that this fire was manageable and failed to spread by embers beyond the area. The firemen on the scene thanked us profusely for the work we had done in advance, giving them the chance to control this fire. Clear cutting the entire slope or covering it with cement would have prevented a fire, but was never considered. We learned that even on very steep slopes appropriate fire prevention measures can be taken without damage to the slope."

The East Bay Hills Oakland-Berkeley 1991 fire was thoroughly investigated by J. Gordon Outlay. His report was conducted under contract to the United States Fire Administration, Federal Emergency Management Agency. The following quotes are taken from this report.

"Fire has been a part of the history of the Oakland-Berkeley Hills area throughout its history. As with many other marine climates, fuel moistures are such that during most periods, fires do not cause dramatic damage but rather help maintain a balance of fuel types and reduce fuel loads. The native flora and fauna had adapted correspondingly with the natural occurrence of fire in the area."

"In modern times, the natural fire pattern in the area has been substantially changed. Fire suppression has reduced the natural cycle of fires which normally would have occurred in the area. Without prescribed burning or some other type of fuel reduction, the native vegetation has caused an increased fuel load through the area."

"Additionally, the introduction of vegetative species that are not native to the area has dramatically impacted fuel loading. This is particularly true of the introduction of eucalyptus. Fuel accumulations in some areas under eucalyptus plantations have been estimated between 30 and 40 tons per acre. Monterey Pine was also introduced into the area and contributed significantly to the fuel loading."

"Eucalyptus was first introduced to the East Bay Hills with extensive planting in the early 1900s. The eucalyptus has a tremendous production of both leaf and bark litter, which is not readily consumed or broken down in the normal decomposition process and leads to the presence of high volumes of fuel."

"Additionally, eucalyptus is susceptible to freeze damage, as occurred in 1972, when large numbers of eucalyptus were killed due to an extended period of below freezing

temperatures, and again in December of 1990. The dead trees and limbs added a significant amount of dry fuel in the area. Also, eucalyptus sprouts back from the stump and this sprouting after freezing or after logging operations has also increased fuels in some areas."

"Between 1986 and 1991 most of California experienced drought conditions. This situation was recognized as creating more and more critical fire risk conditions each year. The unprecedented drought was accompanied by an unusual period of freezing weather, in December of 1990, which killed massive quantities of the lighter brush and eucalyptus."

"Dead fuel accumulated on the ground in many areas and combined with dropped pine needles and other natural debris to create a highly combustible blanket. Due to the fiscal cutbacks, governmental programs to thin these fuels and create fuel breaks were severely curtailed, so the fuel load was much greater than normal by the second half of 1991. In addition, no measurable rainfall was recorded during the summer and early fall of 1991."

This photo shows residential areas with a eucalyptus and pine tree canopy located below several of the proposed FEMA grant projects on the ridge between Sibley and Redwood Regional Parks. Areas like this are the responsibility of the city of Oakland, and in several other similar settings along the hills leeward slope to the North including Berkeley, Kensington, El Cerrito and Richmond.

After the 1991 fire, Oakland removed all restrictions for how residents deal with their eucalyptus and Monterey pine trees. Residents can now make their own decisions about removing or keeping two very flammable trees that have the capability and potential for increasing fire threats for homes and neighborhoods.

4. Provide reliable recommendations that agencies can follow to mitigate fire hazards and minimize environmental impacts in project areas while taking into account a range of site variables and agency long-term land management goals for each project area.

The grant projects listed on page 1 include several different approaches for resolving tree related fire hazards on agency lands. In my opinion, the FEMA EIS should not demand a one-treatment-fits-all standard, but should take a strong and defendable position on practical measures for reducing the wildfire risks for project areas, and for the type of vegetation that is feasible to manage within a project area for the long-term.

The Thin and Manage Option

A thinned and properly managed eucalyptus grove is a viable solution for many flat and wind-sheltered areas in the East Bay Hills, but in my opinion not on high ridges and leeward slopes above homes that will be subjected to Diablo winds. Moreover, many eucalyptus forests are now dense, impenetrable jungles that are waiting to burn. Public agencies and private landowners have yet to commit the required financial resources to manage these dense eucalyptus groves, so we do not have a track record for what works and what may not work. Without good science based examples for fire-safe eucalyptus forest management in the East Bay Hills, we are left with prescriptions that are based on guesses or for other types of vegetation from other areas of the state.

The scientifically based prescriptions for managing "sheltered" fuelbreaks for pine or other softwood forests that have these general characteristics:

1. Trees are to be thinned with 10' to 30' spacing between crowns depending on slope. Sometimes 20, 40, 50 percent of the crown is left open.
2. Understory shrubs are kept low with tree branches removed to create the appropriate height to live crown base (i.e. 3 to 6 times shrub flame length). In pine and other California forests managed for timber, many of the natural shrub plant communities are prostrate and low growing.
3. Ground fuel in pine and softwood forests is usually composed of branch and needle debris that can be maintained on a regular cycle by either prescribed fire or pile burning.

The following detailed prescription (for softwood forests) is found in *The Use of Fuelbreaks in Landscape Fire Management*, jointly authored by a long list of distinguished experts.
"Fuel manipulations can be achieved using a variety of techniques (Green 1977) with the intent of removing surface fuels, increasing the height to the live crown of residual trees, and spacing the crowns to prevent independent crown fire activity. In the Sierra Nevada, van Wagtendonk (1996) prescribed the following fuel alterations from untreated forest levels to fuelbreaks: 1-hr fuels, 3 tons/ac to 1 t/ac; 10-hr fuels, 2 to 0.5 t/ac; 100-hr fuels, 2 to 0.5 t/ac; live load, 2 t/ac to 0 t/ac; depth 1 ft to 0.5 ft, resulting in a total fuel reduction from 9 t/ac to 2 t/ac. In the Sierra Nevada simulations, pruning of residual trees to 3 m (10 ft) height was assumed, with canopy cover at 1-20% (van Wagtendonk 1996). Canopy cover less than 40% has been proposed for the Lassen National Forest in northern California (Olson 1997).

Unfortunately, the published scientific record does not seem to contain similar prescriptions for eucalyptus forests that are a significantly different type of vegetation in terms of fire behavior and maintenance requirements. Clearly, prescriptions for sheltered fuelbreak or grove creation must not only specify what is to be removed, but must also describe the residual structure in terms of standard or custom fuel models so that potential fire behavior can be analyzed. Most unmanaged groves have between 300 to 900 trees per acre and 30 to 100 tons of ground fuel per acre that could all be subjected to Diablo Winds lofting burning fire brands and embers into residential areas.

These are the factors that should be addressed in the EIS for any project area where thinning is recommended.

1. Is it realistic to think that tree thinning and spacing trees on high windy ridges and leeward slopes to reduce stand density and fuel loads and at the same time leave a closed canopy to prevent "weeds" will keep Diablo Wind driven fire from traveling from tree to tree and throwing embers long distances?
2. How will the typical eucalyptus grove understory of oaks, bays, and other related native plants be managed? Will native shrubs be removed and replaced by annual grasses that can be even more flammable? Native shrubs and flora will be dense in some sites, so what will be the impacts be for removing native flora to make ground cleanup feasible.
3. How will the eucalyptus seedlings that germinate regularly, the eucalyptus branch, leaf, and bark debris be removed if the ground layer is not maintained clear of shrubs? Is prescribed fire a realistic treatment risk-wise, cost-wise, smoke-wise, or carbon footprint wise at the wildland/urban interface near homes in the East Bay?
4. If the Park District, University, or Oakland did use prescribed fire to keep ground fuel around 5 tons/acre, how often would they need to burn? Or, in the alternative how often would they need to clear ground fuels using mechanical equipment or by hand at what cost, and with what environmental impacts?

In Australia, prescribed fire is the common method for controlling ground fuel and keeping native bushland groves relatively safe, but the Australian fire safety experts and "greens" are involved in major debates about the impacts of repeated fire on their native environment and smoke impacts on urban residents. Since eucalyptus is the native climax forest for most of Australia, they have not developed alternatives for burning, so the argument goes on and on. After each big fire the "greens" are blamed for stopping burning, and prescribed fire advocates push for regular burning regardless of impacts. See attachment "G" *FIRE IN EUCALYPTUS GROVES AND THE DIFFICULTIES OF MANAGEMENT* by Roger Fenwick.

The Conversion Option

Another alternative that has generated considerable support in some camps is to selectively remove the eucalyptus or pine overstory to allow the oaks, bays, and the native shrub understory to develop a new canopy and more natural ecosystem. There shouldn't be any confusion about the type of vegetation that is possible and desirable today when converting from higher-risk plant communities like eucalyptus and pine forest to lower-risk plant communities that exist today and were mapped in the 1995 Hills Emergency Forum Vegetation Dataset.

Acres	Native-like Plant Communities (mostly natives by species count)
4,100	Oak/Bay Forest- Mixed
3,847	Grassland (mostly grazed areas)
3,309	Dry North Coastal Shrubland
1,418	Redwood Forest
918	Successional Shrubland
855	Oak/Bay Woodland- Mixed
332	Wet North Coastal Shrubland
79	Chaparral- Mixed
71	Riparian Forest
10	Oak Savannah
14,940	Vegetation polygons mapped in the 1995 HEF Plan

Any additions to the above acreages resulting from eucalyptus or pine conversions will not result in increased fire hazard for adjacent wildland areas or for residential areas.

Even though the above acreage totals came from polygons that were in the 1995 HEF study area (including only hill portions of Oakland and Berkeley), it would be reasonable to say that eighty-one percent of the existing vegetation (within the FEMA study area) of the East Bay Hills is native-like. Most of today's wildland vegetation (by counting numbers of species represented in that vegetation) is composed of "truly native" species. However, most native-like communities, in their current locations and size, are relatively young and will continue to change through stages of succession, development and rebirth during the next 200-years.

The above photo shows the University's Claremont Canyon Phase 6 eucalyptus to native vegetation conversion project on the South side of Claremont Canyon Avenue that represents a significant reduction in fuels and flammability. The native understory in each eucalyptus and pine grove will be different and should be the key factor for determining which type of vegetation should be encouraged and managed in the future. The University and Park District have often used selective removal of eucalyptus (or pine) to leave native oaks, bays, and other native vegetation.

The University has retained chips and biomass during several Claremont Canyon projects including its most recent mid-canyon project in 2006/2007. The remaining native vegetation in mid-canyon between Claremont Canyon Avenue and Grizzly Peak Boulevard is healthy and doing well now that the dominating eucalyptus cover has been removed, and the chips have largely decomposed. The chipped areas vary in depth, but in this part of the canyon chips are now less than eight inches in depth except at a few confined chipping areas that now form open meadows that surrounding vegetation will soon occupy. The University's Claremont Canyon phased projects (2001-2007) are some of the most successful eucalyptus conversion efforts for restoring native vegetation while reducing fire-hazards in the East Bay.

This photo shows eucalyptus seedling and stump sucker trees on UC property adjacent to Claremont Avenue that developed after the 1972 freeze to form a dense 100 foot overtopping canopy covering native oaks and bays. In this case, it would be a mistake from both a fire and ongoing vegetation management strategy to remove the native oak, bay and native shrub understory to end up with a bare, single species stand of eucalyptus. The eucalyptus trees should be removed in the same way the University converted vegetation on the South side of the road to achieve an immediate reduction in fire hazard for this area of Claremont Canyon.

The Species Neutral Option

The species-neutral buzzword is used to advocate a reverse world where native vegetation is flammable and eucalyptus is safe, and that it doesn't matter which species is removed or retained. For example, it would be short sighted, in my opinion, for FEMA to recommend that all of the developing native oak and bay understory trees and native shrubs under a flammable eucalyptus or pine canopy in the above photo should be cleared to create a single species stand of eucalyptus or pine on high ridges or leeward slopes above homes.

The better option to reduce fire risks, including long range ember spotting, would be to remove the eucalyptus overstory and select for any of the understory native plant communities on page 14 for plants that have evolved here and can be re-established to grow well with few maintenance requirements other than invasive weed control.

5. Recommend projects that will assist fire fighters in stopping wildfires with an emphasis on the type of Diablo wind fire that occurred on October 20, 1991.

The FEMA EIS would be well served by analyzing fire hazard mitigation projects that would have helped to contain this fire based on the fact that 40% of the 1,500 acre fire area involved homes and other urban development, and 55% of the area involved wildland vegetation.

Prior to 1991, all of the public agency efforts for creating fuelbreaks were focused on the main high ridge where most of the residential interface met public lands. There was no separation of wildland or residential fuel at either of the fires on Saturday or Sunday. In fact, no fuelbreaks or pre-determined areas were set up to give firefighter a reasonable chance to contain fires of this speed and impact.

The 1995 HEF Plan determined that strategically placed and maintained fuelbreaks are essential to give firefighters an opportunity limit expansion of wildfires, and to attempt control before a fire moves into residential areas. The East Bay Hills first major system of fuelbreaks were installed on public lands in 1974 along the high ridge between Chabot and Tilden Parks, and then expanded in 1983 after the 1982 Blue Ribbon Report. The 1995 HEF Fire Mitigation Plan proposed an expanded system of fuelbreaks with locations, prescriptions, and environmental impacts actively debate. However, over the past 36 years, well designed and maintained fuelbreaks have become accepted when located on ridgtops and on public lands at the residential edge. The current discussion about fuelbreaks seems to be focused on how to create and manage these areas in ways that are sustainable and at the same time prevent invasions of flammable and exotic weeds.

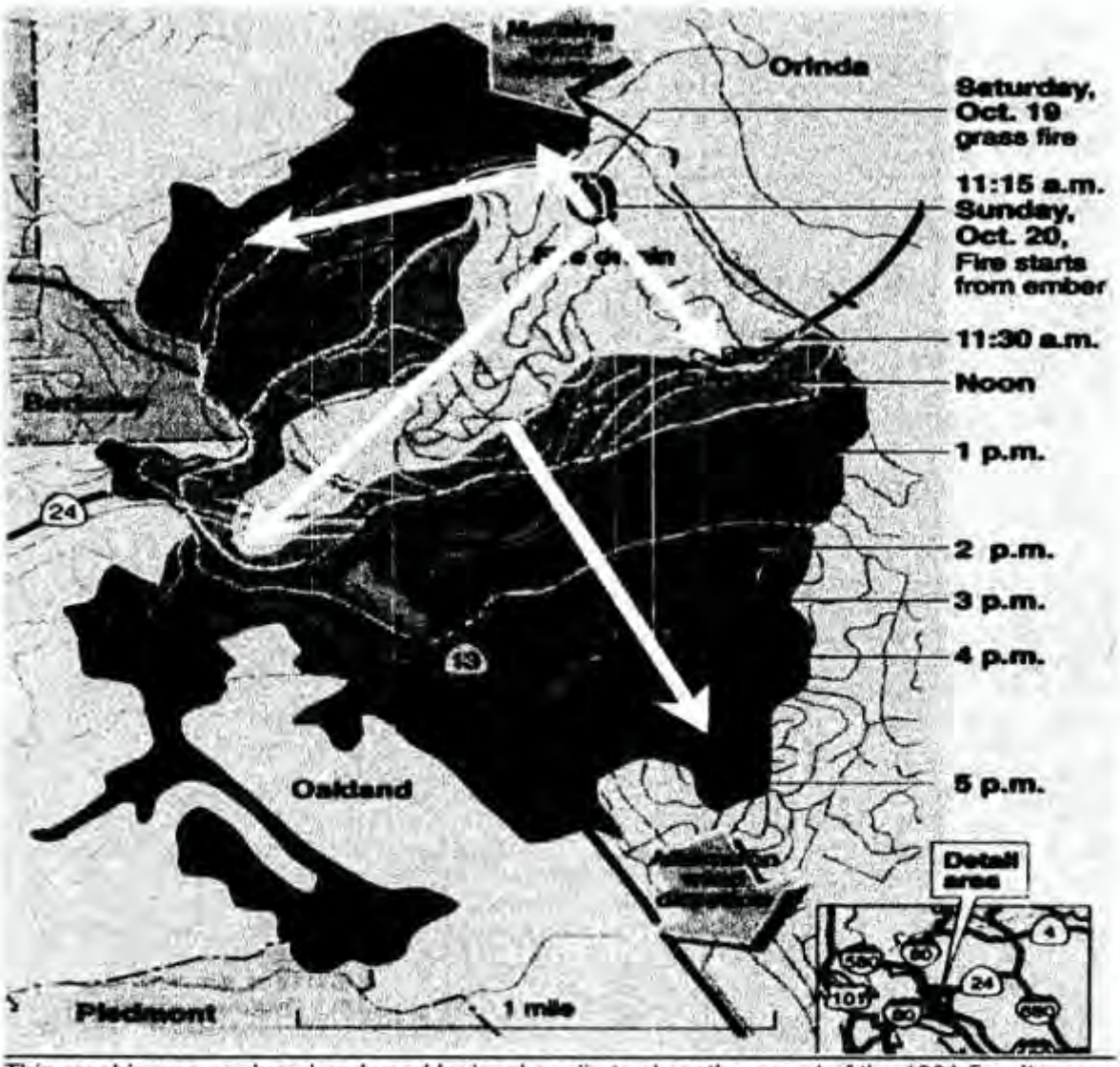
THE 1991 FIRE SET A NEW STANDARD FOR WILDFIRE EXPOSURE AND FIREFIGHTING

The 1991 fire was our worst-case fire, and sets the context for the FEMA EIS. In the East Bay there are a few days each year when all of the conditions are in place for extreme wildfire behavior. These red-flag periods usually occur for a few days each year during the months of September through November. During some of these periodic extreme weather episodes, the East Bay Hills experience a "perfect fire storm condition" with unusually hot temperatures above 90 degrees, humidity below 10 percent, and strong Diablo Winds blowing above 25 mph from the East, and then over high ridge tops and down leeward slopes into densely populated residential areas. Firefighting under these conditions becomes problematic.

One day Diablo wind sprint fires have forced public agencies to view the space between the high ridge and residential leeward edge as the wildland/urban interface where strategic fire hazard mitigation is required. As a practical matter, it will be very unlikely for aircraft, CDF crews, dozers, and other resources to be on hand during the first critical 30 minutes of a fast moving fire. Local fire crews will lead early fire suppression efforts, but there will not likely be a fire truck for every house during the key initial attack. They will need all the help they can get from residents and agencies in pre-fire planning and pre-fire suppression infrastructure.

Fire safety research and lessons learned make these points very clear

- Wildfires during extreme Diablo wind weather can move quickly and may not be totally controlled by firefighters until the winds slow.
- Evacuations and strategic firefighting must not be unplanned or uncoordinated events. Police Departments should plan and execute evacuations allowing firefighters to minimize fire spread and eventually achieve full control at the earliest feasible time.
- Burning embers and not necessarily spectacular flames will ignite unprepared homes. Reducing home ignitability using new building codes is the key to saving homes.
- Survivable space between homes and all flammable vegetation is essential because there will not be a fire truck for every home in a wildfire. Homes in dense neighborhoods and at the wildland/interface require special measures to survive.
- Fire adapted neighborhoods that plan ahead and implement sound fire safety measures including strategic fuelbreaks at the wildland/urban edge will have the best chance for surviving wildfire.



This graphic was produced and used by local media to show the speed of the 1991 fire. It was based on the fire-spread map produced by the California Office of Emergency Services. I added the white arrows to emphasis the primary directions for fire spread throughout the day.

Many useful fire-safety projects are underway the East Bay Hills, but it doesn't take a rocket scientist to know that homeowners and agencies have much more to accomplish. A short winding drive through hill areas among densely packed homes often intermixed within created urban forests and natural wildlands will validate how unprepared too many of our wildlands and residential areas are for dealing with the next major wind driven conflagration. The FEMA grant projects combined with agency-funded project will become the next significant step in preparing for future wildfires.

Respectively Submitted

Jerry D. Kent
3359 North Lucille Lane
Lafayette CA. 94549

List of Attachments:

Attachment A- MAP OF MAJOR EAST BAY HILL FIRES THAT HAVE THREATNED OR DESTROYED RESIDENCES THIS PAST CENTURY- by Jerry Kent

Attachment- B1 & B2- A TECHNICAL REPORTS PREPARED BY THE HILLS EMERGENCY FORUM (HEF) WITH SAMPLE FUEL MODEL DESCRIPTIONS FROM THE PARK PLAN

Attachment C- WHY THE 1991 FIRE WASN'T STOPPED EARLY ON SUNDAY MORNING- By Jerry Kent

Attachment D- VEGETATION TYPING STRATEGY FOR THE 1995 HEF PLAN

Attachment E- SUMMARIZED VEGETATION ATTRIBUTES FROM THE 1995 HEF PLAN- by Jerry Kent

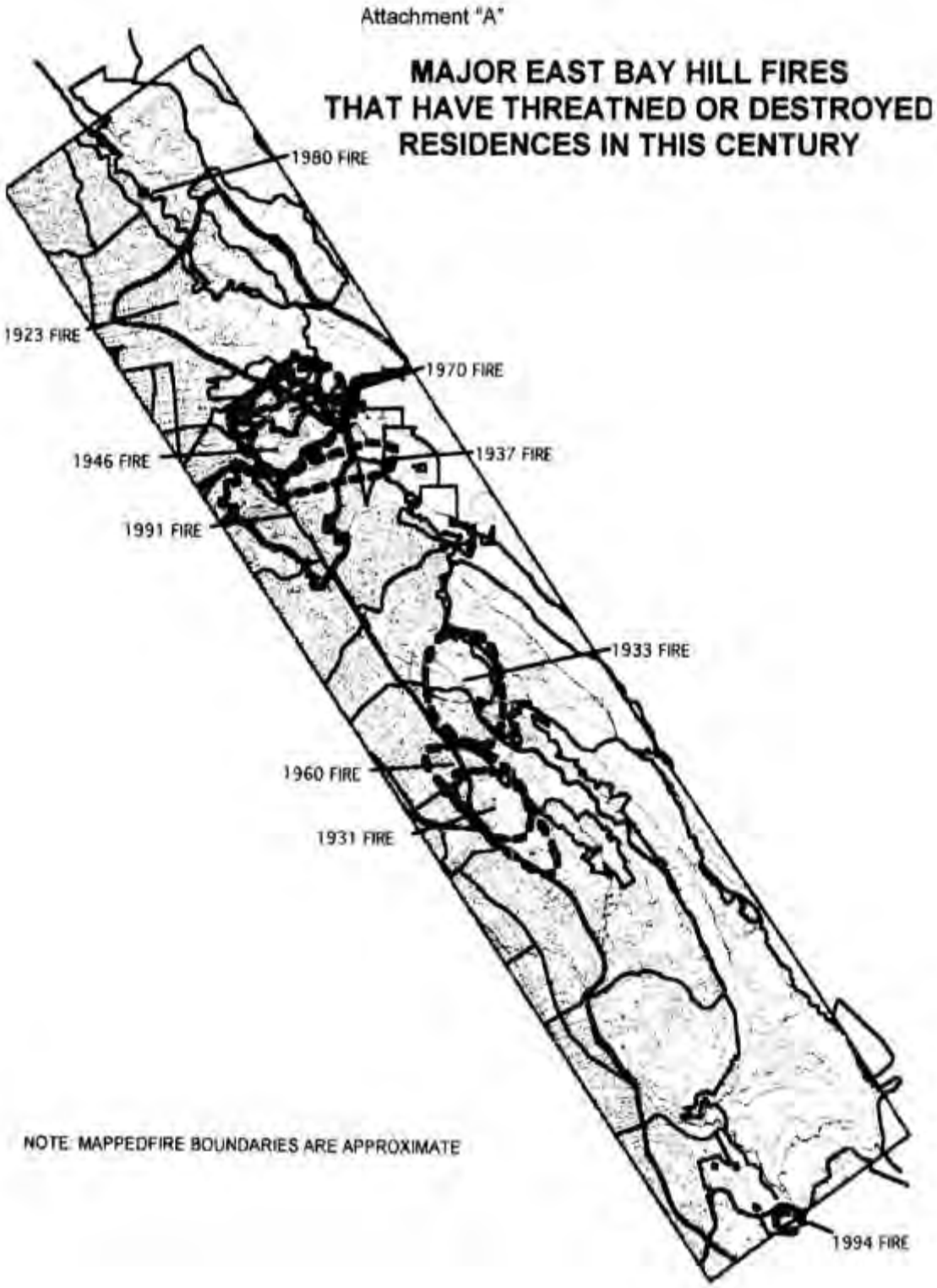
Attachment F- TABLE 1: DESCRIPTION OF FUEL MODELS FROM THE 2010 PARK PLAN

Attachment G- FIRE IN EUCALYPTUS GROVES AND THE DIFFICULTIES OF MANAGEMENT- Roger Fenwick letter selections by Jerry Kent

Attachment H- MCARTHUR FOREST FIRE DANGER METER COMPARISON OF EUCALYPTUS AND OAK- by Jerry Kent

Attachment I- PROJECT VESTA FIELD GUIDE- ROUGH NUMBERS FOR EUCALYPTUS IN CLAREMONT CANYON- by Jerry Kent

Attachment J- IN HINDSIGHT, THE FIRE LOOKS ALMOST INEVITABLE- 11/18/1991 Chronicle article


Attachment "A"
MAJOR EAST BAY HILL FIRES
THAT HAVE THREATNED OR DESTROYED
RESIDENCES IN THIS CENTURY
1980 FIRE
1923 FIRE
1970 FIRE
1946 FIRE
1937 FIRE
1991 FIRE
1933 FIRE
1960 FIRE
1931 FIRE
NOTE: MAPPEDFIRE BOUNDARIES ARE APPROXIMATE
1994 FIRE

Attachment B1

The following Technical Report was prepared by the Hills Emergency Forum to provide additional information in six areas to supplement the review of the Strawberry Canyon project. This information is also applicable to the Claremont Canyon Fire Mitigation Project FEMA #: PDMC-PJ-09-CA-2005-003: OES#: PJ20.

1. ***Evidence that the supposed habitat restoration benefit will occur, since no plan for revegetation is included in the grant description.***

Eucalyptus removal for fire hazard reduction is not new, nor exclusive to the grant area. The experience of local resource managers in this region is that there is an ample existing seed bank and plant re-generation through sprouting is abundant so that habitat restoration occurs without revegetation. The Lawrence Berkeley National Lab (LBNL), East Bay Regional 0000 District (EBRPD) and University of California, Berkeley (UCB) have a history of such projects spanning 10 years with success in habitat restoration as gauged by floral recovery of species diversity and native plant cover.

Different vegetation types emerge from different sites previously occupied by eucalyptus. For example, bay woodlands have flourished on projects on Chaparral Hill, oak/bay woodlands have developed in Upper Claremont Canyon, north coastal scrub has grown above the LBNL lands, and grassland occupy the Chabot Fuelbreak on Skyline Blvd. The abundance of existing species and native/ adapted cover types are evident. Below are a series of photos from similar past projects that serve as additional photo documentation.

Coyote bush plants within eucalyptus stands; coyote brush vigorously sprouts after being cut or broken

Native shrubs (e.g., coyote bush) and trees (e.g., bay and coast live oak) in eucalyptus stands prior to treatment

Native shrubs (e.g., coyote bush) and trees (e.g., bay and coast live oak) in eucalyptus stands prior to treatment

Native trees and shrubs after treatment

In past projects an understory of grasses, shrubs and trees are all present in the stand prior to treatment. The removal of the eucalyptus trees provide better growing conditions for the understory; the plants that remain after the treatment grow faster, and new individual plants germinate and/or sprout and become established in the conditions for which they were adapted.

It is thus a regional standard to not re-vegetate as part of fuel management projects. By re-vegetating with plants from elsewhere there is a threat of polluting the gene pool of the endemic plants. The grant application includes practices to reduce undesirable weed invasions through the use of chip mulch.

Also refer to the letter from the University of California Berkeley to URS dated April 10, 2008, item 4 with photographs.

2. ***Relative fire risk of current vegetation versus chip dominated landscape: there is no scientific evidence to support the project as proposed.***

The Fire Risk Posed by Current Vegetation

The current risk posed by eucalyptus is legendary and documented. Fire science has quantified the fuel characteristics that result in damaging fire behavior. Fire science and

modeling can provide information, augmented by local wildland firefighter experience For further explanation of relevant fire science see Appendix A.

The existing eucalyptus stands are predicted to produce extreme fire behavior due to several factors:

Fuel load and accumulation rate – The high levels of total fuel load is linked to a high fire intensity and long flame lengths (which promote torching and firebrand production). Martin et al (1988) measured 44 tons/acre of litter and duff under eucalyptus stands that were burned 5 years previously on Angel Island. Most of the accumulation occurred in the last two years prior to measurement, on an average of nine tones/acre/year.

Fenwick (1980), an Australian fire chief measured up to "an alarming 40 tons per acre", of material smaller than ¼ inch in diameter in Lake Chabot eucalyptus stands. He notes that "these levels are certainly enough to permit the development of uncontrollable crown fires under the weather conditions likely to occur in the area" Such fires would be accompanied by massive spotting, the process by which burning material is thrown long distances ahead of the main fire front". He predicts a crown fire within 5 minutes of fire starting, with heavy spotting between 2 – 5 miles, with a chance of spotting to 12 miles.

Eucalyptus is very productive, so much so that several companies are growing eucalyptus for biomass, with an expected 10-year harvest rotation. The wild trees in the Oakland hills are similarly productive. Within 15 years after cutting in 1974, many trees had grown to 18 inches in diameter. Similarly, the leaf litter, and remains of bark-sloughing accumulate at fast rates. The associated fire hazard with these increased fuel loads accumulates at nearly the same rate of biomass production. Fenwick (1980) commented the trees "grow very vigorously... quickly producing a large mass of leaves and fine twigs, which are shed continuously. Fuel accumulation rates under these types of stands are enormous." "Large eucalyptus leaves unaffected by insect attack often form a more loosely compacted fuel bed than in Australia. Fires may spread slightly more rapidly, and with higher flame lengths and intensity than predicted from guides based on Australian fuel types." Martin et al (1988) measured 50 tons of litter and duff on Angel Island in undisturbed eucalyptus stands.

In contrast, fuel loads of north coastal scrub rarely exceeds five tons/acre, less than 10 times the fuel in eucalyptus stands.

Arrangement - The dead material typically is arranged within the eucalyptus stand in a manner that promotes fast burning. Strips of dead bark, branchlets, and leaves are suspened in the lower branches of the stand, and often on top of a shrubby understory. The ratio of fuel to oxygen is optimal for burning, creating a fast-moving and intense fire.

Oils and volatiles - The oil content of eucalyptus foliage is high. The caloric content of the oils in eucalyptus have roughly two times the amount in cellulose, thus a fire in eucalyptus that involves dead leaves is hotter due to the higher caloric content of the fuel.

Size and Shape of Fuels - The physical shape of the leaves and bark are optimally shaped to be lofted(carried by the wind). The leaves are lance or arrow-shaped which is conducive for aerial movement. They are thin enough to be lifted, but large and long enough to still be burning when they land.

Like eucalyptus leaves, eucalyptus bark exfoliates in long, curling manner that also is lofted easily. Because the strips of bark are long, it can burn while it is lofted for a

considerable time and still be burning when it lands. This is a significant factor in igniting new fires well ahead of the flaming front. In contrast, the embers of north coastal scrub and grass are smaller, and are usually completely consumed in the air. That is why eucalyptus can create new fires long distances from the stand; whereas, grass, chaparral and oak woodlands create new spot fires only short distances ahead of the main fire.

Location of Fuels - The height of the tree tops as well as the position on the slope of the trees are important factors in determining how far away the firebrands can land. The higher the embers are lofted, the greater the distance.

Example of Bark and leaves that provide fuel at base of eucalyptus tree

Example of surface fuels including large lots that could create an intense fire

Ember Production

Recent research has confirmed that structure ignition is primarily through embers. Fire hazard reduction science has recently emphasized the importance of long-range spotting and efforts to prevent that phenomenon. This is especially pertinent when structures are located downwind from the source of these firebrands. This is the case along the entirety of the project area. Concern further increases during fires when wind plays key component (either during periods of foehn winds or as fires grow larger ad generate their own winds).

An example of an ember that leaped over Highway 24 and started the area of the fire near Broadway Terrace

A publication describing the eucalyptus removal project in the Golden Gate National Recreation Area states, "Dense vegetation was identified as a major contributor to the fire behavior, and in particular, dense eucalyptus forests. It was estimated that over 70% of the energy released through the combustion of vegetation was due to eucalyptus. In

many cases, eucalyptus trees were adjacent to houses, with their canopy spreading over the roofs. The density of fuels immediately surrounding homes resulted in a continuous chain that spread the fire from structure to structure." By Agnes Farres, Student Conservation Association

The following diagram explains the difference in fuel volume (load) in eucalyptus stands as compared to the native vegetation types that would be present post-treatment. Eucalyptus stands have more than twice the fuel load as other vegetation types, with associated higher fire intensity when it burns.

Fuel Load Comparisons

Eucalyptus, California bay, and coast live oak forest types

FUEL ELEMENT	Live Component	Dead Component	Live Component	Dead Component	Live Component	Dead Component
Herbs and grasses	0.03	0.02	0.42	0.18	0.31	0.17
Shrubs and saplings	0.49	0.0	0.27	0.01	0.25	0.03
Fine twigs (1-hour)	[illegible]	[illegible]		0.69		1.18
Small branches (10-hour)	[illegible]	[illegible]		1.93		4.00
Medium branches (100 hour)	[illegible]	1.41		2.67		2.40
Logs (1,000 hour)	[illegible]	[illegible]		[illegible]		[illegible]
Litter (leaves, bark, needles, etc.)	[illegible]	[illegible]		1.70		[illegible]
TOTAL FUELS	Eucalyptus - [illegible] tons per acre		California Bay - [illegible] tons per acre		Coast Live Oak - 11.82 tons per acre	

Fuel in a vegetation community consists of both live and dead material measured in tons per acre. Eucalyptus typically displaces California Bay or Coast Live Oak communities which increases the fuel load. This comparison is based on fuels data collected from 7 Eucalyptus sites, 39 California Bay sites, and 11 Coast Live Oak sites within Point Reyes National Seashore and Golden Gate National Recreation Area. (NPS Data) "Total fuels" represents fuel available for wildland fire consumption, not total biomass. Most importantly, the mass of the live trees is not included. 1, 10, 100, and 1,000 hour fuels are classified by their diameter and take different amounts of time to dry out and become available for consumption.

- from a GGNRA publication from the Fire Education Office, 2008.

Comparative Fire Risk of Future Chip-dominated Fuels

Immediately after the proposed project with the removal of eucalyptus trees chipped materials are expected to cover a majority of the site. After approximately three to five years, the chips are expected to decompose and native vegetation will cover the site in this time period.

The fuel characteristics of chips are described in the following manner.

- The chips have a very high packing ratio, which means they have much more fuel than air in the fuelbed. This lack of air impedes combustion, and thus limits fire spread. John Shelly, the UC Cooperative Extension Advisor in Wood Technology, conducted experiments in the chips created in Claremont Canyon

treatment areas and determined the decomposition is entirely aerobic, and spontaneous combustion from non-aerobic decomposition is not possible.

- The chips maintain a higher moisture content than uncovered soil. The increased moisture helps further prevent ignitions, even during dry conditions. This has provided a more favorable growing site for oak seedlings, but has impeded the growth of eucalyptus seedlings or sprouts.
- The size of the chipped materials is generally large, blocky, with a low surface area-to-volume ratio. This generally prevents ignition, and further limits spread since material adjacent to a burning particle would be difficult to ignite.
- During the time when the landscape is covered with chips a canopy is absent, and thus spotting cannot occur ahead of the fire front.
- Should a fire occur (perhaps from adjacent grassy locations), containment would be relatively easy. However, mop-up or complete control may take a longer as the material may smolder.

The fire risk is thus anticipated to be low, due to the expected slow rate of spread, short flame lengths, and complete lack of spotting potential. Because of the ease of containment, low flame lengths, lack of ember production, damage to structure from a fire in a chip-dominated environment would be extremely unlikely.

3) ***Potential for introduction of chaparral dominated landscape and issues associated with fuel driven fires versus climate driven fires***

True chaparral is not present in the project area, nor likely to occur. North coastal scrub is the dominant shrubby vegetation of the region. It is likely, and desirable, to have north coastal scrub as a part of the mosaic of revegetation anticipated in the future project areas. North coastal scrub is considered necessary and desirable for USFWS goal of Federally endangered species Alameda whipsnake recovery, which occurs in the project area. The goal of habitat restoration and long-term management of the treated project area is a mosaic of scrub and grass. The fire behavior of both chaparral and scrub is somewhat similar, however, north coastal scrub has a great proportion of small-diameter material. This limits the distance at which firebrands are expected to be deposited from the project area.

As described in the fuel characteristics and fire behavior of eucalyptus stands in answer #2, the most significant concern of behavior in eucalyptus is the distance that embers would be expected to travel and ignite new fires ahead of the flaming front. Most structures ignite through air-borne embers instead of flame impingement or radiant heat transfer. Most of the structures in the proposed project area are downwind, in the direct path of easterly winds, due to the development pattern and population base. The most effective way to reduce fire hazard is to address the spotting potential is to remove the eucalyptus that causes the hazard.

Fire burning in north coastal scrub primarily would endanger structures directly above this fuel type during a fuel driven fire due to the fast rates of fire spread and long flame lengths associated with north coastal scrub. However, no structures are located directly above the proposed project area; North coastal scrub is not considered to have long-range spotting potential, even in strong winds such as under Diablo Wind conditions (local name for region's foehn winds). Another significant difference between scrubby fuels and eucalyptus stands is the height of the fuelbed. The 100-ft tall eucalyptus stands are often taller than the ridgelines, and can cast embers much farther because of their height; in contrast, six-to-ten-feet tall scrub is often lower than the ridgeline. The

ridgeline thus can serves as an effective barrier to ember spread to structures downwind toward structures once the eucalyptus have been removed and scrubby or grass fuels dominate.

While some of the project area may develop into north coastal scrub, many of the previously treated areas have grown into native oak woodlands. This vegetation type is routine characterized by very benign fire behavior, with lower overall fuel load, lower expected heat output and flame lengths typically less than 2 ft.

4) Justification of two species (Monterey Pine and Acacia) targeted for removal area risk

Monterey pine and acacia are not dominant in the project area. Monterey pine is more common than acacia.

a. Fire Risk posed by Monterey pine

The anticipated fire behavior in pine is second only to that posed by eucalyptus.

The fuel load of unmanaged Monterey pine can be quite high, as the needle litter and duff accumulate to depths of 6 – 10 inches deep. The older stands include trees with branches that tend to break as they mature, adding abundant dead logs available to burn in a wildfire. As Monterey pine stands age, dead branches or dead trees are common in the stand, especially as they succumb to drought or insect attacks.

Monterey pine with dead logs would be characterized by a surface fuel model of FBPS #9 (see Appendix for description of Fuel Models). The fluffy pine needles create a fuelbed that is easily ignited. The narrow, but long needles are not compacted, creating a ratio of oxygen to fuel ratio as well as a high surface area to volume ratio that promotes ignition and burning. The needles have a high level of volatile oils like eucalyptus (see Philpot and Mutch 19XX), which further facilitates ignition. Pine needles are often found hanging suspended on lower shrubs or logs; this effectively adds a larger component of dead, oily material to a shrub complex and boosts the ability of the stand to torch and produce embers. Pitch on pine trees also offers additional avenues for torching and extra heat output.

Older pine stands often have an understory of smaller pines, which constitutes ladder fuels and therefore a significant potential for torching and ember production.

- **Fire Risk posed by Acacia**

Less is known about acacia, however it occurs in the project area stands of high densities as seen in the photos below. Regardless, cues regarding the potential fire behavior can be drawn from the fuel characteristics.

The density of stands is a concern, indicating high volumes of available fuel. The material in the stands are typically small in diameter, which serves as kindling to larger fires. The trees are rather short in stature (20-40 feet in height); when they are located below taller trees the short acacias are ladder fuels that promote torching and ember production. Typically branches of unmanaged acacias extend to ground, further providing ladder fuels and promote a high likelihood of torching. The structure of sprouting acacia form a basket, holding and elevating fuels to be optimally aerated so

that combustion is facilitated. This is especially true when acacia is intermixed with eucalyptus and Monterey pine, as the branching structure can elevate the pine needles and eucalyptus leaves, branchlets and bark.

5) Complete analysis of other practicable alternatives – regularly clearing ground litter, thinning targeted species rather than removing all and regularly clearing the understory and creating strategic linear fuelbreaks

a. Regularly Clearing Ground Litter

Clearing ground litter requires removing the material under the eucalyptus. This would entail raking grassy fuels, and removing eucalyptus leaves, and branchlets in and around the shrubby understory plants. While grass has occasionally been raked in small areas of eucalyptus stands on gentle terrain, no agency has tried to remove surface litter around the understory shrubs and small trees that are common in the study area. The presence of poison oak is widespread and a significant a deterrent to removal using hand labor. The terrain is often steeper than 30 percent grade and places limits due to worker safety concerns. Disposal of the litter (sometimes totaling 40 tons per acre) is not economically feasible due to off-hauling costs, since alternative disposal options such as use of pile burns are not safe to conduct in the dense eucalyptus stands.

Clearing of ground litter does not address other major fire hazard elements in eucalyptus: shrubby surface fuels, aerial fuel load and density in canopy. This ground clearance work may reduce chance of ignition, but once ignited, fire behavior has the same undesirable characteristics (with potential torching due to shrubby understory). Even if all ground litter were cleared, ignition could occur if the suspended material within the canopy is ignited through ember deposition, or if a fire spread from outside the area, igniting shrubby fuels or suspended dead eucalyptus fuels in the area. The resulting fire would be carried in the shrubby canopy independent of the ground litter, with resulting fire behavior similar to if the ground litter were not removed. This treatment is not effective and would not achieve the fire hazard reduction goal because the crown fires are still likely with any ignition in the area and represent a threat to nearby structures.

This approach requires yearly treatments using only hand labor, with increased cost and higher potential for greater environmental impacts. Where north coastal scrub is present this alternative may constitute harassment of the endangered species (Alameda Whipsnake) through repeated disturbance.

b. Thinning Targeted Species Rather than Removing All and Regularly Clearing the Understory

Thinning and regular clearing the understory is a legitimate approach, used in some locations outside the project area. This approach requires multiple entries, a longer timeframe, increased cost, and higher potential for greater environmental impacts. This alternative may constitute harassment of the endangered species (Alameda Whipsnake) through repeated disturbance. Management in the locations of Alameda Whipsnake habitat have environmental constraints that cannot be mitigated, thereby requiring greater efforts to achieve the same level of fire hazard reduction. For example, work using heavy machinery may not occur when the snake is active, roughly during the spring, summer and fall; this coincides with the optimum time for machinery to travel on dry ground in order to reduce erosion potential.

In areas without Alameda Whipsnake habitat, this technique can gradually shift species composition from eucalyptus to one of lesser hazard over a span of ten years or more. During the conversion, the level of hazard is still elevated. Incremental fire hazard reduction is associated with eucalyptus thinning and simultaneous growth of shorter-stature trees that have less ember distribution concern.

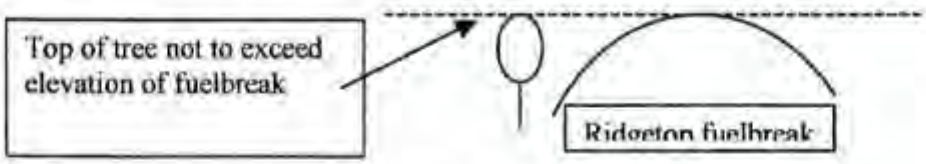
Immediately after the eucalyptus are thinned initially, the remaining eucalyptus and smaller stature trees are separated both horizontally and vertically. This separation limits the spread of fire from the shorter trees to the taller eucalyptus trees, therefore limiting the potential of a crown fire. However, the eucalyptus branches become heavy and grow longer, eucalyptus bark grows and peels off, and the shorter trees grow taller and wider, creating ladder fuels that enable torching. These two changes happen quickly and necessitate repeated treatment. Since the FEMA grant is for a one-time only treatment, there is no assurance that the follow-up continued thinning of targeted species will be funded to be able to achieve the fire hazard reduction goal.

c. Creating Linear Fuelbreaks

The purpose of linear fuelbreaks is to facilitate containment and control of a wildfire. Fuelbreaks are co-located with roads because its purpose (to aid containment and control) assumes access for fire-fighting resources. However, roads are not always located in the project area. In other cases, existing roads are not in a condition suitable for this purpose.

Creation of a linear fuelbreak involves the removal of all eucalyptus and most trees. The desired fuel is of low volume that offers potential for backfires and easy control (e.g., grass, with occasional shrubs and trees with low flammability.

Fuelbreaks are installed on ridgetops because it serves to limit spotting from trees over from one canyon to the next. The ridge-top fuelbreaks (such as the one on Skyline Blvd in Anthony Chabot Park) generally extends down the leeward side below the height of the trees. However, much of the project area is not located on the ridgetop, but rather on side-slopes or canyons; the location of the project area limits the effectiveness of this alternative.



Linear fuelbreaks do not address key concern of fire behavior in eucalyptus stands, which is the potential for fire to spread to the tree canopy and cast embers afar to start new fires in areas with structures. Because the project areas are not along ridgetops separating the wildlands from structures the prevention of ember distribution is not achieved. The stands outside linear fuelbreaks remain untreated and can easily produce and loft firebrands over the fuelbreak.

6) Document chips will decompose in 3 to 5 years

This topic has been addressed in the April 10, 2008 response of the University of California Berkeley to FEMA, with before and after photographs of the area approximately three years after treatment.

The landscaping industry has evaluated the decomposition rates of eucalyptus chips because eucalyptus trees are grown on plantations in Florida for the express purpose of mulch production. (Heithaus, 2008). Decomposition is a good measure of how long mulches will last. After 1 year, 21% of the eucalyptus mulches had decomposed. The other mulches (such as pine straw, pine bark, or melaleuca) had very low decomposition, from 3% to 7% (Duryea, et al, 1999).

In another study by Faber and Spiers (2004), eucalyptus decomposed in one year from 100 cm to 22 cm, and from 22 cm to 7 cm. The decomposition rate was the fastest among all of the 21 different mulches tested. Mulches spanned recycled wood chips from palettes, pine sawdust, poplar, willow, avocado, and municipal greenwaste.

As documented by the above studies and by the photographic evidence provided previously, the eucalyptus chips can be expected to decompose quickly, in a time span of three to five years.

References

Agee, J.K., Wakimoto, R.H. Darley, E.F., and Biswell, H.H. 1973. Eucalyptus fuel dynamics and fire hazard in the Oakland Hills. Calif. Agric. 27(9):13-15.

Duryea, Mary L., R. Jeffery English, and L. Annie Hermansen. 1999. A Comparison of Landscape Mulches: Chemical, Allelopathic, and Decomposition Properties. Journal of Arboriculture 25(2): March 1999

Faber, Ben and Michael Spiers. 2004. Cellulase Production by Various Sources of Mulch. Cellulase Production by Various Sources of Mulch. Topics in Subtropics Newsletter, Volume 2, No. 4, October - December 2004. University of California Cooperative Extension, edited by Mary Bianchi. http://cesanluisobispo.ucdavis.edu

Fenwick, Roger. 1980. Fire Management Plan for the Lake Chabot Eucalyptus Plantation. Unpublished report to the East Bay Regional 0000 District. 18 pp.

Golden Gate National Recreation Area, 2008. Eucalyptus – A complex challenge. Educational material published by the Golden Gate National Recreation Area Fire Education Office, for the Pt. Reyes National Seashore.

Harriet Howard Heithaus 2008. Cover-up: Which mulch is best for your garden? Here are pros and cons. Naples News. http://www.naplesnews.com/news/2008/aug/22/cover--which-mulch-best-your-garden-here-are-pros-/

Martin, Robert E. Mark A. Finney, and Jon J. Valentino. 1988. Fuel conditions and Potential Fire Behavior of Angel Island State 0000. Report to California Department of 0000s and Recreation. Pgs 173-194 in Focused Environmental Study of Restoration of Angel Island Natural Areas Effects by Eucalyptus.

Mutch, Robert W. 1970. Wildland fires and ecosystems – a hypothesis. Ecology 51(6):1040-1050.

Rice, Carol L. 1985. Use of BEHAVE on Shrublands at the Urban Interface. Pgs 270-274 In Eight Conference on Fire and Forest Meterology, Detroit, MI, April 29-May 5, 1985.

Radtke, Kalus. 1983. Living more safely in the chaparral-urban interface. Gen. Tech. Rep. PSW-67. Pacific Southwest Forest & Range Experiment Station. Berkeley, CA 51 pp.

Rothermel, Richard C. How to Predict the spread and intensity of forest and Range fires. Gen. Tech. Rep. INT-143. Ogden, UT. USDA Forest Services, Intermountain Forest and Range Experiment Station.

Appendix B2 Fire Hazard and Fire Behavior Background Information

Fire Hazard Reduction

The emphasis of fire hazard reduction is placed on fuel characteristics, which in turn affect fire behavior. While an assessment of fire hazard usually includes topography and weather, little can be done to manage those. To better understand fire hazard reduction it helps to understand the basics of surface fuel models, fire behavior and ember production.

The surface fuel models do not include information on the canopy of the tree stand, but rather what will carry the fire as it spreads on the forest floor. When fire burns into the tree canopy, another set of fuel-related data is required to analyze and predict the resulting fire behavior and hazard.

Surface Fuel Models – Fuels are grouped into models that typically burn in a similar way. The fire behavior fuel models include data on:

- Fuel load by category (live and dead) and particle size class (0 to 0.25 inch, 0.25 to 1.0 inch, and 1.0 to 3.0 inches diameter)
- Surface-area-to-volume (SAV) ratio by component and size class
- Heat content by category
- Fuelbed depth
- Dead fuel moisture of extinction

The total volume (fuel load) is important because usually the more available fuel there is, the hotter the fire (heat output) is.

The canopy is not included in the surface fuel models because usually this set of fuels are not considered available to burn. Fuels are deemed unavailable when they are too moist or too large to burn, or separated by space such that they are effectively isolated from the fire's contagion.

As fuels dry, more fuel becomes available. If fuels are arranged in a continuous distribution over space (either vertically or horizontally) more will be available. In the most extreme cases canopy fuels may be available and torching occurs.

There are a few fuel models that are typically applied to the project area. A description of those as taken from How to Predict the Spread and Intensity of Forest and Range Fires, by Richard C. Rothermel, 1983.

FUEL MODEL 10: (Eucalyptus stands with large dead logs) The fires burn in the surface and ground fuels with greater fire intensity than the other timber litter models. Dead down fuels include greater quantities of 3-inch or larger limbwood resulting from over-maturity or natural events than create a large load of dead material on the forest floor. Crowning out, spotting, and torching of individual trees is more frequent in this fuel situation, leading to potential fire control difficulties. Any forest type may be considered if heavy down material is present; for example, insect- or disease-ridden stands, wind-thrown stands, over-mature stands with deadfall, and aged slash from light thinning or partial cutting.

FUEL MODEL 9: (Mixed Hardwood, Eucalyptus stands with little debris) Fire runs through the surface litter faster than model 8 and has a higher flame height. Both long-needle conifer and hardwood stands...are typical. Fall fires in hardwoods are

representative, but high winds will actually cause higher rates of spread than predicted. This is due to spotting caused by rolling and blowing leaves. Closed stands of long-needled pine...are grouped in this model. Concentrations of dead-down woody material will contribute to possible torching out of trees, spotting, and crowning.

FUEL MODEL 8: (Oak Forest, Redwood) Slow burning ground fires with low flame heights are generally the case, although an occasional "jackpot" or heavy fuel concentration may cause a flare up. Only under severe weather conditions involving high temperatures, low humidities and high wind do the fuels pose fire hazards. A compact litter layer (composed of needles, leaves, and some twigs) supports fire, since little undergrowth is present in the stand.

FUEL MODEL 5: (Coastal Scrub) Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs, and the grasses or forbs in the understory. The fires are generally not very intense because surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material.

Despite discussion in previous letters between FEMA, the HCN and the project applicants, there is no chaparral in the treatment area.

Fire Behavior

The interaction between fuels weather and topography is expressed by fire behavior. There are several characteristics that are typically used to describe fire behavior. These include flame length, fire intensity, torching, and crown fires.

Flame Length - Flame length closely corresponds to fire intensity, which can predict fire severity (which is a term that describes the fire's effects). This factor most influences probability of house damage from flame impingement or radiant heat, and ease of fire control. A flame length of eight feet is usually looked at as a cut-off point for decisions whether to attack the fire directly, or instead attempt control through indirect methods.

Flame lengths are often used as a proxy for fire intensity because they are highly correlated to fire intensity. Long flame lengths may justify treatment where they occur near sensitive values-at-risk. Flame lengths are compared to the lower height of the canopy to determine the likelihood of torching.

Flame lengths follow fuel types, with long flame lengths in chaparral and untreated grass, and short flame lengths in woodlands and mowed grass.

Rate of Spread - The rate of spread is most closely associated with the ability to contain a fire. Rates of spread analyses point to the needs for increased access, detection, reporting, and fuel management to slow fire spread in strategic locations.

Low fire spread rates were predicted in woodlands and forests, and fast spread rates in untreated grass and chaparral.

Crown Fire Potential - Crowning activity indicates locations where fire is expected to travel through and likely consume the crowns. When a fire burns into tree crowns, countless embers are produced and these firebrands are distributed, sometimes at long distances. These embers can start new fires, which can each grow and confound the finest fire suppression forces. For management purposes, prediction of torching or

crown fire is highly correlated with fire severity. Crown fire activity is of concern wherever it occurs because of its impacts and the containment challenges.

Torching is caused by the fire reaching low-hanging limbs, or ladder fuels, which in turn carry the fire to the tree canopy. Stated another way, the factors in torching are flame length, height off the ground of the tree canopy, and fuel moisture. The longer the flame length, the greater the chance of torching. Similarly, fuels that can continue the spread of fire (such as low-hanging branches or peeling bark) promote torching and ember production.

Figure 1: Comparison of Torching and Active Crown Fire.

Ember-Production Hazard Assessment. Recent research has shown that most houses are ignited by embers. Thus ember production and distribution is linked to structure loss. Most structures and population are located downwind of the wildlands and are in the path of ember-cast (the footprint of ember-showers) during the dry, northeast winds.

Every time a tree torches, countless embers are produced. It follows that efforts to reduce ember production and distance of ember-cast is a suitable fire hazard reduction goal.

Table of spotting distance

Fuel Type	Spotting distance
Grass	tens of feet
Scrub/chaparral	hundreds of feet
Long-needled Pines	1-2 miles
Eucalyptus	miles, up to 9 miles

Hazard assessment often focuses on ember production and distribution to values at risk – particularly structures. Factors used to assess the potential damage from ember production and distribution are:

- Potential for torching, (ember production),
- The position of the stand on slope,
- Distance from structures,
- Elevation in relation to structures

Ridgetop/Valley: It is far easier to loft embers a long distance from the top of a hill than from down in the valley. So the question was asked whether the top of the stand is within 100 feet in elevation from homes. In contrast, eucalyptus and pine stands in valley bottoms are not as hazardous.

Attachment C

WHY THE 1991 FIRE WASN'T STOPPED EARLY ON SUNDAY MORNING

After the fire, the media and impacted homeowners tried to pinpoint blame for how the fire started, and then tried to determine why the fire wasn't prevented or stopped by firefighters. Who started the Saturday fire and how did the Sunday restart happen? Why did it take so long to get enough fire engines to the fire? Why wasn't the firefighting and emergency response adequate? Who's responsible? These were just a few of the vigorously debated topics at local, state, and federal levels because no other urban area in California had experienced comparable one-day wildfire behavior or losses. Of course these are important questions, but they also mask other important factors that made this fire uncontrollable on Sunday morning. First, we consider a recent newsletter summary of the fire by a group with an axe or two to grind, then statements by firefighters who were present on Sunday morning, and then summary information from official descriptions of the fire.

The following two quoted paragraphs are from a recent HCN newsletter posted by this small group of individuals who call themselves a think tank yet don't seem to appreciate this areas significant fire history and continuing exposure to uncontrollable wildfire. I include their description of the 1991 fire to show how an incomplete and inaccurate narrative adds to the confusion they create about the need for agency wildland projects and about firefighting in the hills. While dramatic in intent, the newsletter fails to include several residential area features that were noted in media and official reports describing why this fire was uncontrollable. For its own purposes, the newsletter implies that pine and eucalyptus trees were not factors in the early stages of the fire until the "first grove of pine trees set the Parkwood Apartments ablaze" and flames and smoke from the "first grove of eucalyptus blasted across Charing Cross road" killing Oakland Police Officer John Grubensky and five fleeing residents trapped in their cars on the narrow, one-lane roadway.

Yet, as the fire restarted and gained headway in dry grass and brush within 100' of homes, it was flammable pine trees, flammable home landscapes, flammable homes, and scattered, flammable eucalyptus trees that all became the perfect combination of densely packed fuel on very steep slopes that would make this wind driven fire unstoppable.

> "Sunday morning dawned clear and hot, with an increasing Diablo Wind. At 10:41 two Oakland engines with crews departed the scene. One of the two remaining Oakland Fire fighters headed up the blackened slope with a five-gallon pack, spraying any small wisps of smoke that he saw. As his boots broke through the crust, wind whipped embers flew out and into the parched brush and oak trees. It was 10:56 a.m. The firefighters ran for their lives, faced with an out-of-control wind-driven high fire careening west into the residences along Buckingham, Westmorland, Bristol and Norfolk. A third alarm at 11:06, and CDF was alerted; the sixth alarm and call for mutual aid came at 11:26. At this point, primary fuel for the conflagration was not the Monterey pine, oaks and occasional redwoods scattered among the homes, but the houses themselves.
>
> The first grove of trees the flames encountered was the dense stand behind the Parkwood Apartments, which promptly set the complex ablaze. Residents of the Buckingham/Tunnel canyon evacuated in a panic, generally leaving everything behind; all but one of the 25 fatalities occurred in those first 30 minutes, when the fire was truly a firestorm. It blasted up Charing Cross, overtaking fleeing cars, consuming the first grove of eucalyptus just before bursting over the hill into Hiller

Highlands. There it rolled like a tsunami down through the homes, one consumed every 11 seconds. The roar of flames and fractured gas lines, punctuated by exploding fuel tanks and collapsing structures, was deafening. Residents, fleeing in their cars down Hiller Drive, lined the proper right hand side of the road - even as burning debris blew around and under them - leaving a lane open for the anticipated rush of fire trucks - trucks that never came."

Aerial photo of the area of the early Sunday fire

East Bay Hill fires of the past 100 years add to our knowledge about living in locations periodically subjected to extreme winds during the summer and fall fire season. By now we should know that living safely in high-risk environments demands a well thought-out partnership and plan among homeowners, large acreage landowners, firefighters, fire prevention inspectors, and public agencies. Together, they must ensure that homes have adequate defensible space, that homes can resist flames and burning embers, that fuelbreaks are maintained on the high ridges and at the wildand urban interface, and that pine and eucalyptus trees are removed or managed so they will not become serious ember propagators that quickly spread fire to reduce evacuation time and make control impossible when a fire expands too quickly. The locations for both the Saturday and Sunday fires occurred in an area that was typical for many wildland/residential sites in the East Bay Hills. However, the site was also unique because of steep slopes, repeated exposure to Diablo winds and a cycle of irregular fires, and the absence of any preparation to keep fire away from flammable homes.

As the fire restarted above 7151 Buckingham, firefighters and most area homeowner's were conditioned to believe that fires are always controllable if just the right things are

done at just the right time. Unfortunately, all of these assumptions can be very wrong when an ignition, becomes wind-driven to feed on flammable grass, brush, pine trees, flammable homes, and dense landscapes on steep slopes in an unprepared residential area. This 1990 aerial photo shows the area of ignitions for both the Saturday and Sunday fires. However, a two dimensional photo is deceptive because the homes are located in a box canyon with very steep slopes. Buckingham Boulevard snakes across the bottom of the photo.

Buckled steel beams and charred pine trees mark the location of a destroyed home on Buckingham Boulevard. This home was typical for many area residences that were surrounded by flammable pine trees (many from seedlings that followed the 1970 fire) with densely spaced homes on steep slopes and inadequate defensible space... all contributing factors in the rapid spread of the early Sunday fire.

Firefighter descriptions of the early Sunday fire

I produced the following description of the early Sunday fire without quotes, from personal discussions with Bill Nichols and four other Park District firefighters who were there on Sunday morning. It tells of a more complex early fire as well as the valiant efforts made by firefighters and citizens who attempted to contain a fire that turned out to be unstoppable. If the fire could have been controlled that morning by the skilled firefighters present, it would have been stopped.

The following narrative expands on firefighting and site descriptions to be added to the many stories already told about this terrible wildfire.

> We arrived at the Gwin water tank at approximately 10 a.m. to join the group gathered there to pick up hoses from the Saturday fire. The wind was noticeable, and blowing very strongly in the "wrong direction"- from east to west from 30 to 40 miles per hour. We saw several firefighters on the hill below, but we did not see any smoke or hot spots. Two of us, from our group, drove down below 7151

Buckingham at the base of the hill, to pick up hoses, where we noticed that the wind was continuing to gust very strongly in the down slope direction.

The climbing route up the hill behind 7151 to the burned area of the Saturday fire was very steep and difficult. A group of neighbors was gathered in the driveway of a nearby house, and a woman walking by said "You are going to get your exercise for the day." The entry to the burned area was through a hole in the northeast corner of a fence above the house, but it was difficult to see the burned area because of the dense coyote brush and a grove of pine trees above the fence. I arrived at the burned area approximately 30 feet above the fence, but the going was still hard because of the steepness of the hill, the loose soil, and remaining coyote brush branches.

Hearing a yell, I looked to the west across a gully and saw open flame and smoke directly underneath a grove of large pine trees approximately 150 feet away. Two firefighters were at the site of the spot fire that was burning in thick pine duff beneath the trees. The wind was adding to the problem by blowing needles that were not burned by the Saturday fire off the trees. When the needles landed in the heated duff they ignited, and were blown outside the burned area. A firefighter soon arrived with a fire hose at the end of a 400 foot hose lay from a fire engine on Buckingham. The line was charged, and a full mop-up of the hot spot was begun at approximately 10:45 a.m. We learned later that there was another hot spot on the hill above us that we could not see that was being worked by two firefighters.

To the east, across the gully we saw another flare up from flames and smoke beneath a small oak tree. While the small pine grove fire was being mopped up, I ran across the gully to extinguish the fire under the oak which was relatively easy because there was no duff and only two small oak trees and brush about ten feet from the eastern perimeter of the Saturday fire. Later, we felt something below and behind us and turned around to see a line of open flames about three to five feet high rapidly burning downhill toward Buckingham through the thick, dense, unburned brush. The flames were about 20 feet away when we first noticed them. I grabbed a fire hose and started moving downhill toward the flames. The time was approximately 11:00 a.m.

I noticed several firefighters in fire trucks on Buckingham also working a spot fire on the slope west of 7151 and below the driveway and fence at 7145. A news reporter and cameraman approached and asked if this was the worst spot, and I replied that what we had was bad. The wind became even stronger as we were attempting to stop the fire that had moved into the rear of 7151 Buckingham. By this time the fire had spread laterally into the unburned strip of brush and trees adjacent to the fence above the house. There were approximately 50 medium sized pine trees in this area. As the fire built up momentum in the brush it began torching through the trees. The embers from the Monterey pines became a virtual storm of flaming needles and embers once they were fully involved in fire and driven by the winds. The fire now headed rapidly downhill across Buckingham being pushed by the wind. Thick black smoke made it difficult to see and breathe since the wind was pushing flames, embers, and smoke downhill into our position. Our attempts to fight the fire soon became futile. The wind was so strong that it blew a straight stream of water sideways from a one and a half inch fire hose. What water that did get to the fire was rapidly turned to steam. Small logs on fire that were sprayed with water would quickly reignite. One firefighter was overcome by the heat and revived with a burst from the nozzle into his face, and we pulled him downhill where he could catch his breath. The time was approximately 11:15 a.m.

We were pulling hose for several minutes to support two firefighters on the roof, attempting to keep fire out of the house. Then came the word to pull out, I assumed from Chief Riley who we later learned had later lost his life helping residents evacuate. The firefighters on the roof continued their efforts to save the house that was now surrounded on three sides by fire despite our yells that it was time to evacuate our position. They eventually came down, and we got in our truck and headed up Buckingham. Looking beyond the house, I could see that the fire had gained enough intensity and momentum to move uphill along both the west and east sides of the Saturday burn toward homes on the ridge to the west and to the east along the slope below Grizzly Peak Boulevard. The time was approximately 11:30 a.m.

Conditions at this point had rapidly deteriorated. Visibility was extremely poor because of the thick black smoke and the heat was intense. Fire was now on both the uphill and downhill sides of Buckingham. Explosions were occurring and the ground was shaking. Power lines were coming down and pine trees torching. Before getting in the truck, I remember fighting off the urge to get down as low as possible and stay there. As we drove south, it became apparent that we were the last ones out of lower Buckingham. We passed one fire engine that was partially burned and a Chief's sedan that was totally involved in fire with the horn blaring. We stopped when we saw a power line bobbing ahead. Flames were extending across the street blocking our escape. We had to turn around and head back down Buckingham. At this point, I felt that we had waited too long and that we were about to die.

By this time the winds within the fire were so strong that our truck was being buffeted, and sheets of flame and smoke covered the street. Visibility was extremely poor, and when I opened the window to attempt to see, intense heat and smoke entered the cab. Someone yelled, "Keep going", and it took all my concentration to do just that. There was a momentary clearing of smoke as we came to two firefighters who jumped into the back of our rig as we continued down the road.

When we arrived at 7200 Buckingham there were two Oakland engines with eight firefighters and a student "ride-a-long", one 0000 District engine, a pickup and five firefighters, a civilian volunteer, and two homeowners who stayed to fight for the duration. We spent our time trying to save homes even though we were surrounded by fire, downed power lines, and were trapped at the center of a fire that was rapidly spreading in all directions. Luckily, we had a strong, constant water supply during the worst of the fire at this location. Conditions were extreme- there was intense heat, strong winds and blowing embers, heavy smoke and poor visibility. There was also a group of six resident evacuees who had retreated to our position. We gained access into 7235 Buckingham, staged the civilians in the basement and garage, and prepared to use that structure as a last stand. We led a small controlled firing out operation of the brush and vegetation around 7235 while the water lasted. By this time we could see that the fire had passed through the 0000wood Apartments below us and had blown over Highway 24. Although the imminent danger had passed our position, everything that was combustible was on fire- fences, trees, houses, and cars. At approximately 12:15 p.m. the hydrants went dry.

Later, when it was time to leave, we were asked by Captain Davis to see if there was a way out along Tunnel Road. We scouted our exit in a truck and cleared a path along Tunnel Road by winching burned cars off the road and by pushing stoves and dryers over the side. As we exited the area we found two bodies, one

in a driveway near the Tunnel/Charing Cross intersection and one on Tunnel Road. They were placed and covered in the back of the truck as we proceeded toward the Command Post at the Rockridge BART station. As we crested the hill on Tunnel Road, we could see that fire had reached the residences above Lake Temescal and was burning around the PG&E substation near Highway #13.

We took the two casualties to the emergency medical center at Oakland Tech High School, and were told to return to 7200 Buckingham for continued structural protection and mop-up. We worked to secure the area, however conditions around us continued to be dangerous. The air was filled with smoke and large trees toppled, crashing to the ground. Having done all we could do, we walked up Buckingham at dusk for about one-quarter mile. We saw total devastation and that nothing had survived the inferno. Along the way we cut downed power lines and cleared the road of debris. Broken water lines dripped and gas lines burned. The wind had subsided and the fire had passed by. In the whole of the valley between Gwin Tank and Highway #24, we could see that the only houses standing were at 7200 and 7235 Buckingham. Later that evening we were all assigned to new firefighting duties at other locations.

A summary of the official description of the two fires

On Saturday October 19, 1991 at 12:12 in the afternoon, a fire started in grass and brush behind a house on private land and burned uphill across the steep slopes of Oakland's Grizzly Peak Open Space. The fire area turned out to be relatively small, but this fire was not routine because it was burning in shrublands up a very steep hillside. It quickly went to five alarms for Oakland, and included mutual aid responses from Berkeley, CAL FIRE, and the Regional Park District. It took, what seemed like a long time for units to actually get water on the fire, but the saving grace was the absence of wind, enabling the fire to be stopped around 1:40 before it could reach homes on the ridge. It took several hours to mop up and soak the burned area with helicopter water drops, water from fire engines with long hose lays, and to construct a cleared break around the entire fire area. Hand crews worked the burned area until 6:40 when darkness made it too dangerous to work on the hillside's steep slopes. Before leaving, a Battalion Chief checked the area for any visible signs of hot spots, and directed responding units to leave their fire hose in place for use in the morning. During the night, local fire units returned to the scene to look for hot spots, and no signs of smoke or flames were observed.

Fire crews returned early Sunday morning to monitor the area, deal with any embers and smoke that developed, and collect hose left on the hill. As they were picking up fire hose scatter over the hill during the Saturday fire, winds began to stir up hot spots in several locations. Between 10 and 11 in the morning, Diablo winds, that had developed overnight, reached an estimated 30 to 40 mph and began to fan and then blow burning embers down steep hillsides into unburned areas. A series of small flare-ups occurred that seemed controllable, until too many embers blew into dry brush and pine trees overwhelming the eleven firefighters and three engines that were working the hill. It took considerable time to make the transition from collecting piles of hose to deploying it to control the hot spots. Oakland and Regional Parks firefighters were spread out on the hill with very spotty radio communication, and limited visual and voice contact. Flames soon raced down the slope a short distance toward Buckingham toward homes with dense landscapes that included more pine trees, and at the same time raced up to the ridge to ignite unprepared homes. At that point it became a fire that could not be controlled until the winds slowed and a mutual aid response of 440 engine companies with more than 1,500 firefighters were finally amassed to surround the fire in the late afternoon. The official firefighting details (that more adequately cover all of the successes, mistakes, and difficulties for both the Saturday and Sunday fires) can be found on pages 22 through 37 in the J. Gordon Routley FEMA and United States Fire Administration report.

Postscript

Recently, a new category of wildfire has been described and labeled by The Brookings Institution Center for Public Policy because they are extraordinary in terms of their size, complexity, and resistance to control.

"These "mega-fires" often burn into the wildland-urban interface where values to be protected are high. They invariably break out when other wildfires are stretching firefighting capacity. With few exceptions, they usually occur in late seral stand conditions on drier sites, where the buildup of dead woody material and accumulation of live biomass can fuel high-intensity events. It is not unusual that fire severity in these stands is exacerbated following years of drought, insect infestations and disease. These wildfires, often burn under extreme fire weather conditions, exhibiting extreme fire behavior characteristics and exceed all efforts at conventional control until relief in weather or a break in fuel occurs."

"Mega-fires are a situation as much as they are an incident. Emotions run high when they occur. They are not defined in absolute terms, using physical measures (e.g. acres burned). Instead, these are the "headline" wildfires where operational limitations, public anxieties, media scrutiny, and political pressures collide. Those affected often want to know why the fire became so destructive, how it escaped efforts at control, and who is to blame. While generally very large in size, complexity is their better descriptor. They overwhelm local capabilities and capacity. They are frequently long-lived, requiring a large commitment of suppression resources for an extended period. The intensity of these wildfires tends to place firefighters on the defensive and put managers in a reactive mode."

ATTACHMENT D

VEGETATION TYPING STRATEGY- Source 1995 HEF Plan

PLANT COMMUNITIES	NORTHERN FOREST FIRE LABORATORY (NFFL) MODELS
HERBACEOUS DOMINATED	
SERPENTINE GRASSLAND	SHORT GRASS- MEDIUM
GRASSLAND	SHORT GRASS- MEDIUM OR HIGH, AND TALL GRASS- MEDIUM OR HIGH
OAK SAVANNAH	SHORT GRASS- MEDIUM OR HIGH, AND TALL GRASS- MEDIUM OR HIGH
SHRUB DOMINATED (>30% WOODY PLANT COVER)	
WET NORTH COASTAL SCRUB (MESIC SLOPES)	BRUSH- LOW EXCEPT EXTREME ON NORTH EAST SLOPES
DRY NORTH COASTAL SCRUB (XERIC SLOPES)	BRUSH- LOW TO EXTREME, WITH SHORT GRASS OR TALL GRASS IF THEY ARE PRIMARY FIRE CARRIER
FRENCH BROOM	CHAPPARAL- LOW TO EXTREME
CALIFORNIA SAGE BRUSH	BRUSH- LOW TO EXTREME
NORTHERN MIXED CHAPARRAL	CHAPPARAL- LOW TO EXTREME
ALAMEDA MANZANITA	CHAPPARAL- LOW TO EXTREME
SUCCESSIONAL SCRUB (EMERGENT TREES >30% COVER)	CHAPPARAL- LOW TO EXTREME, OR BRUSH- LOW TO EXTREME
TREE DOMINATED (>30% TREE CANOPY COVER	
MIXED HARDWOOD WOODLAND (<30-70% TREE COVER)	PINE WITH GRASS UNDERSTORY- LOW TO EXTREME, OR TIMBER LITTER - LOW TO EXTREME
MIXED HARDWOOD FOREST (>70% TREE COVER)	TIMBER LITTER- LOW TO EXTREME
HARDWOOD RIPARIAN FOREST	TIMBER LITTER- LOW TO EXTREME
CONIFER FOREST, YOUNG	SOUTHER ROUGH - LOW, OR TALL GRASS
PINE FOREST- MATURE	TIMBER LITTER- MODERATE, OR TIMBER LITTER UNDERSTORY- LOW TO EXTREME
REDWOOD FOREST	TIMBER LITTER LIGHT, OR TIMBER LITTER MODERATE- LOW TO EXTREME
EUCALYPTUS- MATURE	TIMBER LITTER MODERATE, OR TIMBER LITTER UNDERSTORY- LOW TO EXTREME
EUCALYPTUS- 20 YEARS	TIMBER LITTER UNDERSTORY- LOW TO EXTREME
EUCALYPTUS- 5 YEARS	SOUTHER ROUGH - LOW TO EXTREME
ACACIA	TIMBER LITTER UNDERSTORY- LOW TO EXTREME
CYPRESS	TIMBER LITTER LIGHT, OR TIMBER LITTER MODERATE- LOW TO EXTREME
DEVELOPMENT STAGE DESCRIPTIONS	
EXTREME (E)- DOUBLE FLAME LENGTH= 8M	
HIGH (H)- STANDARD BEHAVE LENGTH=4M	
MEDIUM (M)- ONE HALF FLAME LENGTH= 2M	
LOW (L)- ONE QUARTER FLAME LENGTH= 1M	
BEHAVE ATTRIBUTES	
VEGETATION TYPE	
FUEL MODEL	
DEVELOPMENT STAGE	
CROWN POTENTIAL AND TREE HEIGHT	
SLOPE CLASS- 0%, 10%, 20%, AND 40%	
ENVIRONMENTAL CONDITIONS FOR "AVERAGE WORST" (95%) DIABLO WIND CONDITION	
a. Relative Humidity= 10%	
b. Temperature= 80 degrees F	
c. Fuel Moisture- 1 hr fuel=3%, 10 hr fuel= 4%, 100 hr fuel=5%	
d. Midflame wind= 12 miles per hour from the Northeast	
e. Life Foliar and Woody Moisture= 70%	
BEHAVE RESULTS MODEL RUNS USED TO IDENTIFY FIRE BEHAVIOR FOR EACH POLYGON IN TERMS OF:	
1. RATE OF SPREAD (FEET PER MINUTE)	
2. FIRELINE INTENSITY (HEAT/AREA)	
3. FLAME LENGTH (FEET)	
4. CROWNING POTENTIAL	

ATTACHMENT E

VEGETATION ATTRIBUTES FOR AVERAGE DIABLO WIND CONDITION

Source: Summary From the East Bay Hills 1995 Wildfire Hazard Reduction Plan, and modified by J.Kent

	Description	Flame Length-ft	Rate of Spread-mph
SHORT GRASS- Grass is fine structured, below knee level (<3 feet), cured or dead, and continuous- (NFFL Model 1)			
Low Development	Grass of 4 inches or less in height. Possibly continuous in coverage	2	0.4
Moderate Development	Grass of 5 inch to 1 foot in height. Sparse coverage	5	1.7
High Development	Grass finely structured, 2' high or generally below knee level, and cured or primarily dead. Grass is essentially continuous. Little shrub or timber is present and generally less than 1/3 of the area.	10	5.1
Extreme Development	Grass about knee level (2-2.5 ft.) cured or primarily dead. Densely packed and continuous. Typically ungrazed grasslands	21	9.1
GRASS WITH TIMBER/BRUSH OVERSTORY- Low Density Pine Forests or Plantations With Grass Understory (NFFL Model 2)			
Low Development	Patchy low grass and minor amounts of stem wood	3	0.2
Moderate Development	Grass is fine, less than 1 foot in height, with shallow litter layer and occasional stemwood on the ground	8	1.0
High Development	Grass under open timber and brush overstory. Enough grass to carry the fire and involve the litter from the overstory. Open scrub and tree stands cover 1/3 to 2/3 of the area.	16	2.7
Extreme Development	Dense grass, litter and clumps of down stem wood. Grass covers 2/3 of vegetated area. Clumps of stemwood and grass will generate enough fuels to involve the crown.	20	2.5
TALL GRASS- Grass is coarse and above knee level (>3feet)- (NFFL Model 3)			
Low Development	Coarse 2.5' to 3' tall grass, sparse or patchy with no thatch	7	1.4
Moderate Development	Coarse 2.5' to 3' tall grass, sparse or patchy with moderate thatch	12	3.8
High Development	Coarse structured grass at about 3 feet in height and densely packed. Approximately 2/3 of stand is cured or dead	29	6.0
Extreme Development	Coarse structured grass above 3 feet in height, densely packed, and entirely cured with thatch build-up	37	13.2
BRUSH- Brush with shallow depth of litter and some grass (NFFL Model 5)			
Low Development	Patchy brush with no dead wood. Grazed grass intersperses brush	10	0.9
Moderate Development	Brush with no dead wood. Stand is discontinuous or patchy in nature. Grass less than 6 inches and interspersed with brush	14	1.5
High Development	Brush is about 6 feet in height with light litter underneath	18	1.5
Extreme Development	Brush height over 6 feet, with over 40% dead material. 1 or more inches of litter or grass interspersed with the brush	32	4.3
CHAPARRAL/BRUSH- Brush with heavy loadings of dead, woody fuel (NFFL Model 4)			
Low Development	Brush young at 4 feet or old at 3 feet. Up to 20% dead material. Stands are patchy with no litter layer	7	0.4
Moderate Development	Brush height 4 to 6 feet in continuous stand with not litter layer. Dead material less than 30%.	24	2.2
High Development	Brush height 6 feet, with dead woody material and deep litter layer	46	4.6
Extreme Development	Brush height over 6 feet, with over 40% dead material, and 2 or more inches of litter	69	9.8

Description		Flame Length-ft	Rate of Spread-mph
EUCALYPTUS SPROUTS- Foliage with high oil content and complete vertical continuity (NFFL Model 7)			
Moderate Development	Canopy with vertical continuity and cured grass or shrubs between trees/sprouts	13	1.5
High Development	Sparse canopy with vertical continuity. Young shrubs with no grass between trees/sprouts	22	1.7
CANOPY WOODLAND OR FOREST WITH LITTLE LITTER- Surface fuels are mostly foliage litter. Large fuels are scattered and lie on tightly compacted foliage litter- (NFFL Model 8)			
Low Development	Dense canopy with no understory or litter	1	0.0
Moderate Development	Dense canopy with no understory or litter. Dense Bay Forest typifies this stage	2	0.0
High Development	Closed canopy stands of short needle conifers or hardwoods. Little undergrowth is present. Litter layer is mainly needles, leaves, and some twigs	2	0.1
Extreme Development	Dense overstory with well developed understory but with only occasional piles of stemwood. All fine fuels and litter layer under 2 inches depth	6	0.4
CANOPY WOODLAND OR FOREST WITH MODERATE LITTER- Surface fuels are mostly foliage litter. Large fuels are scattered and lie on loosely compacted foliage litter- (NFFL Model 9)			
Moderate Development	Litter layer up to 6 inches deep with occasional jackpots of fine material up to 3" diameter. Shaggy bark or other aerial fine fuels present	5	0.3
High Development	Moderate litter layer with concentrations of dead-down woody material	7	0.6
Extreme Development	Well developed litter layer up to 1 foot depth with accumulations of fine material up to 3 inch diameter around boles of trees. Shaggy bark and other aerial litter present	14	1.4
CANOPY WOODLAND OR FOREST WITH SIGNIFICANT LITTER- There is a significant amount of larger fuel that is distributed over the forest floor. The overall depth of fuel is below the knees, but some fuels may be higher - (NFFL Model 10)			
Low Development	Dense stands with lesser fine fuels. Occasional accumulations of logs over 3 inches or larger in diameter on the forest floor	6	0.2
Moderate Development	Dense Stands (500/800 stems per acre). Litter layer up to 6 inches deep with occasional logs over 3" diameter. Shaggy bark or other aerial fine fuels present	9	0.3
High Development	Dense stands with lesser fine fuels. Greater accumulations of logs over 3 inches or larger in diameter on the forest floor	12	0.5
Extreme Development	Dense Stands with litter layer up to 1 foot deep and concentrations of logs over 3 inches in diameter.	20	1.3

ATTACHMENT F

The following table identifies 13 standard fuel models. These fuel models were identified by Hal E. Anderson in *Aids to Determining Fuel Models for Estimating Fire Behavior. Gen. Tech Report INT-122, 1982* and Richard C. Rothermel in *How to predict the Spread and Intensity of Forest and Range Fires, Gen. Tech. Report INT-143*. T/A indicates tons per acre. 1-H is an abbreviation for fuels smaller than ¼ inch in diameter. 10-H, for fuels ¼ - 1 inch in diameter, 100-H for fuels 1 – 3 inches in diameter. "Live" indicates living herbaceous fuels, and "woody" indicates foliar fuels of woody shrubs. Fuel Bed Depth is the height above ground in which the fuel is distributed. The moisture of extinction is the amount of dryness at which fire will not be sustained. ROS is Rate of fire spread, and FL is flame length.

Table 1: Description of Fuel Models

Fuel Model	Typical Fuel Complex	Fuel Loading (T/A)				Fuel Bed Depth (ft)	Moist. of Extinction Dead Fuels (%)	ROS* ch/h	FL* (ft)
		1-H	10-H	100-H	Live				
1	Short Grass	0.74	0	0	0	1	12	78	4
2	Timber	2	1	0.5	0.5	1	15	35	6
3	Tall Grass	3.01	0	0	0	2.5	25	104	12
4	Chaparral	5.01	4.01	2	5.01	6	20	75	19
5	Brush	1	0.5	0	2	2	20	18	4
6	Dormant brush	1.5	2.5	2	0	2.5	25	32	6
7	Southern Rough	1.13	1.87	1.5	0.37	2.5	40	20	5
8	Closed Timber Litter	1.5	1	2.5	0	0.2	30	2	1
9	Hardwood Litter	2.92	0.41	0.15	0	0.2	25	8	3
10	Timber	3.01	2	5.01	2	1	25	8	5
11	Light Logging Slash	1.5	4.51	5.51	0	1	15	6	4
12	Medium Logging Slash	4.01	14.03	16.53	0	2.3	20	13	8
13	Heavy Logging Slash	7.01	23.04	28.05	0	3	25	14	11

*ROS and FL are represented under a fine dead fuel moisture of 8%, a midflame windspeed of 5 mi/h, and live fuel moisture, if present, of 100% (Anderson, 1982).

ATTACHMENT G

FIRE IN EUCALYPTUS GROVES AND THE DIFFICULTIES OF MANAGEMENT

The following excerpts are from a letter by Roger Fenwick to Jerry Kent describing the inherent fire risks of eucalyptus forests, and the difficulties of fire-safe management. Roger is an Australian Forester and Bushfire Consultant with 39 years of experience. In 1980, Roger served as a consultant to the Park District and prepared the Management Plan for Chabot Regional Park's 800-acre Eucalyptus forest.

Letter Excerpts

Blue gum is not a woodland type tree, it's a forest tree, and if grown singly will spread out a lot more than when closely planted as in plantations and native forests. The branches will be a lot thicker and more robust. The root structure will also be different – they will take up as much space as they can, the normal rule of thumb is out to the canopy drip-line. Trees in a forest setting thus depend in part on their neighbours for stability – everyone cuts down the wind and they all benefit. Grow them singly, and they develop the stabilising structure they need to face the wind all by them selves. Grown in a forest, and cut out half of them, or create a large gap in the middle to create a turbulent airflow zone, and the rest are likely to get tired and have a lie down next good blow. Therefore doing a sudden drastic thinning within the density of plantation you have in abundance there is likely to create a whole new problem.

Blue gum is a wet sclerophyll forest/cool temperate rain forest species, not that often exposed to fire, and it gets pretty well hammered by the intensity of fire that can occur when it is grown in a dry environment suited to its growth but not to its natural fire regime. Those lovely long ribbons of bark hanging off the trunk, shaped like a box kite in cross section, get ignited on the inside, elevated in the convection column, transported long distances in the wind, and are still nicely alight when they drop to earth many miles later – still with active flames inside, and still with enough mass to light whatever they land in. Sparks they are not. The supposed record for a spot fire here is 40 miles, which of course is someone else's problem. The ones that land 2-5 km (1 to 3 miles) away are the big danger, as your own fire fighters are likely to be caught between two pretty exciting fires.

When I last looked, there was still not a bug or microbe in California that had learned how to eat eucalypt leaves, and this had two effects. The leaves on the trees were full-sized, i.e. without being half (or more) chewed to bits *in vivo*, and they just didn't decompose when the tree dumped them onto the ground – hence the staggering fuel loads. Here they equilibrate at maybe 25-30t/ha, and you are facing 2-4 times that per acre. Flammable fuels about 10 times what we can't manage, and we have been practicing for 80 years. Good luck!

If your fuel model predicts 7' to 21' flame lengths in a eucalyptus grove? I'd like to see that! It'd do those numbers in metres on an average day. On a bad fire day, flames would be way over that. Like, 20m (60 feet) over the tops of the trees, not above ground. At the fuel levels you are getting, none of the Australian models will be worth squat – everything is so far off the charts as to be meaningless. But our charts still top out well above 21 feet. In a 30 t/ha fuel on a 20° slope on a bad day (T 40°C, RH 14%, wind 40km/hr) flame length is supposed to be 57m (187 feet). I find that sort of

calculation a bit extreme – the mathematicians have taken a useful guide and created a degree of precision that the original creators didn't quite have in mind.

In a dense grove one hell of a lot of real estate is going to be alight at once, and burning for a long time relative to the few seconds of a grass fire. This will create a monster convection column, and elevate everything including branches to 2" diameter from a few metres above ground to the treetops into the column, and ignite it in the process. The head fire will travel a lot more slowly in the dense stand than in the open woodland, but expect rates of spread of more than 2 miles per hour, of the head fire front – without any spotting effect – on level ground. During extreme winds multiply by two for slopes of 10 degrees, by 4 for 20 degrees, and by 10 for 30 degrees. The energy release and flame height/length etc. will guarantee transmission of fire between trees whatever the spacing. With larger gaps, you will get more wind at ground level, in part making up for the perhaps marginally reduced fuel load.

Which amounts to saying, without reducing the litter load, by orders of magnitude, there is no solution. Burning would be tricky in the extreme in such loads – it'd have to be done when the weather and litter moisture profile were exactly right, and they would be the only considerations. Having to worry about smoke pollution etc – forget about it, there is no room for error, and keeping the fire within safety parameters will be tricky enough. Which, to be realistic in today's climate, means that prescribed fire is not going to work in this setting.

If you got a patch thinned to a nicely spaced open woodland style setting, without them all falling over in the next strong wind, and reduced the litter/shrub layer to about 4 tons per acre, perhaps a bit more if there were few intermediate height trees and saplings, you'd have no problem, and burning every maybe 5 years in your environment may do it. Still, it is my impression now that burning at all is unlikely to be acceptable.

Prescribed fire was used a lot here (in Victoria Australia), but now the green people have pretty much managed to prevent it on any useful sort of scale – not by banning the practice, but by putting so many obstacles in the way that the cost of doing the assessment (about $25k), the time taken to do it (min one month) and time to have it approved (ca 3 months), and the approval being valid for 6 weeks – yeah, good luck. It just doesn't happen on any useful scale any more, which seems to be correlated with the increasing frequency of major fires.

ATTACHMENT H

MCARTHUR FOREST FIRE DANGER METER MK5- Using Australian eucalyptus bushland fuel loads, 17% slopes) with tons per acre bracketed on each side of an average of 40.7 U.S. tons per acre for eucalyptus, and 5 U.S. tons per acre for oak.

Eucalyptus

FUEL LOAD	67.9 Tons/Acre	54.3 Tons/Acre	40.7 Tons/Acre	27.1 Tons/Acre	13.6 Tons/Acre
EAST BAY FIRE WEATHER					
Temperature (degrees F)	85	85	85	85	85
Relative Humidity (%)	15	15	15	15	15
Wind Speed (miles/h)	31	31	31	31	31
Drought Factor (1 to 10)	10	10	10	10	10
Ground Slope (%)	17	17	17	17	17
FIRE BEHAVIOR					
FLAME HEIGHT (feet)	97 feet	76.2 feet	55 feet	34.8 feet	14.1 feet
RATE OF SPREAD (miles/hr)	2.4 mph	1.9 mph	1.5 mph	.98 mph	.48 mph
Maximum Spotting Distance (miles)	3.86 miles	3.2 miles	2.4 miles	1.65 miles	.75 mile

Oaks

FUEL LOAD	10 Tons/Acre	7.5 Tons/Acre	5 Tons/Acre	3 Tons/Acre	1 Ton/Acre
EAST BAY FIRE WEATHER					
Temperature (degrees F)	85	85	85	85	85
Relative Humidity (%)	15	15	15	15	15
Wind Speed (miles/h)	31	31	31	31	31
Drought Factor (1 to 10)	10	10	10	10	10
Ground Slope (%)	17	17	17	17	17
FIRE BEHAVIOR					
FLAME HEIGHT (feet)	8.3 feet	5.4 feet	.9 feet	0 feet	0 feet
RATE OF SPREAD (miles/hr)	.35 mph	.28 mph	.17 mph	.1 mph	.1 mph
Maximum Spotting Distance (miles)	.5 miles	.35 miles	.14 miles	0 miles	0 miles

ATTACHMENT I

Project Vesta Field Guide – Fire in Dry Eucalypt Forest: Fuel structure, fuel dynamics and fire behaviour. Using East Bay Hill weather

CLAREMONT CANYON EUCALYPTUS USING METRICS		**CLAREMONT CANYON EUCALYPTUS USING U.S.**	
Surface fuel depth (mm)	25	Surface fuel depth (ft)	0.98
Fire Hazard Score	4	Fire Hazard Score	4
Tons per Hectare	16	Tons per Acre	40
Near Surface Height (cm)	25	Near Surface Height (ft)	0.82
Fire Hazard Score	3	Fire Hazard Score	3
Tons per Hectare	3	Tons per Acre	7
Elevated Fuel Layer (meters)	7.7	Elevated Fuel Layer (ft)	25
Fire Hazard Score	4	Fire Hazard Score	4
Tons per Hectare	6	Tons per Acre	15
Smooth Trunk and Stringy Bark		Smooth Trunk and Stringy Bark	
Fire Hazard Score	3	Fire Hazard Score	3
Tons per Hectare	2	Tons per Acre	5
Total Tons Per Hectare	27	Total Tons Per Acre	67
EAST BAY FIRE WEATHER		**EAST BAY FIRE WEATHER**	
Wind Speed (km/h)	50	Wind Speed (miles/h)	31
Relative Humidity (%)	12	Relative Humidity (%)	12
Air Temperature (degrees C)	29	Air Temperature (degrees F)	86
Fuel Moisture Content (%)	10	Fuel Moisture Content (%)	10
Slope (degree)	10	Slope (%)	20
FIRE BEHAVIOR		**FIRE BEHAVIOR**	
RATE OF SPREAD (k/hr)	10 km/hr	RATE OF SPREAD (miles/hr)	6.2 mph
FLAME HEIGHT (m)	20	FLAME HEIGHT (feet)	65.8
Maximum Spotting Distance (km)	7km	Maximum Spotting Distance (miles)	4.3 miles

ATTACHMENT J

This article was published in the SF Chronicle on November 18, 1991

IN HINDSIGHT, THE FIRE LOOKS ALMOST INEVITABLE

Warning signs had been in place for years

By Elliot Diringer and Susan Sward, Chronicle Staff Writers.

As the flames erupted around him, firefighter Bill Nichols could not help but recall the day 10 years earlier when he toured the Oakland hills for a firsthand look at a classic "tinderbox."

"The old-timers would take the rookies on those roads and tell them you never want to get caught up here in a fire" said Nichols whose East Bay Regional Parks District crew was among the first to face the flames the morning of October 20.

"They would point out all the factors—the narrow roads, the overhanging vegetation, how close the homes were," the 44-year-old Nichols recalled. "It stuck with me. It was one of the first things I was thinking when the fire broke out."

Whatever caused the calamitous East Bay hills blaze, much of its devastating toll can be traced to a series of decisions years ago that made the fire entirely predictable in not inevitable.

Over the course of a century, those decisions transformed raw hillsides into a dangerous city-country hybrid--wood--roofed houses packed amid dense, highly flammable foliage.

"Decisions made many years before — 40, 50 years ago—literally hampered the firefighters in that blaze." Said Frank Blackburn a retired San Francisco assistant fire chief who was among 1,800 paid and volunteer firefighters who went up against the flames that day.

"Essentially, politicians and developers create the situation," said Blackburn," and the Fire Department is left to try to find a solution when the fire gets out of control."

The fierce winds that drove the flames did not subside until late in the day. By the time the fire was contained, it had taken 25 lives, consumed more than 3,000 homes and caused upward of $1.5 Billion in damage, making it one of the worst in the nations' history.

Contributing Factors

Nature no doubt contributed heavily to the disaster, delivering drought, then freeze, then hot winds blowing from the east. But the stage was set – in Oakland, as in hillside communities all through California – by deliberate decisions and warnings ignored.

- Starting more than 50 years ago, population pressures merged with the quest for profits and taxes to produce a haphazard pattern of development in the hills, with

highly combustible homes strung along narrow streets the frequently indeed in cul-de-sacs.

- Native vegetation was supplanted by a mosaic of imported species like eucalyptus and Monterey pine that are ideal for fueling fire and spreading it great distances. Later attempts to control or remove the nonnative plants were sporadic and of limited success.
- Despite the obvious lessons of fires as far back as 1923, wood shake roofs continued to be used, most power lines remained over-head instead of underground and the pumps needed to pipe water uphill were left without backup power.
- Set against everyday inner-city woes like crime, drugs and homelessness, fire protection became a lesser priority in an ear of tight budgets. Several fire stations were closed, the number of firefighters was slashed and the department was left with an outmoded communications system easily overwhelmed by a major emergency.

As a result, firefighters went up against the biggest blaze of their lifetimes with the deck staked against them. They had to maneuver down on-lane roads, dodge fallen power lines, compete to get messages over jammed airwaves and contend with a sudden loss of water. They found themselves virtually helpless against the inferno they has do long anticipates.

Dangers in the Hills

Few People were more acutely aware of the dangers in the hills — and the constraints on the fire department – than Assistant Fire Chief Don Matthews, the man who led the counter-assault October 20.

"The Fire Department's been saying for years it's a tinderbox," said Matthews, a 38-year veteran. "It's a condition that's existed as long as I've been in the Fire Department – only it's much worse now because there were very few homes up there when I came in."

Long ago, before settlers arrived and the first homes were built, the hills were carpeted with native perennial grasses that stayed green nearly all year round. In the canyons and along the creeks stood ancient groves of redwood, oak, bay and willow.

"Fire was a natural part of the ecosystem," said Barbara Allen-Dias, an assistant professor of forestry at the University of California at Berkeley. "But grasslands burn very differently from dense forests. Grass is easy to ignite but burns with less heat. Grass fires move very quickly but are easier to put out."

Colossal Blunder

Indigenous tribes, and the Spanish after them started the transformation of the natural landscape. But the real change began with the colossal blunder of a would-be timber baron named Frank Havens.

Between 1920 and 1912, after most of the native trees had been cut down for lumber, Havens planted 8 million blue gum eucalyptus trees, a species native to Australia, across 3,000 acres of hillside.

"He got the wrong species," said Allen-Diaz. "There are species of eucalyptus that are good for lumbers – this isn't one of them."

Over the ensuing decades, the hills became a patchwork of farms and summer homes for well-to-do San Franciscans. Then, in another get-rich-quick scheme, speculators began buying up property, subdividing it and selling off lots to investors.

Most of the lots remained undeveloped until after World War II, when housing demand soared. But it was those subdivision maps, many recorded before the 1930s that set the pattern – high densities and narrow streets.

1946 Fire

Assistant Chief Matthews recalled that in 1946, while he was a student at UC, he watched from a Berkeley streetcar as an October fire driven by the same type of winds swept down from the Caldecott Tunnel to just behind the Claremont Hotel. Only three homes were perched on the hillside the, and none were destroyed.

Forty-five years later, there were literally hundreds and hundreds of homes in the same area," said Matthews. And when the fire followed the same path, "they all burned."

Few of the homes, he said, were built with modern fire codes in mind.

"It just kind of grew like Topsy up there. For whatever reason, the codes… were never really applied. It's only in recent years that developers have been told, "Hey, you have to put certain width streets in; you have to provide an adequate water supply."

Overlooked Risks

Although to Matthews and others the fire risks in the hills could not have been more obvious, they were all too easily overlooked.

"Oakland is a poor city," said economist Fred Collignon, a Berkeley city councilman and a professor of city planning at UC Berkeley. "It's very tempting when a developer says, "let's go up on the ridge line". They're expensive houses. They have great views. It's good for the tax base. Oakland could correctly say, "How likely is the fire? We could use the revenue."

Oakland is hardly alone. Throughout California and across the nation, communities routinely build – and rebuild – in areas of known hazards.

"They do it with quakes," said Collignon. "They do it with floods. They do it, in this case with wildfires."

Short Collective Memory

The Risks were not theoretical. Periodically over the years, some spark would set the East Bay hills ablaze, and fire safety would suddenly become a priority. Each time, the concern was short-lived.

"The collective memory has forgotten the lessons of the last fire before the next one occurs," said UC Professor Patrick Pagni, an expert on the physics of fire.

In 1923, a month after a fire whipped by winds destroyed 584 homes in Berkeley; the City council passed an ordinance requiring that all wood-shingle roofs be replaced within 10 years. Six months later, the ordinance was rescinded.

In the 1970 Oakland hills fire, which consumed 37 homes and damaged 18, the vulnerability of the water system became clear when severed power lines shut down pumping plants and a hilltop reservoir ran dry.

"There was a lot of talk about under-grounding power lines. The Fire Department was on record at the tune saying "yeah, we'd love to have no overhead wire, especially up there," recalled Mathews. "The problem of backup generators (at pumping plants) was also discussed…I guess you'd say the cost factor made it die a natural death."

After a 1980 fire took five homes in the Berkeley hills, a blue-ribbon task force said cities along the "urban-wildland-interface" stretching from Richmond to Oakland should encourage property owners to clear brush and trees within 100 feet of their homes.

But even enforcing the legal requirement for a 30-foot clearance has been burdensome. In Oakland, fire crews go door-to-door each spring looking for hazards and urging homeowners to correct them. More than 500 complaints a year are referred to the cities code enforcement officials – usually by neighbors, not the Fire Department.

"It's supposed to be enforced, but it's difficult to get back (for a follow-up inspection)," said Assistant Fire Chief Andy Stark. "You're looking at thousands of dwelling from the Berkeley border to San Leandro. The scope is pretty overwhelming."

Some homeowners acknowledge that as memories faded, so did the zeal for fire safety.

Architect Tom Lavin recalled the air of vigilance when he moved into his house on Norfolk Road 19 years ago. The foundations of homes leveled in the 1970 fire offered vivid proof of the risk, and when a 1972 winter freeze killed thousands of eucalyptus trees, neighbors banded together to demand that they be cut down.

But no such uproar followed a similar freeze in December 1990. By that time, "nobody thought about fire," said Lavin, whose home was the only one in his neighborhood spared by the October 20 blaze. "It's just like living with earthquakes Why dwell on something negative?"

This reluctance to face the inevitable extracted a heavy price October 20.

"When we were trying to flee, I don't know how we ever turned around…because the roads were so narrow," recalled Nichols of the East Bay Regional Parks District.

Elsewhere, crews were forced to retreat when hydrants suddenly went dry.

"Had a water supply been there, we could have saved more homes for sure," said Oakland Fire Lieutenant John Ironside. "I saw hundreds of homes explode. It was very frustrating that we could not get in and save homes, because that's what we do."

Ironside and his fellow firefighters can only hope that as homeowners rush to rebuild and politicians again confront issues such as wider streets and wood-shake roofs, the lessons this time will not be so easily forgotten.

Just days after the fire the wood shingle industry announced that it was dropping its long-standing opposition to legislation that would at least require that new wood-shake roofs be treated with a fire retardant.

Many fire experts remain unimpressed. "Wood is wood," said John White, fire chief and instructor at Shasta Community College in Redding. "What they don't tell you is that the coating won't last for the life of the shingle. It has a three-to five-year life...and after that you're back to wood-shake shingles.

Who Will Pay

Beyond the power of industry lobbies, the renewed clamor for building "fire-safe" communities is already butting up against other hard realities—how much will it coast and who will pay?

"The bottom-line question is: Can we afford… to address the worst-case scenario 365 days a year when a fire of this magnitude may only happen once in 20 years?" said Richard Eisner, a disaster expert who heads the Bay Area Regional Earthquake Preparedness Project.

As communities weigh whether the added cost is worth the added margin of safety, many experts contend that there can be no better argument than the awful toll of the October 20 fire.

"Too often we find ourselves prisoners of discussions we've made," said Keith Gilless, an associate professor of forestry at UC Berkeley. "We can make new decisions. We don't have to be captive to the decisions we've made in the past."

STRAWBERRY CREEK WATERSHED COUNCIL

FAX

DATE: 10.12.10
PAGES: 3

TO: ALESSANDRO AMAGIO, ENV. COMPLIANCE OFFICER
DAVID KENNARD
FEMA
FAX 510.627-7270 OR 510.627-7147

FROM: CAROLE SCHEMMERLING
CO-CHAIR: STRAWBERRY WATERSHED COUNCIL
FAX: 510.524-5402
TEL: 510-524-4005

MESSAGE:

I TRIED EMAILING MY COMMENTS TO YOU ON OCT. 6, BUT MY COMPUTER WAS NOT ABLE TO SEND IT TO THE EMAIL ADDRESS ON THE FEMA HANDOUT.

I HAVE ONLY OBTAINED YOUR FAX #s today! SO I AM TRYING ONCE AGAIN TO SEND YOU MY COMMENTS.

STRAWBERRY CREEK WATERSHED COUNCIL

The Strawberry Creek Watershed Council is opposed the funding of the 2 UC PDM grants because they are examples of the worst forestry and fire management practices possible.

* Clearcutting is a practice that leads to erosion, establishment of exotic (ie: European annual rye) grasses and low species which become the fuel of the next big fire. The loss of canopy creates the depletion of moisture in a drought-prone environment.

* Plans to urbanize the ridges above the UC and LBNL Campuses, whether with housing or research are irresponsible to the extreme. Southern California has allowed this practice and suffers huge losses from fire every year. **It should be noted that those areas have no trees.**

* Plans to use pesticides/herbicides are profitable for the manufacturers and the purveyors of these materials, but are a terrible detriment to the ecosystems that will be affected by them. There is no logical reason to use them if proper forestry practices are followed.

* The appropriate practices are:
1. Cull small trees with trunk diameters of less than 6-8".
2. Remove lower limbs of trees having the 8' trunk diameter, but leaving the upper canopy thick enough to shade the floor.
3. Keep the spaces between the large trees (10' plus or minus) clear by weed-wacking in September and October. (Think of all these "green" jobs...much better to hire humans than buying chemicals)

* The species of trees is not as important as long as the appropriate practices are followed. Case in point: in the 1991 Oakland fire, a property owner who lived at the bottom of a grassy slope of at least 200' or more and who also had eucalyptus trees clustered on the side of the slope just about 10' above his house, as well as some small live oaks nearby and a couple of redwood trees next to his house. A week before the fire he had removed fallen branches and leaves from under the eucalypts and the redwoods. When the fire came roaring down the grassy slope, it went under the trees and burned his house to the ground. **None of the eucalypts or the other trees were burned or even singed.**

* It is important to note that the slopes and headwater streams at the LBNL site are already contaminated by toxics and are prone to landslides. What UC and LBNL want to do up on the ridge, at the top of Strawberry Canyon and Centennial Drive, if

allowed, is going to create an even more unsafe, fire prone and landslide prone situation.

Therefore we request that there be NO funding of the UC PDM grants.

Sincerely,

Carole Schemmerling
861 Regal Rd.
Berkeley, Ca 94708
510.524-4005

Comment Cards

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: Dan Grassetti

Address: 1305 Alvarado Road

Email: dangrass at comcast.net Affiliation (If Any): Hills Conservation Network

Comment (Please Print): We are very supportive of the EIS process & the professionalism & rigor that FEMA is employing in managing this process

Comments can be submitted via email at **EBH-EIS-FEMA-RIX@dhs.gov**, *or via the project website at* **http://ebheisforca.ursdcmetro.com**
Comments may also be mailed to **EBH-EIS, PO Box 72391, Oakland, CA 94612**

SPEAKER

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: Jerry Baer

Address: 1227 Alvarado Rd Berk, CA 94705

Email: oldTimerjib@COMCAST.NET Affiliation (If Any): Hills Conservation Network

Comment (Please Print): Supporting FEMA's Process

Comments can be submitted via email at **EBH-EIS-FEMA-RIX@dhs.gov**, *or via the project website at* **http://ebheisforca.ursdcmetro.com**
Comments may also be mailed to **EBH-EIS, PO Box 72391, Oakland, CA 94612**

Comment Cards

Speaker

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: Matt Mitchell

Address: 151 Alvarado Road, Berkeley 94705

Email: ms2@ix.netcom.com Affiliation (If Any):

Comment (Please Print): There is a controversy over the role of Eucalyptus trees in propagating wildfire. Who is right? And what is the evidence to support the answer?

Speaker

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: Gordon Piper

Address: 33 Hiller Dr. Oakland CA 94618

Email: Rgpiper@sbcglobal.net Affiliation (If Any): Oakland Landscape Committee

Comment (Please Print): I strongly support the EIS & funding of hazardous fuel reduction projects much needed in the East Bay Hills & Contra Costa Counties. The 3 million trees planted by developers in the Oakland Hills pose a major fire risk as the aging trees aren't being maintained adequately & invasives compound the fuel load & risks of wildfire along with homeless encampments.

Comment Cards

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: Karen Perkins

Address:

Email: Affiliation *(If Any)*:

Comment *(Please Print)*: why now? Boondoggle

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: Judith Malamut

Address: 2215 Fifth Street Berkeley CA 94710

Email: judith.malamut@LSA-Assoc.com Affiliation *(If Any)*: LSA Associates Inc.

Comment *(Please Print)*: I am the Principal Project Manager and primary author of the Wildfire Hazard Reduction and Resource Management Plan for EBRPD and the EIR prepared on the Plan. If you need assistance in regards to the analysis concerning the EBRPD Plan and CEQA process on the Plan, please contact me.

Q - What firms are consultants preparing the Biological Assessment and the Historic Properties Findings?

Comments can be submitted via email at **EBH-EIS-FEMA-RIS@dhs.gov**, *or via the project website at* **http://ebheisforca.ursdcmetro.com**
Comments may also be mailed to **EBH-EIS, PO Box 72391, Oakland, CA 94612**

Comments Cards

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: SAVE Strawberry Canyon

Address: P.O. Box 1234 Berkeley 94701

Email: savestrawberrycanyon@gmail.com Affiliation (If Any):

Comment (Please Print): Dear FEMA, Thank you in advance for your careful consideration of significant impacts and alternatives.

Please, we request one hard copy of DEIS, if at all allowable/possible. Thank you!

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: Nancy Mennel

Address: 116 Vicente Rd, Berkeley, CA 94705

Email: Affiliation (If Any): North Hills Community

Comment (Please Print): I lost my home in the 1991 Wildfire & know how fast & devastating wildfires in California CAN be. My neighborhood looked like Hiroshima after the fire. I support all the proposed projects in addition to local fire codes. The loss of wildlife in the wildfire was very significant as well as human & property loss.

Comment Cards

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: MARK RAUZON

Address: 4701 Edgewood Ave.

Email: MJRAUZ@aol.com Affiliation (If Any): Friends of Sausal Creek

Comment (Please Print): We support the cut in principal as well as the use of herbicide - A Herbicide Czar should be designated to guarantee minimal use and seamless tracking of use.

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: KEN BENSON

Address: 11140 Ettrick Street OAKLAND, CA 94605

Email: kenbenson@earthlink.net Affiliation (If Any):

Comment (Please Print): Thank the agencies, Federal and State for the grants and to the applicants so that we can gain insights within our urban interface on how best to mitigate fire fuel loads. This can and will assist us to better be prepared for future needs and applications.

Comment Cards

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: Bev Von Dohre

Address: 3012 Kansas St., Oakland, CA 94602

Email: SLAKEWINGS@AOL.COM Affiliation (If Any):

Comment (Please Print): 1. I DON'T TRUST THAT IF THIS PLAN BEGINS THERE WON'T BE LARGER AREAS CUT, SUCH AS WHAT HAPPENED AT CESAR CHAVEZ PARK WHERE NATIVES WERE CUT TO THE GROUND WITH NON-NATIVES 2. CUTTING ANY PLANTS REDUCES THE DIVERSITY OF NATIVE ANIMALS, MANY OF WHOM HAVE COME TO RELY ON NON-NATIVE PLANTS FOR NESTING, SHELTER + FOOD.

3 ALL TREES, WHETHER NATIVE OR NOT, PRECIPITATE WATER FROM THE FOG + ADD TO WATER ACCUMULATION [illegible] IN THE WATERSHED. SOME AREAS UNDER MONTEREY PINES, FOR INSTANCE, STAY WET YEAR ROUND. ONCE REMOVED, THE SCRUB GROWING UNDER THEM WILL BECOME MUCH MORE FLAMMABLE.

4. MANY BIRDS, SUCH AS GREAT HORNED OWLS + RED-SHOULDERED HAWKS USE TALL EUCALYPTUS FOR NESTING. RED-SHOULDERED HAWK ARE NOT COMMONLY SEEN AND THE ONLY NESTS I'VE SEEN HAVE BEEN IN EUCALYPTUS.

5. ACORN WOODPECKERS + MANY OTHER ANIMALS USE DEAD TREES.

6. GLYPHOSATE + OTHER HERBICIDES ARE NOT SAFE + SHOULD NEVER BE USED. MANY BANNED POISONS WERE ONCE DECLARED SAFE.

7. EVERY TREE + SHRUB IMPROVES AIR QUALITY. ENOUGH CUTTING HAS ALREADY BEEN DONE.

8. WHY NOT PUT THIS MONEY INTO ELIMINATING THE IVY WHICH IS COVERING + SMOTHERING TREES THROUGHOUT THE EAST BAY?

9. IF THE PLAN IS TO ELIMINATE NON-NATIVES, LET'S START WITH THE CATS WHO ARE DECIMATING THE WILDLIFE + DOGS + NON-NATIVE HUMANS.

Comment Cards

SPEAKER

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: DAVID KESSLER

Address: 116 VICENTE RD, BERKELEY CA 94705-1206

Email: Kescavid@gmail.com Affiliation (If Any): NHCA - OWPD

Comment (Please Print):

WE MUST ACT & GET TO WORK REDUCING THE FUEL LOAD. I HOPE WE ARE NOT MOVING TOO SLOWLY. IMPERFECT ACTION IS FAR BETTER THAN INACTION!!! LOST HOME IN 1991 WILDFIRE

SPEAKER

FEMA

Hazardous Fire Risk Reduction, East Bay Hills, California
Public Scoping Meeting for Environmental Impact Statement

COMMENT CARD

Name: JON KAUFMAN

Address: 107 ALVARADO RD, BERKELEY

Email: JONK@SOLEM.COM Affiliation (If Any): CLAREMONT CANYON CONSERV

Comment (Please Print): I believe removing the eucalyptus trees will have a positive impact on the environment because these trees are 1) a greater fire hazard than other plants. 2) non native species and 3) very invasive. The stumps should be treated to prevent the trees from growing back.

Appendix G:
Draft EIS Outline

Draft EIS Outline
Hazardous Fire Risk Reduction EIS
East Bay Hills, CA

Cover Sheet

Executive Summary

Table of Contents

List of Tables

List of Figures

List of Photos

List of Appendices

List of Acronyms and Abbreviations

1.0 Introduction

2.0 Purpose of and Need for Action

3.0 Proposed Action and Alternatives

- 3.1 Alternatives Considered and Dismissed
- 3.2 Alternatives Studied in Detail
  - 3.2.1 No Action
  - 3.2.2 Proposed Action
  - 3.2.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed
  - 3.3.4 Partially Fund Grant Applications, including Funding Some and Denying Others

4.0 Affected Environment

- 4.1 Biological Resources
  - 4.1.1 Vegetation and Wildlife
  - 4.1.2 Special-Status Species
- 4.2 Geology, Seismicity, and Soils
  - 4.2.1 Geology
  - 4.2.2 Seismicity
  - 4.2.3 Soils
- 4.3 Water Resources
  - 4.3.1 Surface Water
    - 4.3.1.1 Hydrology
    - 4.3.1.2 Water Quality

4.3.2 Ground Water

4.3.2.1 Hydrology

4.3.2.2 Water Quality

4.3.3 Executive Order 11988: Floodplain Management

4.3.4 Executive Order 11990: Protection of Wetlands

4.4 Coastal Zone Management Act

4.5 Air Quality

4.5.2 Greenhouse Gases

4.6 Climate/Microclimate, including Wind

4.7 Historic Properties

4.7.1 Standing Structures

4.7.2 Archeological Resources

4.8 Aesthetics and Visual Quality

4.9 Socioeconomics

4.9.1 Executive Order 12898: Environmental Justice

4.9.2 Property Values

4.9.3 Induced Growth

4.10 Human Health and Safety

4.10.1 Hazardous Fire Risk

4.10.2 Use of Hazardous Substances, including Herbicides

4.11 Public Services/Infrastructure

4.12 Land Use and Planning

4.13 Transportation

4.14 Noise and Vibration

5.0 Environmental Consequences and Mitigation

5.1 Biological Resources

5.1.1 Vegetation and Wildlife

5.1.1.1 No Action

5.1.1.2 Proposed Action

5.1.1.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.1.1.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.1.2 Special Status Species

5.1.2.1 No Action

5.1.2.2 Proposed Action

5.1.2.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.1.2.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.2 Geology, Seismicity, and Soils

5.2.1 Geology

5.2.1.1 No Action

5.2.1.2 Proposed Action

5.2.1.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.2.1.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.2.2 Seismicity

5.2.2.1 No Action

5.2.2.2 Proposed Action

5.2.2.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.2.2.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.2.3 Soils

5.2.3.1 No Action

5.2.3.2 Proposed Action

5.2.3.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.2.3.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.3 Water Resources

5.3.1 Surface Water Hydrology and Quality (including herbicide use)

5.3.1.1 No Action

5.3.1.2 Proposed Action

5.3.1.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.3.1.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.3.2 Ground Water Hydrology and Quality (including herbicide use)

5.3.2.1 No Action

5.3.2.2 Proposed Action

5.3.2.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.3.2.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.3.3 Floodplains and Wetlands

5.3.3.1 No Action

5.3.3.2 Proposed Action

5.3.3.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.3.3.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.4 Coastal Zone Management Act

5.4.1 No Action

5.4.2 Proposed Action

5.4.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.4.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.5 Air Quality (including Greenhouse gases)

5.5.1 No Action

5.5.2 Proposed Action

5.5.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.5.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.6 Climate/Microclimate, including Wind

5.6.1 No Action

5.6.2 Proposed Action

5.6.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.6.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.7 Historic Properties

5.7.1 Standing Structures

5.7.1.1 No Action

5.7.1.2 Proposed Action

5.7.1.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.7.1.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.7.2 Archeological Resources

5.7.2.1 No Action

5.7.2.2 Proposed Action

5.7.2.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.7.2.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.8 Aesthetics and Visual Quality

5.8.1 No Action

5.8.2 Proposed Action

5.8.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.8.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.9 Socioeconomics

5.9.1 Executive Order 12898: Environmental Justice

5.9.1.1 No Action

5.9.1.2 Proposed Action

5.9.1.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.9.1.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.9.2 Property Values

5.9.2.1 No Action

5.9.2.2 Proposed Action

5.9.2.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.9.2.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.9.3 Induced Growth No Action

5.9.3.1 No Action

5.9.3.2 Proposed Action

5.9.2.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.9.3.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.10 Human Health and Safety (including Hazardous Fire Risk Reduction and Use of Hazardous Substances, including Herbicides)

5.10.1 No Action

5.10.2 Proposed Action

5.10.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.10.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.11 Public Services/Infrastructure

5.11.1 No Action

5.11.2 Proposed Action

5.11.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.11.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.12 Land Use and Planning

5.12.1 No Action

5.12.2 Proposed Action

5.12.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.12.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.13 Transportation

5.13.1 No Action

5.13.2 Proposed Action

5.13.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.13.4 Partially Funding Grant Applications, including Funding Some and Denying Others

5.14 Noise and Vibration

5.14.1 No Action

5.14.2 Proposed Action

5.14.3 Funding Grant Applications for Hazardous Fire Risk Reduction to the Built Environment with Environmental Conditions or Methodologies that are Different than Proposed

5.14.4 Partially Funding Grant Applications, including Funding Some and Denying Others

6.0 Cumulative Impacts

6.1 Methodology

6.1.1 Class of Action to be Analyzed

6.1.2 Geographical and Spatial Boundaries for the Analysis

6.1.3 Resources Analyzed

6.1.4 Magnitude of Impacts on Resources

6.2 Biological Resources

6.2.1 Reestablishment of Vegetation Communities

6.2.2 Wildlife, Including Endangered Species

6.3 Soil and Water Quality

6.3.1 Erosion Control

6.3.2 Non-point Source Runoff

6.3.3 Use of Herbicides

6.4 Air Quality - Greenhouse Gases

6.5 Wind

6.6 Aesthetics and Visual Quality

6.7 Socioeconomics

6.8 Human Health and Safety

6.8.1 Hazardous Fire Risk Reduction

6.8.2 Use of Hazardous Substances, including Herbicides

7.0 Public Participation and Agency Coordination

8.0 List of Preparers

9.0 References

Acronyms and Abbreviations

Appendices

A FEMA's Wildfire Mitigation Policy

B Federally Listed, Proposed, and Candidate Species with Potential to Occur in the East Bay Hills

C Biological Opinion from the U.S. Fish and Wildlife Service

D Historic Properties Survey/Consultation

E Agency Correspondence

1. Response from the State Historic Preservation Officer

F Public Comments and Responses

G List of Interested Parties

Tables

X-1 Total Acreages for the Vegetation Communities Identified in the Project Area

X-2 Emissions from Project Equipment

X-3 Comparison of Environmental Justice Indicators

X-4 Comparison of Median Home Values

Figures

X-1 Vicinity Map

X-2 Vegetation Communities

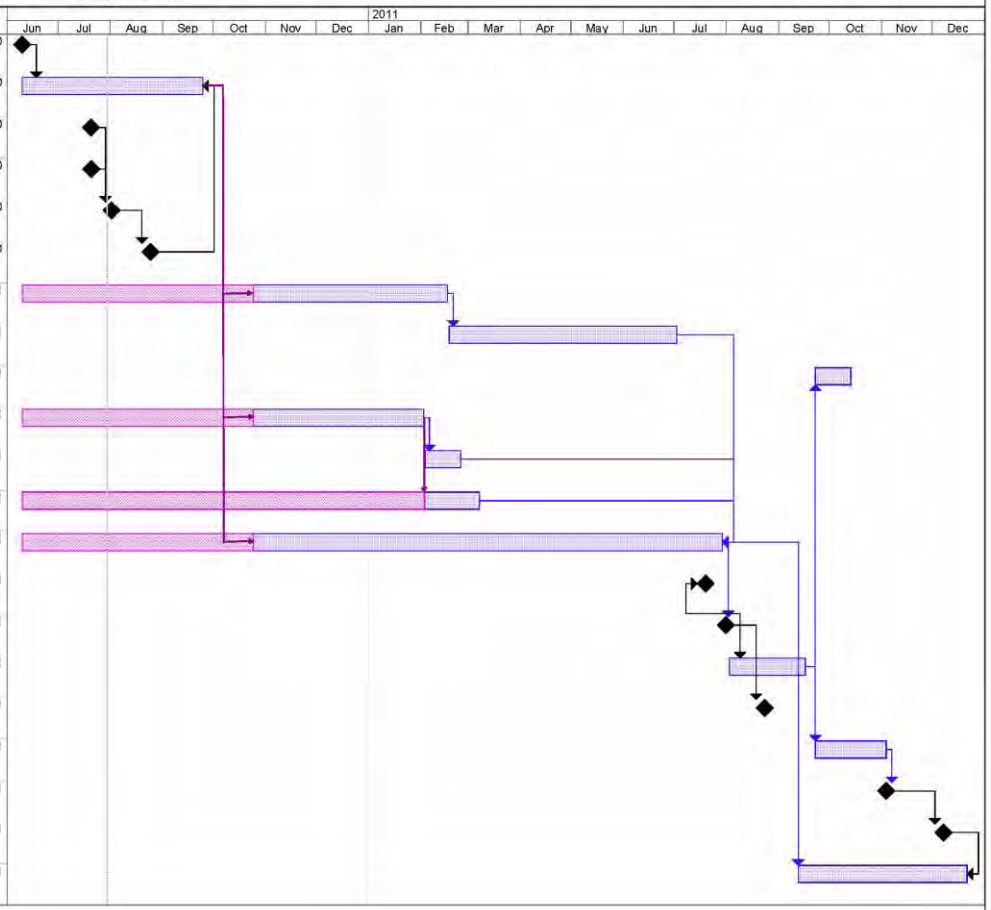
List of Photos

Appendix H:
Proposed EIS Schedule

Proposed EIS Schedule

PROPOSED
Hazardous Fire Risk Reduction, East Bay Hills, CA
Revised Fri 7/30/10

ID	Task Name	Duration	Start	Finish
1	Notice of Intent	1 day	Thu 6/10/10	Thu 6/10/10
2	Public Comment Period	75 days	Thu 6/10/10	Fri 9/24/10
3	Publish NOI Amendment	1 day	Wed 7/21/10	Wed 7/21/10
4	Kickoff Meeting with Cooperating Agencies	1 day	Wed 7/21/10	Wed 7/21/10
5	Advertise Public Scoping Meetings	2 days	Mon 8/2/10	Tue 8/3/10
6	Public Scoping Meetings	2 days	Wed 8/25/10	Thu 8/26/10
7	Prepare Biological Assessment	175 days	Thu 6/10/10	Wed 2/16/11
8	U.S. Fish and Wildlife Service prepares Draft Biological Opinion	135 edays	Thu 2/17/11	Sat 7/2/11
9	U.S. Fish and Wildlife Service prepares Final Biological Opinion	15 days	Fri 9/23/11	Thu 10/13/11
10	Prepare Historic Properties Findings Report	165 days	Thu 6/10/10	Wed 2/2/11
11	State Historic Preservation Officer review and comment	21 edays	Thu 2/3/11	Thu 2/24/11
12	Tribal consultation, review, and comment	188 days	Thu 6/10/10	Mon 3/7/11
13	Prepare Draft Environmental Impact Statement (EIS)	290 days	Thu 6/10/10	Fri 7/29/11
14	Draft EIS Meeting with Cooperating Agencies	1 day	Wed 7/20/11	Wed 7/20/11
15	Publish Notice of Availability (NOA)	2 days	Mon 8/1/11	Tue 8/2/11
16	Public Comment Period on Draft EIS	45 edays	Tue 8/2/11	Fri 9/16/11
17	Public Meetings on Draft EIS	2 days	Wed 8/24/11	Thu 8/25/11
18	Prepare Final EIS	30 days	Fri 9/23/11	Thu 11/3/11
19	Publish NOA	2 days	Fri 11/4/11	Mon 11/7/11
20	Publish Record of Decision	2 days	Thu 12/8/11	Fri 12/9/11
21	Compile Administrative Record	71 days	Tue 9/13/11	Wed 12/21/11



days = working days, edays = calendar days

Task Preliminary Milestone

Disclaimer: This schedule assumes no unexpected significant impacts or other unforseen issues are identified during the EIS process.

APPENDIX L HERBICIDE USE AND WOOD CHIP APPLICATION LITERATURE REVIEW

L.1 Potential Direct and Indirect Effects of Herbicide Application

This section presents information on three herbicides being considered for use in the proposed and connected project areas – Garlon® 4 Ultra, Stalker®, and Roundup®. Included are (1) summaries of chemical characteristics of the commercial formulations or the active ingredients of commercial products, including properties associated with fate and transport (2) general and (where available) species specific ecotoxicity data, (3) potential direct (*e.g.*, toxicity) and indirect (*e.g.*, secondary or associated) effects of herbicide use, and (4) best management practices to reduce the potential for adverse effects, especially on special status species. best management practices are discussed in detail in the final section of this appendix, *Species-specific Conclusions and Recommendations*. For the purposes of this evaluation, special status species include threatened or endangered species as well as ecologically important native plant and animal species comprising or associated with critical or important habitats. Data and discussions presented below provide a brief summary of representative information, and are not intended to be a comprehensive presentation of all available data.

L.1.1 Herbicide Descriptions

L.1.1.1 Garlon® Products (triclopyr)

Garlon® 4 Ultra is one of three herbicides proposed for use in the proposed and connected project areas. Garlon® 4 Ultra is a yellow colored liquid herbicide comprised of 60.45% of 3,5,6-trichloro-2-pyridinyloxyacetic acid, butoxyethyl ester (triclopyr BEE) with the balance (39.55%) comprised of undisclosed inert ingredients. The active ingredient, triclopyr, is the pyridine analogue of 2,4,5-T and imitates the actions of auxin, a natural plant growth hormone. Once the herbicide is applied, it is absorbed by the roots and leaves of the target plant and accumulates in the growth regions of a plant affecting its ability to grow (MDAR 2012). According to the manufacturer, Garlon 4 Ultra is intended to be used to control woody plants and annual and perennial herbaceous broadleaf species. It can be applied to control or eradicate these plants either via foliar spraying or by applying directly to basal bark or cut stumps (U.S. EPA 2007).

As part of the agency's vegetation management program, the Forest Service of the United States Department of Agriculture (USDA) has used Garlon® 4 Ultra and Garlon® 3A, a commercial formulation of the triethylamine salt of triclopyr (44%), emulsifiers, surfactants, and ethanol. The Garlon® 3A formulation appears to be less toxic to non-target species than Garlon® 4. Also, Garlon® 4 Ultra contains no petroleum distillates, which are found in some formulations of Garlon® 4. However, the active ingredient in both Garlon® 4 Ultra and Garlon® 4 is triclopyr BEE. The manufacturer reports that "the two herbicides share an extensive toxicology database and similar toxicology attributes" (Dow AgroSciences 2012b). Triclopyr BEE is highly soluble in water leading to acute toxicity concerns, but generally has a short half-life in water due to degradation from exposure to sunlight. Most studies appear to identify a half-life of between a

few hours and 9 days (SERA and SRC 1996). Triclopyr BEE "degrades quite rapidly in water to triclopyr acid. Laboratory studies indicate that photolysis is the principal degradation pathway, with hydrolysis also contributing. Several studies indicate that the half-life of the ester in water can range from 1.5 to 6.6 days as a result of photolysis" (McCall and Gavit, 1986; Solomon, *et al.*, 1988; Havens and Shepler, 1993 in MDAR 2012). Hydrolysis half-lives are dependent on pH and temperature and range from 0.06 days to 208 days in natural waters (MDAR 2012). The half-life in soils ranges between 4 and 40 days. The foliar half-life is several days, with studies summarized identifying a 42% reduction in 6 days after application and between 10 and 15 days (SERA and SRC 1996). Additional studies suggest that soil microbes degrade triclopyr readily, especially in warm, moist conditions that favor microbial activity but that persistence in soil varies depending on soil type and climate. "Reported half-lives for triclopyr in western Oregon soils range from 75 to 81 days (Norris, *et al.* 1987). This study found detectable triclopyr residues in soil 477 days after treatment. Comparable half-lives were reported for triclopyr in soil after applications of Garlon® 3A (10-39 days) (Deubert and Corte-Real 1986) and Garlon® 4 (approximately 14 days in clay or sand) (Stephenson, *et al.* 1990)" (Forest Service Pacific Northwest Region 2001). The biodegradation potential of Garlon® 4 under aerobic conditions is high, while the bioconcentration potential is moderate.

L.1.1.2 Stalker® (imazapyr)

Stalker® is the second of three herbicides proposed for use in the proposed and connected project areas to remove targeted invasive and flammable plants, including target tree species, thus reducing fire risk and restoring native vegetative communities. Stalker® is a pale yellow to dark green colored liquid with a weak ammonia-like odor and neutral pH. It is comprised of 27.6% IPA (IPA) salt of imazapyr, which is the active ingredient, and 72.4% of proprietary ingredients (BASF 2012). Similar to Garlon® 4, target species for Stalker® application include broadleaf plants, woody plants and trees, as well as certain grasses and vines. Additionally, it is applied by foliar spraying, spraying of bark and basal stems, and application to recently cut brush and trees. Further application methods include direct injection into targeted individual trees and Frill or girdle treatment, which involves spraying or painting the herbicide onto cuts made through the bark and completely around the circumference of the tree with no more than 2-inch intervals between cuts. Most means of application include mixing Stalker with diesel or penetrating oil. Following application, the herbicide is absorbed by a plant's roots, leaves, and bark and targets the same parts of the plant as Garlon® 4 (U.S. EPA 2011). Imazapyr, the active ingredient, inhibits activity of an enzyme necessary for growth (OSU 2002). Trees not targeted for application in the project areas may also be impacted by Stalker® if the herbicide reaches the surface soil and is taken up by the roots (U.S. EPA 2011).

According to the U.S. EPA, the active ingredient of Stalker®, imazapyr, is persistent in soil and can reach surface water via either runoff or leaching to groundwater that discharges to surface water, since it is very mobile. When imazapyr reaches surface water, it is soluble and the only means of degradation is through exposure to sunlight; however, the half-life is between 3 and 5 days in surface water and it is not expected to bioaccumulate in tissues of aquatic organisms under normal pH conditions. The greatest exposure potential is expected to be to non-targeted aquatic and terrestrial plants exposed via spray drift, which is reduced by implementation of and adherence to best management practices of application and maintenance (U.S. EPA 2006).

Estimates of persistence in the environment vary based on field conditions. Imazypyr is considered to be moderately persistent in soil with a half-life of approximately 90 days with the primary means of degradation being microbial action according to one source (U.S. DOE-Bonneville Power Administration 2000). Other sources of toxicity information indicate that the half-life in soil can range from 14 days to 17 months. Forestry dissipation studies identified by Oregon State University (OSU) indicated that the half-life ranged from 14 to 44 days in forest litter, 19 to 34 days in forest soil, and 12 to 40 days on plant tissue (OSU 2002).

L.1.1.3 Roundup® (glyphosate)

Roundup® is the third herbicide proposed for use in the proposed and connected project areas to remove invasive and flammable plant and tree species, thus reducing fire risk and restoring native vegetative communities. It is a non-selective herbicide with the active ingredient glyphosate, and is among the most widely used herbicides across the United Sates by volume. There are several formulations of Roundup® and, since the patent expired for Monsanto, the manufacturer, in 2000, additional herbicide formulations with glyphosate as the active ingredient have been developed and marketed (IPCS 1994). Currently, 46 commercial formulations are listed by Greenbook and the PAN pesticide database lists more than 700 active formulations of glyphosate with a variety of inert ingredients (SERA 2011). The various Roundup® formulations as well as other glyphosate-based herbicides include different percentages of the active ingredient and proprietary ingredients, such as surfactants, which are possibly more toxic than glyphosate. The type of surfactant and its concentration may differ among formulations and manufacturers. A common surfactant in Roundup® is polyoxyethylene amine (IPCS 1994). Studies indicate that the surfactant polyoxyethyleneamine or polyethoxylated tallow amine (both abbreviated POEA), used in some commercial glyphosate-based formulations, may be more toxic to animals than glyphosate (OSU 2012). Thus, the majority of information provided below describes the active ingredient glyphosate in the form of the IPA salt; however, when specific information about Roundup® was identified, it is summarized below.

Glyphosate is an odorless white chrystalline powder (IPCS 1994) applied to vegetation by means similar to Garlon 4 and Stalker. Similar to the other two herbicides being considered for use in the project areas, glyphosate is absorbed by a plant’s roots, leaves, and bark and targets the same parts of the plant by inhibiting the enzyme required to initiate plant growth. Glyphosate leads to stunted growth, loss of green coloration, leaf wrinkling or malformation, and death. Death of the plant can occur between 4 and 20 days following application (OSU 2012).

Tu, *et al.* (2001) report that glyphosate is strongly adsorbed to soil particles, which prevents it from excessive leaching or from being taken-up from the soil by non-target plants. It is degraded primarily by microbes, but strong adsorption to soil can inhibit microbial action and slow the rate of degradation. Photo- and chemical degradation are not significant means by which glyphosate is removed from soils. The half-life of glyphosate ranges from several weeks to years, but averages 2 months. In the water column, glyphosate is rapidly decreased through adsorption to suspended and bottom sediments and has a half-life of 12 days to 10 weeks.

L.1.2 Species Specific Information

The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) has jurisdiction over several species of concern to this project. Three species under USFWS jurisdiction [Alameda whipsnake (*Masticophis lateralis euryxanthus*), California red-legged frog (*Rana draytonii*), and pallid manzanita *(Arctostaphylos pallida)*] and one species under NMFS jurisdiction [the Central California Coast Distinct Population Segment (DPS) of steelhead (*Oncorhynchus mykiss*)] have been identified as taxa warranting detailed evaluation of risks due to proposed project actions. Several other DPS or species of fish under NMFS jurisdiction are also considered but not fully evaluated because of incomplete exposure pathways (*e.g.*, they do not occur in the project areas). Information on herbicide toxicity, potential for exposure, and species specific considerations for herbicide application and related actions is presented below, by species.

L.1.2.1 Alameda Whipsnake

L.1.2.1.1 Toxicity Data

There are limited data available regarding the toxicity of herbicides to reptiles, and no data were found in which snakes were exposed to any of the three herbicides that may be used in the proposed and connected project areas. The following information about toxicity to reptiles exposed to herbicides was obtained from Bautista 2005.

> In a review of pesticide effects to reptiles, Pauli and Money (2000) found very few studies, despite publications stating the need for such research dating back to Hall (1980). The only information available for herbicides is from two reports concerning 2,4-D. One study investigated the effects of 2,4-D on alligators (Crain, *et al.* 1997), and Willemsen and Hailey (1989, cited by Pauli and Money 2000) noted adverse effects to tortoises in Greece after application of 2,4,5-T and 2,4-D. Pauli and Money (2000) concluded, "it is remarkable that no data appear to exist concerning the effects on reptiles of field applications of… modern herbicides (*e.g.*, glyphosate, sulfonylureas)…"

Hall and Clark (1982) found that the green anole lizard (*Anolis carolinenesis*) had a similar sensitivity as mallards and rats to organophosphates. Conversely, reptiles were reported to be more sensitive to some pesticides than birds or mammals (Rudd and Genelly 1956, in Hall 1980). Hall (1980) stated that reptiles are apparently less sensitive than fish. The Forest Service risk assessments use amphibians and/or fish as surrogates for reptiles. An assumption is made by the Forest Service that exposures and doses protective of amphibians and fish would also be protective of reptiles. Amphibians and fish have very permeable skin, more so than reptiles, so they are more likely to absorb contaminants from their environment. And their more complex life cycle that includes metamorphosis makes amphibians sensitive indicators for environmental effects (Cowman and Mazanti, 2000). However, the lack of data from reptiles leads to substantial uncertainty in risk assessments for reptiles, since the response of these animals to herbicide exposures is unknown.

L.1.2.1.2 Exposure Pathways

The two potentially most important routes of exposure to herbicides applied to terrestrial environments for snakes, such as the Alameda whipsnake, are direct/dermal contact and dietary. Direct contact with herbicides is not expected to result in adverse effects in terrestrial reptiles given the relatively impermeable skin of these organisms and the low likelihood of contact. The expectation of limited direct contact with herbicides is based on the assumption that herbicides will be sprayed primarily on stumps of non-native trees, such as eucalyptus, although in some areas coyote brush shrubs may also be treated. Herbicide application is expected to be most intense where non-native trees are most abundant, and are, therefore, not preferred habitat of the whipsnake. Because of habitat unsuitability, Alameda whipsnakes are unlikely to frequent areas where herbicide application is expected to be most aggressive.

Dietary exposure via consumption of prey is considered the most important potential exposure pathway for terrestrial snakes, such as Alameda whipsnake. This pathway would be significant and complete if herbicides were accumulated in the tissues of prey items routinely consumed by Alameda whipsnake. However, accumulation of herbicides in prey items of whipsnakes (*e.g.*, insects, lizards, small mammals) is unexpected for the reasons cited below.

Based on an initial evaluation of chemical characteristics, such as octanol-water partition coefficient (K_{ow}), the three herbicides with potential for use in the proposed and connected project areas have low to moderate bioaccumulation potential. Garlon® 4 is reported to have low to moderate potential for bioaccumulation (Marin Municipal Water District 2008) based on the reported log K_{ow} (about 4). This bioaccumulation potential is offset by the relatively rapid degradation of Garlon® 4. The reported half-life (field dissipation) is 39 days, and hydrolysis degradation in soil and water is 3 hours and 0.5 days, respectively, for triclopyr BEE, the active ingredient in Garlon® 4 (Marin Municipal Water District 2008).

Bioaccumulation potential for Stalker® (active ingredient imazapyr) is reported to be low (Tu, *et al.* 2001). Mobility in soil is reported to be significant because of low sorption potential, but degradation in aquatic environments via photodegradation is reported to be very rapid (2 days; Mallipudi, *et al.* 1991 in Weed Control Methods Handbook, The Nature Conservancy, Tu, *et al.* 2001). These conclusions support assumptions that bioaccumulation of imazapyr in likely prey items of the Alameda whipsnake will not be significant and dietary or food web-related effects to terrestrial snakes are not anticipated following appropriate application of this herbicide.

As discussed above, Tu, *et al.* (2001) report that glyphosate is strongly adsorbed to soil particles, which prevents it from excessive leaching or from being taken-up from the soil by non-target plants. It is degraded primarily by microbes, but strong adsorption to soil can inhibit microbial action and slow the rate of degradation. Photo- and chemical degradation are not significant in the means by which glyphosate is removed from soils. The half-life of glyphosate ranges from several weeks to years, but averages 2 months. In water, glyphosate is rapidly dissipated through adsorption to suspended and bottom sediments and has a half-life of 12 days to 10 weeks.

Glyphosate bioaccumulation is expected to be low because of strong sorption to soil particles and low log K_{ow} (-2.8). Tu, *et al.* (2001) provide the following summary of glyphosate fate and transport relevant to evaluation of bioaccumulation potential.

> Because glyphosate binds strongly to soils, it is unlikely to enter waters through surface or subsurface runoff except when the soil itself is washed away by runoff, and even then, it remains bound to soil particles and unavailable to plants (Rueppel, *et al.* 1977, Malik, *et al.* 1989). Most glyphosate found in waters likely results from runoff from vegetation surfaces, spray drift, and intentional or unintentional direct overspray. In most cases, glyphosate will dissipate rapidly from natural water bodies through adsorption to organic substances and inorganic clays, degradation, and dilution (Folmar, *et al.* 1979; Feng, *et al.* 1990; Zaranyika & Nyandoro 1993; Paveglio, *et al.* 1996). Residues adsorbed to suspended particles are precipitated into bottom sediments where they can persist until degraded microbially with a half-life that ranges from 12 days to 10 weeks (Goldsborough & Brown 1993; EXTOXNET 1996).

Direct contact and dietary-related adverse effects to Alameda whipsnake are not anticipated following appropriate and careful application of Garlon® 4, Stalker®, or Roundup®. Bioaccumulation of these herbicides in prey items of Alameda whipsnakes is not expected to be significant based on chemical properties (*e.g.*, log K_{ow}, solubility, sorption potential, and environmental persistence) of these compounds and on properties of the active ingredients. None of the known inactive or secondary ingredients of the commercial mixtures (*e.g.*, kerosene, surfactants) has significant bioaccumulation potential.

L.1.2.1.3 Application Recommendations/Cautions

- Do not apply herbicides to foliage when wind speed is greater than 10 mph or less than 2 mph. Very low wind speeds are conducive to drift because very light winds are highly variable and are associated with inversion conditions, in which mists and vapors tend to stay near the ground rather than dispersing upward.
- Apply during dry periods (i.e., not within 24 hours of predicted rain event defined as a 40% chance of rain or greater) and no foliar application within 60 feet of surface water bodies to reduce overland transport to surface water bodies (which may increase exposures to certain prey items of Alameda whipsnake).
- Apply after reproductive period (*i.e.*, spring and early summer for Alameda whipsnake) to minimize exposures to potentially more sensitive early life stages. It is currently unknown if young snakes are more or less sensitive to herbicide exposures, but early life stages of many common test species show increased sensitivity to potentially hazardous chemicals compared to adults of the same species.

L.1.2.2 California Red-legged Frog

L.1.2.2.1 Toxicity Data

Toxicity data for the three herbicides with potential to be used in the treatment area are limited for amphibians, especially for Stalker® and the associated active ingredient imazapyr. Relevant toxicity information for the three herbicides is summarized below, by herbicide.

Garlon® Products (triclopyr)

Garlon® 4 and/or the active ingredient triclopyr is apparently toxic to larval amphibians, as determined in several studies in which tadpoles were exposed to triclopyr. Toxicity differed between technical triclopyr and Garlon® 4, seemingly due to effects related to inactive or secondary ingredients in Garlon® 4. For example, Garlon® 4 contains kerosene and the active ingredient is triclopyr BEE, while the closely related Garlon® 3A does not contain kerosene, contains ethanol, and has triclopyr TEA as the active ingredient. Two studies exposed ranid frog tadpoles to triclopyr; one using technical triclopyr and the other using the commercial triclopyr-based herbicide. Toxicity data from these two studies are summarized below.

Berrill, *et al.* (1994) calculated an effects concentration $(EC)_{50}$ (abnormal behavioral response) in bullfrog (*Rana catesbeiana*), green frog (*R. clamitans*), and leopard frog (*R. pipiens*) of 1.2 milligrams per liter (mg/L) triclopyr. Mortality was 100% (lethal concentration $(LC)_{100}$) in all exposed *R. clamitans* and *R. catesbeiana* at 2.4 and 4.8 mg/L triclopyr. Minimal mortality was observed in *R. pipiens* at 2.4 mg/L and 4.8 mg/L triclopyr. These data are assumed applicable to the California red-legged frog (*R. draytonii*) based on the assumption that closely related taxa (genus *Rana*, recently changed to *Lithobates* for most ranid frogs in the United States) have similar sensitivity to toxic chemicals. Under this assumption, triclopyr concentrations in water should probably not exceed about 1 mg/L to protect ranid frog larvae from ecologically significant adverse effects.

Trumbo and Waligora (2009) calculated an LC_{50} (mortality) in *R. catesbeiana* tadpoles of 174.5 mg/L (Garlon® 3A) and 814.1 mg/L (technical triclopyr). These results suggest that Garlon® 3A is more toxic than technical triclopyr, and that the increased toxicity of this particular commercial product may be due to effects of other (often unknown or proprietary) ingredients.

The Forest Service also investigated the toxicity of several herbicides on amphibians. This information, presented in Bautista (2005), is summarized below.

> Triclopyr was specifically tested for the ability to cause malformations in the frog embryo teratogenesis assay (FETAX) using the African clawed frog *Xenopus laevis* (Perkins, *et al.* 2000). *Xenopus* is a highly sensitive assay species for determining the teratogenicity of chemicals (Mann and Bidwell 2000, Perkins, *et al.* 2000). No statistically significant increase in abnormalities was seen in any groups exposed to Garlon® 3A or Garlon® 4 at levels that were not also lethal to the embryos. Consistent with results for other aquatic species, Garlon® 3A, containing triclopyr TEA, was 15 times less toxic than Garlon® 4, containing triclopyr BEE. As reported in this study and elsewhere, Garlon® 3A is reported to be substantially less toxic in aquatic environments than Garlon® 4, primarily due to toxicity differences between triclopyr BEE (Garlon® 4) and triclopyr TEA (Garlon® 3A). Garlon® 4 reduced embryo growth at a concentration below the LC_{50}, suggesting that frog embryo growth may be a sensitive sublethal endpoint for toxicity assessment. Perkins, *et al.* (2000) found that the 96-hour LC_{50} for Garlon® 4 was 10 mg acid equivalent (a.e.)/L, and that for Garlon® 3A was 159 mg a.e./L. Perkins, *et al.* (2000) calculated that if Garlon® 4 was applied at the highest application rate directly to water 15 centimeters (cm) deep (volume not specified), the

> expected environmental contamination was less than the LC_{50} and the LC_5 by a factor of about four and three, respectively. Water concentrations from application of triclopyr acid at the typical application rate are below 1 mg/L, so acute and chronic risks to aquatic animals are low. At the highest application rate, acute exposure from runoff could adversely affect responsiveness of some tadpoles, increasing the risk of predation. Despite the difference in toxicity, the conclusion is the same for triclopyr BEE, due to the difference in estimated water concentration.

The findings reported in these studies indicate that maintaining surface water concentrations of triclopyr below about 1 mg/L should provide adequate protection for *R. draytonii* tadpoles. No data are available for estimating safe or threshold concentrations of triclopyr for metamorphosed *R. draytonii* in terrestrial environments, but transformed individuals of this species are unlikely to frequent the dry terrestrial areas where herbicide application is expected to be most intense. Protection of surface waters and adjacent shorelines (where both tadpoles and transformed adults are expected to reside) from unintended triclopyr exposures is critical for protection of *R. draytonii*.

Stalker® (imazapyr)

As stated previously, ecotoxicity data for amphibians are especially sparse for Stalker® or the active ingredient imazapyr. Trumbo and Waligora (2009) exposed bullfrog tadpoles to imazapyr and calculated an LC_{50} of 14.7 mg/L. These data suggest that Stalker® is less toxic to ranid frog tadpoles than Garlon 4®.

Roundup® (glyphosate)

Bautista (2005) compiled and summarized ecotoxicity data for several herbicides, including Roundup®. Although much of the information presented in this summary is focused on effects of herbicides on birds and mammals, some data on amphibians are included. Ecotoxicity data on the effects of Roundup® (glyphosate) on amphibians, as summarized in Bautista (2005), are presented below.

Glyphosate IPA, Roundup® and POEA surfactant used in Roundup® have been specifically tested for their ability to cause malformations in the FETAX assay using *Xenopus* (Perkins, *et al.* 2000). The Roundup formulation containing POEA surfactant was 700 times more toxic than glyphosate IPA. POEA surfactant alone was more toxic than the Roundup® formulation. This finding points to the importance of added ingredients in the commercial products. No statistically significant increases in abnormalities were seen in any groups exposed to POEA at levels that were not also lethal. The *Xenopus* 96-hour LC_{50} for glyphosate IPA was 7,297 mg a.e./L, and that for Roundup was 9.3 mg a.e./L. Perkins, *et al.* (2000) calculated that if Roundup was applied at the highest application rate directly to water 15 cm deep (volume not specified), the expected environmental contamination was less than the LC_{50} and the LC_5 by a factor of about three.

A study by Smith (2001) looked at effects to western chorus frog (*Pseudacris tiseriata*) and plains leopard frog (*Rana blairi*) exposed to a formulation of glyphosate containing glyphosate IPA and ethoxylated tallowamine surfactant [Kleeraway Grass and Weed Killer RTU (Monsanto)]. Smith exposed 1-week old tadpoles of both species for 24-hours to the following

concentrations of Kleeraway: 0.1 (1 part Kleeraway to 9 parts deionized water), 0.1, 0.001, and 0.0001. These concentrations are equivalent to 560 mg a.e./L, 56 mg a.e./L, 5.6 mg a.e./L, and 0.56 mg a.e./L. Smith reported some mortality at concentrations as low as 0.56 mg a.e./L for both species. Acute exposure to Kleeraway had no effect on growth or development of surviving tadpoles. Results found by Smith are not consistent with other information on the effects of glyphosate or other formulations to amphibians. However, other studies have found that different formulations can have different toxicities to frogs (Mann and Bidwell, 1999). Formulations containing surfactant are known to have much higher toxicity to amphibians than glyphosate. The Forest Service does not use the formulation used in the Smith study. Bidwell and Gorrie (1995) reported 48-hour LC_{50} values of 11.6 mg a.e./L for the Roundup® 360 formulation and 121 mg/L for technical grade glyphosate using four species of frogs from western Australia. At the typical application rate, expected water concentrations for acute and longer-term exposures are well below any reported LC_{50} for amphibians, with the exception of the study by Smith (2001). At the highest application rate, lethal doses could occur from formulations containing a surfactant.

Santillo, *et al.* (1989) found a substantial decrease in herbivorous terrestrial insects on glyphosate treated sites, but no trend between treated and untreated sites for predatory insects. Cole, *et al.* (1997) sampled amphibians in Oregon clearcuts with and without glyphosate applications. Capture rates did not differ between treated and untreated plots for several resident amphibians utilizing these terrestrial habitats [*i.e.*, rough-skinned newt (*Taricha granulosa*), ensatina (*Ensatina eschscholztii*), Pacific giant salamander (*Dicamptodon tenebrosus*), Dunn's salamander (*Plethodon dunni*), western redback salamander (*Plethodon vehiculum*), and red-legged frog (assumed northern form, *R. aurora*)].

In summary, glyphosate formulations containing surfactants appear to be more toxic to amphibians than formulations without surfactants. Technical grade glyphosate formulations without surfactants seem to be less toxic to amphibians than commercial products, such as Roundup® 360. There may be adverse effects on terrestrial amphibians due to reduced prey (insects) in glyphosate treated terrestrial areas, but the study of Cole, *et al.* (1997) suggests that these risks are low and probably not associated with population level effects on resident terrestrial amphibians.

L.1.2.2.2 Exposure Pathways

The primary routes of exposure to sprayed herbicides for terrestrial life stages of amphibians, such as the California red-legged frog, are dermal/direct contact and dietary. For eggs and larval stages (tadpoles), the primary exposure route of concern is direct contact with (eggs and tadpoles) and ingestion of (tadpoles) surface water. The effects of direct dermal contact with herbicides on terrestrial life stages of amphibians are unknown. Exposures to herbicides via direct contact are possible for adult amphibians due to the permeable skin. Exposure potential for adult amphibians is, therefore, expected to be greater than that predicted for terrestrial reptiles whose skin provides some level of protection. Adult *R. draytonii* are, however, unlikely to frequent the terrestrial environments during the dry season when herbicide application is expected to occur. In addition, herbicide application would not occur within 24 hours of an expected rain event, defined as a 40% chance or greater of rain. Therefore, the potential for direct contact exposure to herbicides for transformed individuals is low.

Dietary exposure via consumption of food items/prey is considered important for amphibians at all life stages. Accumulation of herbicides in algae and detritus (the primary dietary items for larvae) and in prey items of adult frogs (*e.g.*, insects, other invertebrates, occasionally small vertebrates) is expected to be minimal. This conclusion is based on (1) the expectation that transformed frogs will remain near water in the dry season, when herbicide application is most likely to occur, and (2) the recommendation that foliar application of herbicides within 60 feet of surface water bodies be prevented, so transport of terrestrial-applied herbicides to water bodies should be minimal. Support for the assumption of low bioaccumulation potential is provided below.

Based on an initial evaluation of chemical characteristics, such as K_{ow}, the three herbicides with potential for use in the proposed and connected project areas have low to moderate bioaccumulation potential. Garlon® 4 is reported to have low to moderate potential for bioaccumulation (Marin Municipal Water District 2008) based on the reported log K_{ow}. This bioaccumulation potential is offset by the relatively rapid degradation of Garlon® 4. The reported half-life (field dissipation) is 39 days, and hydrolysis degradation in soil and water is 3 hours and 0.5 days, respectively, for triclopyr BEE, the active ingredient in Garlon® 4 (Marin Municipal Water District 2008).

Bioaccumulation potential for Stalker® (active ingredient imazapyr) is reported to be low (Tu, *et al.* 2001). Mobility in soil is reported to be significant because of low sorption potential, but degradation in aquatic environments via photodegradation is reported to be very rapid (2 days; Mallipudi, *et al.* 1991 in Weed Control Methods Handbook, The Nature Conservancy, Tu, *et al.* 2001).

These conclusions support assumptions that bioaccumulation of Garlon® 4 in likely food/prey items of *Rana draytonii* will not be significant. Dietary or food web-related effects to aquatic and terrestrial life stages of amphibians are, therefore, unexpected following appropriate application of this herbicide.

Tu, *et al.* (2001) report that glyphosate is strongly adsorbed to soil particles, which prevents it from excessive leaching or from being taken-up from the soil by non-target plants. It is degraded primarily by microbes, but strong adsorption to soil can inhibit microbial action and slow the rate of degradation. Photo- and chemical degradation are not significant means by which glyphosate is removed from soils. The half-life of glyphosate ranges from several weeks to years, but averages 2 months. In the water column, glyphosate is rapidly decreased through adsorption to suspended and bottom sediments, and has a half-life of 12 days to 10 weeks.

Glyphosate bioaccumulation is expected to be low because of strong sorption to soil particles and low K_{ow} (-2.8). Tu, *et al.* (2001) provide the following summary of glyphosate fate and transport relevant to evaluation of bioaccumulation potential.

> Because glyphosate binds strongly to soils, it is unlikely to enter waters through surface or subsurface runoff except when the soil itself is washed away by runoff, and even then, it remains bound to soil particles and unavailable to plants (Rueppel, *et al.* 1977, Malik, *et al.* 1989). Most glyphosate found in waters likely results from runoff from vegetation surfaces, spray drift, and intentional or unintentional direct overspray. In most cases,

glyphosate will dissipate rapidly from natural water bodies through adsorption to organic substances and inorganic clays, degradation, and dilution (Folmar, *et al.* 1979; Feng, *et al.* 1990; Zaranyika & Nyandoro 1993; Paveglio, *et al.* 1996). Residues adsorbed to suspended particles are precipitated into bottom sediments where they can persist until degraded microbially with a half-life that ranges from 12 days to 10 weeks (Goldsborough & Brown 1993; EXTOXNET 1996).

Adverse effects in *R. draytonii* from direct contact or dietary exposures to sprayed herbicides are not anticipated following appropriate application (*i.e.*, following recommended guidelines and best management practices described below, especially those recommending against spraying in or near surface water bodies). Bioaccumulation of these herbicides in dietary items for *R. draytonii* (algae, detritus, terrestrial invertebrates, and small vertebrates) is not expected to be significant based on chemical properties (*e.g.*, log K_{ow}, solubility, sorption potential, and environmental persistence) of these compounds or on properties of the active ingredients.

L.1.2.2.3 Application Recommendations/Cautions

- Do not apply when wind speed is greater than 10 mph or less than 2 mph to reduce drift.
- Apply during dry periods (i.e., not within 24 hours of predicted rain event, defined as a 40% or greater chance of rain) to reduce unintended transport to surface waters.
- Do not use foliar application within 60 feet of ephemeral or permanent surface water bodies, both of which are used by *R. draytonii* for breeding and rearing of tadpoles. None of the proposed herbicides are approved for direct application to surface water; therefore, a 60 foot no-spray zone will be implemented for protection of California red-legged frog.
- Although herbicide transport to surface waters is unexpected with the implementation of best management practices, the most toxic herbicide, Garlon 4 Ultra, will not be used where herbicide transport to surface waters could occur.
- Do not apply just before or during reproductive or rearing periods.
  - Berrill, *et al.* (1994) recommends against spring and summer use of triclopyr in forests to prevent harmful exposures to ranid frogs. However, late summer/early fall application may greatly reduce or prevent exposure to tadpoles (which are present approximately May to September) and breeding adults (breeding approximately late November to February).

L.1.2.3 Pallid Manzanita

L.1.2.3.1 Toxicity Data

Since pallid manzanita is susceptible to competition and herbicides, among other threats, a balance is needed to improve the habitat necessary for their survival by reducing such competition but not harm the individuals in the process of these actions. One of the proposed actions is to spray herbicides on targeted tree stumps. Thus, the potential effects of this proposed action are described below with an emphasis on toxicity of each of the three herbicides under consideration. Various sources document the three herbicides with potential to be used in the project area are a danger to non-target plant species, since each of the proposed herbicides targets

a wide range of plants. Relevant toxicity information for the three herbicides is summarized below, by herbicide.

Garlon® Products (triclopyr)

According to the manufacturer, Garlon® 4 is intended to be used to control woody plants and annual and perennial herbaceous broadleaf species. It can be applied to control or eradicate these plants either via foliar spraying or by applying directly to basal bark or cut stumps (U.S. EPA 2007). The manzanita is susceptible to the effects of Garlon® 4, since this species is the type of plant targeted by this pesticide. The active ingredient, triclopyr, is the pyridine analogue of 2,4,5-T and imitates the actions of auxin, a natural plant growth hormone. Once the herbicide is applied to woody and broadleaf plants, it is absorbed by the roots and leaves of the plant and accumulates in the growth regions of a plant affecting its ability to grow (MDAR 2012) and ultimately kills the plant.

SERA and SRC (1996) completed a dose-response assessment for triclopyr by conducting a literature review of effects on terrestrial plants based on application rates of direct spraying and drift and on soil exposure. SERA and SRC provide the following summary of effects following direct spraying of commercial formulations that include triclopyr as the active ingredient:

> Applications of Garlon 3A at 6-9 [pounds] (lbs) a.e./acre or Garlon 4 at 4-8 lbs a.e./acre will control most species of woody plants and are above the levels necessary to control broadleaf weeds. Application rates in the range of 0.3-0.6 lb/acre are likely to affect sensitive species such as rice (Pantone and Baker 1992, Street, *et al.* 1992). Cotton appears to be very sensitive to triclopyr. Application rates as low as 0.03 [kilograms per hectare] (kg/ha) (0.027 lb/acre) have been shown to lower crop yield, and rates of 0.06 kg/ha (0.054 lb/acre) cause visible damage when applied at the pin-head square stage (Snipes, *et al.* 1991). Pine is relatively resistant to triclopyr; however, applications of up to 4.5 kg/ha (4 lbs/gallon) can cause severe effects, particularly during the summer, with much less injury after annual growth has ceased and during periods of high water stress (King and Radosevich 1985). In general, triclopyr is less likely to affect grasses than broadleaf vegetation, although both types of vegetation may increase after triclopyr applications of 2.2 kg/ha (2 lbs/acre) because of damage to overstory vegetation (Boggs, *et al.* 1991a, b, Engle, et al. 1991, Lochmiller, *et al.* 1995). Depending on the application rate, triclopyr may favor the development of grasses over broadleaf weeds. At rates of 0.56 kg/ha (0.5 lbs/acre), Meyer and Bovey (1990) noted no substantial effect on either type of vegetation 15 months of application. This finding suggests a potential need for repeated treatments or long term monitoring to maintain desired habitats. At a rate of 1.12 kg/ha (1 lb/acre) total grasses increased by a factor of approximately 2 over control plots and total broadleaf cover decreased to approximately 60% of that noted in control plots.

In addition, “clippings contaminated with triclopyr may injure sensitive plant species when the clippings are used as mulch (Branham and Lickfeldt 1997)” as described by the Forest Service Pacific Northwest Region (2001).

SERA and SRC (1996) identified one study that investigated the dose-response associated with exposure of plants to levels of triclopyr (Morash and Freedman 1989), the results of which are described below.

> In this laboratory study, soil from a mixed wood clear cut was treated with triclopyr, as Garlon 4, at levels of 10, 50, 100, 500, 1,000, and 5,000 [parts per million] (ppm) (a.i. dry weight). The emergence of seedlings naturally occurring in the soil taken from an 8-year old mixed wood clearcut was monitored. The seedlings were classified as *Rubus* species, other dicots, and monocots…..substantial inhibition of *Rubus* species, other dicots, and monocots was observed at concentrations ≥ 50 [milligrams per kil ogram] (mg/kg) soil. No seed germination was apparent at soil concentrations of 500-5,000 mg/kg soil. Inhibition of germination at 10 mg/kg soil was not statistically significant. The concentration of 10 mg/kg soil is essentially a NOEL and 50 mg/kg soil is a FEL (*undefined*) for all three groups of seeds.

The information presented here indicates that application of Garlon® 4 and, to a lesser degree Garlon® 3A, has potential to achieve desired results, but such applications also have potential to contribute to ecologically significant adverse effects on non-target plants.

Stalker® (imazapyr)

Contact with imazapyr will injure or kill target and non-target plants. Federally listed terrestrial plants may be adversely affected if the product is applied directly to the plants, or indirectly as the result of drift or leaching (U.S. DOE-Bonneville Power Administration 2000).

In its *Reregistration Eligibility Decision (RED) for Imazapyr*, U.S. EPA (2006) conducted an ecological risk assessment (ERA) for imazapyr. The summary of phytotoxicity information presented below is taken from this ERA without modification other than defining acronyms. This study provides a significant amount of information on calculated risk quotient (RQ)-based levels of concern (LOCs) for target and non-target aquatic and terrestrial plants under several different application rates and methods (*e.g.*, spray vs. granular).

> There are ecological risks of concern associated with the use of imazapyr for non-target terrestrial plants and aquatic vascular plants, and potential risks to federally listed threatened and endangered species ("listed species"), which include aquatic vascular plants, terrestrial and semi-aquatic monocots and dicots that cannot be precluded at this time. Imazapyr use at the labeled rates on non-crop areas when applied as a spray or as a granular to forestry areas present risks to non-target plants located adjacent to treated areas.
>
> Terrestrial plant toxicity studies with monocots and dicots indicate that seedling emergence and vegetative vigor are severely impacted by exposure to imazapyr acid and to the IPA salt of imazapyr. Seedling emergence, based on "fresh weight," was adversely impacted in monocots (wheat) at an EC_{25} of 0.0046 lb a.e./acre and in dicots (sugar beet) with an EC_{25} of 0.0024 lb a.e./acre. Vegetative vigor in monocots, based on "fresh weight," was adversely impacted by both imazapyr acid and the IPA salt of imazapyr at

> an EC_{25} of 0.012 lb a.e./acre in wheat. In vegetative vigor studies with dicots (cucumber), imazapyr acid was more toxic than the IPA salt of imazapyr with an EC_{25} of 0.0009 lbs a.e./acre. Non-lethal effects included stunting, chlorosis, and necrosis.
>
> For aquatic plants, available toxicity studies indicate that imazapyr acid and the IPA salt are highly toxic and expected to exert detrimental effects to aquatic vascular plants. The EC_{50} for the aquatic vascular plant (duckweed) is 0.018 mg a.e./L (no adverse adverse effects concentration (NOAEC) 0.011 mg a.e./L), based on inhibition of plant growth and reduction of frond count.
>
> For the terrestrial non-crop use of imazapyr and the application rates of 0.9 lbs a.e./acre and 1.5 lbs a.e./acre, RQ LOCs were exceeded for all non-endangered and endangered monocots and dicots located adjacent to treated areas, in semi-aquatic areas, and as a result of runoff and spray drift with the exception of non-endangered monocots receiving spray drift alone from ground applications at 0.9 lb a.e./acre. RQs were higher for aerial applications when compared to ground applications, as expected given the assumption that 5% of aerial sprays and 1% of ground sprays drift to non-target areas.
>
> For the aquatic non-crop use of imazapyr at the maximum application rate of 1.5 lbs a.e./acre, LOCs were exceeded for non-endangered and endangered monocots and dicots located adjacent to or on the edge of lakes and ponds as a result of flooding semiaquatic areas and spray drift from a direct application to surface water. RQs were higher for plants adjacent to or on the edge of lakes and ponds versus those exposed via drift.

The screening level risk assessment for endangered species indicates that imazapyr RQs exceed the endangered species LOCs for the specified use scenario in the following taxonomic groups:

- non-target aquatic vascular plants
  - for non-crop uses (both high and low application rates)
  - for direct application to water
- non-target terrestrial plants
  - for monocots and dicots adjacent to treated areas, semi-aquatic areas, and subject to drift for non-crop uses at both high and low application rates by ground and aerial spray and granular applications

In summary, EPA (2006) states:

> Registered uses of imazapyr acid and the imazapyr isopropylamine salt will have no direct effect on endangered or threatened fish, aquatic invertebrates, non-vascular aquatic plants (algae), birds or mammals. However, there is a potential concern for indirect effects to listed species with either broad or narrow dependencies on impacted plant species/populations/communities for habitat, feeding or cover requirements.

Finally, risks to endangered species identified in the Environmental Fate and Ecological Risk Assessment for Imazapyr (as described in EPA 2006 and summarized above) are based solely on

U.S. EPA's screening level assessment and according to EPA (2006) "do not constitute 'may affect' findings under the Endangered Species Act (ESA)."

Roundup® (glyphosate)

Roundup is a non-selective herbicide with the active ingredient glyphosate that is rapidly absorbed through foliage. Approximately 33% of glyphosate applied to foliage is absorbed within a few hours. High humidity may facilitate enhanced absorption (SERA 2011). Therefore, small quantities of glyphosate on non-target vegetation can cause severe damage or destruction to plants on which treatment was not intended, including the pallid manzanita, particularly when exposed via foliar application and drift from targeted application areas. Glyphosate is strongly absorbed to soil particles, so absorption by plant roots is less important route of exposure for terrestrial plants (Smith and Oehme 1992 in SERA 2011).

According to SERA (2011), U.S. EPA requires bioassays for seedling germination (soil exposure), emergence (soil exposure), and vegetative vigor (leaf exposure) in several dicot and monocot species. SERA (2011) summarized the results as follows:

> Foliar exposures to glyphosate, assayed as vegetative vigor studies, are much more toxic than soil exposures, as assayed by seedling emergence. The lesser toxicity of glyphosate in soil exposures is probably attributable at least in part to the tight binding of glyphosate to some types of soils (*e.g.*, Accinelli, *et al.* 2005; Borggaard and Gimsing 2008; Caceres-Jensen, *et al.* 2009; Glass 1987; Mamy and Barriuso 2005). Seedling emergence studies involving three different glyphosate formulations indicate application rates in the range of 4-5 lb a.e./acre are relatively nontoxic (Bohn 1987; Everett, *et al.* 1996a; Willard 1996). Foliar applications, on the other hand, are much more toxic. In the assay using glyphosate IPA (Chetram and Lucash 1994), the NOAECs for monocots range from 0.7 to 0.56 lb a.e./acre. Dicots were somewhat more sensitive with NOAECs ranging from 0.035 to 0.46 lb a.e./acre. A similar pattern is apparent in studies on a wettable powder formulation of glyphosate (Appendix 5, Table 2). The NOAECs for monocots range from 0.07 to 0.45 lb a.e./acre. Dicots were again somewhat more sensitive with NOAECs ranging from 0.02 to 0.45 lb a.e./acre. Notably, the range of sensitivities is greatest for dicots, spanning a factor of over 20 [0.45 lb a.e./acre ÷ 0.02 lb a.e./acre = 22.5].
>
> Boutin, *et al.* (2004) conducted a series of bioassays similar to vegetative vigor studies—*i.e.*, foliar applications—on 15 non-crop plant species native to Europe...The plants were treated with Roundup Bio, a 360 g a.e./L formulation which appears to be marketed in Europe. Boutin, *et al.* (2004) report EC_{50} values rather than NOECs and note a range of sensitivities from 14.26 to 64.66 g/ha. This variability is only a factor of about 4, much less than the variability in the registrant-submitted studies.

SERA (2011) also summarized the results of drift studies, since drift is the most likely exposure route for non-targets plants, which would include the manzanita. SERA (2011) identified:

The lowest reported effect level in drift studies is 1/33 of an application rate of 1.121 kg/ha which caused transient damage in soybeans, based on an assessment of visual injury, over a 30-

day period after application but no net decrease in soybean production by the end of the season (Al-Khatib and Peterson 1999). This treatment level corresponds to 0.034 kg/ha [1.121 kg/ha ÷ 33] or about 0.03 lb/acre. A study by the same authors found that grapes were much less sensitive, evidencing damage at exposures equivalent to one-third of the application rate. A grass (*Poa annua*) and a dicot (*Brassica napus*) both exhibited substantial damage at deposition rates greater than 1000 µg/m2 or about 1.8 lbs/acre. Fletcher, *et al.* (1996) found that simulated drift in the range of 0.4-0.8% of an application rate of 0.43 kg/ha had no marked effect on canola, smartweed, soybean, or sunflower plants.

L.1.2.3.2 Exposure Pathways

The primary routes of exposure to sprayed herbicides for woody and broadleaf terrestrial plants, including manzanita, are direct exposure to the leaves either from intentional application or drift from locations that were targeted for spraying. Drift should be minimized since herbicide application is proposed to be focused on spraying of stumps, and foliar application is proposed to be limited to maintenance activities.

Aerial drift of the glyphosate will cause injury to non-target plants. The likelihood of drift injury occurring is highest when winds are gusty or when wind velocities are sufficient to allow spray drift to occur (Schuette, J. 1998).

Additionally, these herbicides can, to varying degrees, be absorbed by the plant if the chemical reaches the soil through incidental application or runoff (SERA and SRC 1996). Although these herbicides are not designed to be applied to soils and are not considered to be effective when applied in this way, they can be taken up via roots (Forest Service Pacific Northwest Region 1996). As shown in numerous studies, the half lives of the commercial herbicides vary based on the active ingredient, formulation (addition of surfactants, commercial formulation, or only the active ingredient), and soil type, including the volume of organic matter (SERA and SRC 1996). As described in studies summarized by the Forest Service (Forest Service Pacific Northwest Region 1996), microorganisms readily degrade triclopyr, the active ingredient of Garlon® 4, particularly when conditions are favorable for microbial activity, and persistence in soil varies widely, with half-lives ranging from 75 to 81 days in Oregon soils (Norris 1987). However, the study conducted by Norris also found detectable triclopyr residues in soil 477 days after treatment. Half-lives in soil for imazapyr, the active ingredient for Stalker®, range typically from 14 days to 17 months. In forestry dissipation studies, the half-life of imazapyr ranged from 14 to 44 days in forest litter, 19 to 34 days in forest soils, and 12 to 40 days on plants (OSU 2002). Glyphosate, the active ingredient for the commercial formulations of Roundup®, is moderately persistent in soil with half-lives ranging from 3 to 130 days (U.S. EPA, 1990; USDA, 1984 as summarized in Schuette 1988). Droplet size, at least for triclopyr, can be an additional important exposure factor that would affect the damage done to non-target species, such as the manzanita. At low application rates, small droplets of about 100 microns are more toxic than larger droplets of about 600 microns. This difference was not observed at high application rates (Prasad and Cadogan 1992 in SERA and SRC 1996).

Pallid manzanita is the type of plant targeted by each of these herbicides. Therefore, the following precautions, in addition to general best management practices described elsewhere,

should be undertaken to protect pallid manzanita that could be present in or near the treatment areas to reduce the potential for exposure from drift or runoff.

L.1.2.3.3 Application Recommendations/Cautions

Pallid manzanita surveys should be conducted prior to herbicide application to identify all individual plants present in potential treatment areas, to the extent possible.

Herbicides should be applied when there is little or no hazard of drift (*i.e.*, when wind speed is less than 10 mph but greater than 2 mph) and only in areas that are a sufficient distance away from identified pallid manzanita plants.

Additionally, use of a fine spray, which is more prone to drift and is more toxic than larger droplets at low application rates, should be avoided.

Protective buffer zones should be applied around known pallid manzanita plants if they are identified in potential treatment areas. These buffer zones should be of sufficient size to ensure manzanita plants are protected from spraying and spraying drift.

Marrs, *et al.* (1989 in IPCS 1994) identified that some species were more sensitive to the effects of glyphosate and concluded that when spraying with ground sprayers buffer zones around nature reserves should be 5 to 10 meters. It is possible that this could be a minimum buffer around plants near application areas to protect manzanita. Buffer zones should be clearly identified if manzanita is identified in proposed treatment areas.

L.1.2.4 Central California Coast Steelhead DPS

L.1.2.4.1 Toxicity Data

Toxicity data for the three herbicides with potential to be used in the project area are readily available for rainbow trout and a few other fish species. This is especially the case for Garlon® 4 and triclopyr, while aquatic toxicity data are more limited for izamapyr. Aquatic toxicity information relevant to steelhead is summarized below, by herbicide.

Garlon® Products (triclopyr)

Garlon® 4 and/or the active ingredient triclopyr is toxic to rainbow trout, as determined in several studies in which trout were exposed to triclopyr.

Kreutzwiser, *et al.* (1996) found triclopyr to be slightly toxic to fish, and from slightly toxic to practically non-toxic to daphnia, a water column invertebrate often used to evaluate water quality. Tested aquatic invertebrates were found to be generally less sensitive to triclopyr than were fish.

Garlon® 3A was found to be consistently less toxic to aquatic animals than technical grade triclopyr. In contrast, the Garlon® 4 commercial formulation, although it contains triclopyr BEE was found to be consistently more toxic to aquatic life than pure triclopyr. Offsetting this increased toxicity is the finding that Garlon® 4 rapidly changes to triclopyr in surface waters (Forest Service Pacific Northwest Region 1996).

Acute LC_{50} values (ppm, or mg/L) for triclopyr, Garlon® 3A, and Garlon® 4 are reported by Wan and Watts (1987) in Forest Service Pacific Northwest Region (1996) for rainbow trout and Pacific salmon, and these are presented below.

Species	Triclopyr LC_{50}	Garlon 3A® LC_{50}	Garlon 4® LC_{50}
Rainbow Trout	117 ppm[a] 8.4 ppm[b]	420 ppm[b]	2.7 ppm[b]
Chum and Chinook Salmon	7.8 ppm[b]	275 ppm[b]	1.4 ppm[b]

[a] - DowElanco. Undated. *Triclopyr Technical Information Guide.*

[b] - Wan, M.; Moul, D.; Watts, R. 1987. *Acute Toxicity to Juvenile Pacific Salmonids of Garlon 3A®, Triclopyr Ester, and Their Transformation Products: 3, 5, 6-Trichloro-2-pyridinol and 2-Methoxy-3, 5, 6-trichloropyridine.* Bull. Environ. Contam. Toxicol. 39: pp. 721-728. (exposure duration forming basis of LC_{50} values presented above differs by species)

Morgan, *et al.* (1991) observed that Garlon® 4 caused behavioral (neurological) changes in salmon fry when exposed to ¼ to ½ of lethal levels and triclopyr acid accumulated in fish tissues during the exposure.

The Material Safety Data Sheet (MSDS) for Garlon® 4 (Dow 2011) reports Garlon® 4 as highly toxic to aquatic organisms on an acute basis (LC_{50}/EC_{50} between 0.1 and 1 mg/L in the most sensitive species tested). The LC_{50} for rainbow trout (*Oncorhynchus mykiss*), flow-through, 96 hour was 0.984 mg/L. This LC_{50} is based on exposure to the Garlon® 4 commercial formulation, and not exposure to pure triclopyr.

Perkins, *et al.* (2000) in Bautista (2005) calculated that if Garlon® 4 was applied at the highest application rate directly to water 15 cm deep (volume and flow not specified), the expected environmental contamination was less than the LC_{50} and the LC_5 by a factor of about four and three, respectively. Water concentrations from the application of triclopyr acid at the typical Garlon® 4 application rate would be, according to Perkins, *et al.* (2000), below 1 mg/L of triclopyr acid. The authors of this study, therefore, concluded that acute and chronic risks to aquatic animals are low.

The available information on triclopyr toxicity to fish indicates a wide response of fish to two formulations of triclopyr and to unformulated triclopyr. In fish, 96-hour LC_{50} values of 117 ppm and 148 ppm have been reported in rainbow trout (*Onchorynchus mykiss*) and bluegill sunfish (*Lepomis macrochirus*), respectively (WSSA, 1983).

A fact sheet from the National Pesticide Information Center (NPIC) (2002) reports information from the Reregistration Eligibility Decision (RED) document (U.S. EPA 1998) that triclopyr ranges from practically non-toxic to highly toxic to fish, depending on the fish species and the triclopyr formulation. Triclopyr TEA is practically non-toxic (LC_{50} > 100 ppm) to bluegill sunfish, rainbow trout, and fathead minnow (*Pimephales promelas*) in acute studies. Triclopyr BEE is moderately to highly toxic (LC_{50} 0.1 to ≤ 10 ppm) to these same species under similar conditions. The major metabolite, TCP, is moderately toxic to fish (LC_{50} >1 to ≤12 ppm) including several species of salmon and the previously identified fish species.

U.S. EPA (1998) stated that triclopyr acid was found to be slightly toxic to birds and practically nontoxic to mammals, insects, freshwater fish and invertebrates. Triclopyr TEA was practically non-toxic to slightly toxic to birds and estuarine/marine invertebrates and practically non-toxic to freshwater fish, freshwater invertebrates and estuarine/marine fish. Testing with BEE indicated it to be slightly toxic to birds, moderately toxic to highly toxic to freshwater fish and estuarine/marine invertebrates, slightly toxic to moderately toxic to freshwater invertebrates, and highly toxic to estuarine/marine fish.

The data summarized above indicate that Garlon® 4 is more toxic to salmonid fish that Garlon® 3A or technical triclopyr, and suggest that maintaining surface water concentrations of triclopyr below about 1 mg/L should provide adequate protection for *O. mykiss* and other salmonid fish. This conclusion is based on protection against acutely toxic concentrations, and does not consider long term chronic exposures, which are unlikely considering the expectation of relatively rapid degradation of triclopyr in surface water.

Stalker® (imazapyr)

The Safety Data Sheet for Stalker lists an LC_{50} (96h) for imazapyr in rainbow trout to be >100 mg/L (BASF 2012). Mangels and Ritter (2000) reported acute LC_{50} values for rainbow trout, bluegill sunfish, and channel catfish as >100 mg/L, based on product registrant studies with technical grade imazapyr using standard 96-hr exposure studies. Tests were also conducted with the Atlantic silverside (*Menidia menidia*) to address the potential toxicity of imazapyr to marine fish. In those tests, the highest exposure concentration tested was 184 mg/L, which yielded no significant toxicity (mortality).

Imazapyr has not been thoroughly tested for chronic or sub-lethal effects with a wide variety of aquatic organisms, but those few tests conducted reveal the following. Early life stage survival tests with rainbow trout and fathead minnow embryos and sac-fry continuously exposed to imazapyr revealed no effects on hatching or survival at concentrations as high as 92.4 a.i. mg/L and 118 mg a.i/L, respectively, and these were the highest concentrations tested. A full life cycle test with fathead minnow with concentrations up to 120 mg a.i./L also did not elicit observed toxicity.

The imazapyr herbicide fact sheet (U.S. DOE-Bonneville Power Administration 2000) lists the following toxicity information for aquatic vertebrates:

- Acute Toxicity: LC_{50} (rainbow trout 96-hour) >100 mg/L
- Acute Toxicity: LC_{50} (bluegill sunfish 96-hour) >100 mg/L
- Overall Toxicity: Practically Non-Toxic
- Bioaccumulation Potential: Little Potential

The OSU imazapyr pesticide fact sheet (OSU 2002) states that laboratory and field studies indicate that imazapyr is practically non-toxic to fish, birds, and bees on a short-term (acute) basis and does not appear to bioaccumulate in animals.

As stated previously, ecotoxicity data for salmonid fish are comparatively sparse for Stalker® or the active ingredient imazapyr when compared to data on triclopyr or glyphosate. Although aquatic toxicity data for imazapyr and triclopyr-based herbicides vary considerably by species and study, available data suggest that Stalker® is probably less toxic to salmonid fish than Garlon® 3A and triclopyr, and substantially less toxic to salmonid fish than Garlon® 4.

Roundup (glyphosate)

A considerable amount of toxicity data exist in which freshwater fish have been exposed to glyphosate, and these data indicate relatively low aquatic toxicity. For example, Schuette (1998) derived a 96 hr LC_{50} of 38 ppm for rainbow trout and of 96 hr LC_{50} of 78 ppm for bluegill sunfish. These data confirm assumptions that salmonid fish may be more sensitive to glyphosate (and in fact most potentially toxic chemicals) than warm water fish taxa.

Franz, *et al.* (1997) concluded that glyphosate's low K_{ow} and low lipid solubility suggest low likelihood of bioaccumulation. The authors of this study found that rats excreted 97.5% of an administered glyphosate dose in their urine and feces. Other metabolic studies found that glyphosate residues have minimal tissue retention and are rapidly eliminated from various animal species, including mammals, birds, and fish. As summarized by Franz, *et al.* (1997), data indicate that glyphosate appears to be relatively nontoxic to mammals, birds, and fish and shows no signs of bioaccumulation in the food chain.

The Technical Factsheet on glyphosate from the National Primary Drinking Water Regulations states that glyphosate may enter aquatic systems through accidental spraying, spray drift, or surface runoff (U.S. EPA undated). It dissipates rapidly from the water column as a result of adsorption and possibly biodegradation. The half-life in water is reported to be "a few days". Based on its water solubility, glyphosate is not expected to bioconcentrate in aquatic organisms. It is minimally retained in biological tissues, and is rapidly eliminated in fish, birds, and mammals. The bioconcentration factor (BCF) of glyphosate in fish following a 10-14 day exposure period was 0.2 to 0.3. U.S. EPA and others generally consider BCFs below 300 (and in some cases below 1,000) to be low and associated with insignificant bioaccumulation.

Folmar, *et al.* (1979) reports acute LC_{50} values for glyphosate for rainbow trout as 140 mg/L, for fathead minnows 97 mg/L, for channel catfish (*Ictalurus punctatus*) 130 mg/L, and for bluegill sunfish 150 mg/L. When these same species were exposed to Roundup®, the LC_{50}s were calculated to equal 8.3, 2.4, 13.0, and 6.4 mg/L, respectively. These suggest a substantially increased toxicity of the commercial formulation of Roundup® compared to the toxicity of the active ingredient glyphosate.

The glyphosate herbicide fact sheet (U.S. DOE-Bonneville Power Administration 2000) presents the following data for aquatic vertebrates:

- Acute Toxicity: LC_{50} (rainbow trout 96-hour) 8.2 mg/L
- Acute Toxicity: LC_{50} (bluegill sunfish 96-hour) 5.8 mg/L
- Acute Toxicity: LC_{50} (Chinook salmon 96-hour) 20 mg/L
- Acute Toxicity: LC_{50} (coho salmon 96-hour) 20 mg/L
- Overall Toxicity: Moderately Toxic

These data are similar to the acute LC_{50}s reported by Folmar, *et al.* (1979) for the commercial formulation Roundup®, and are quite dissimilar to the acute LC_{50}s for glyphosate reported by Folmar, *et al.* (1979).

L.1.2.4.2 Exposure Pathways

The primary route of exposure to sprayed herbicides for steelhead trout is direct contact with and ingestion of potentially contaminated surface water from Wildcat Creek. From the studies summarized above for salmonids or freshwater fish more generally, and based on the chemical characteristics of the three herbicides of interest, bioaccumulation potential is expected to be low and likely insignificant.

Many of the aquatic toxicity studies reviewed referred to relatively low toxicity with a few indicating "low to moderate" toxicity of the three herbicides to trout. The primary exposure scenario for salmonid fish appears to be associated with chemical runoff into the Wildcat Creek or spray drift into Wildcat Creek or its upgradient tributaries. Under these two scenarios (runoff or drift), herbicides reaching Wildcat Creek are likely to be quickly diluted and mixed in the flow of the creek. Perkins, *et al.* (2000) in Bautista (2005) calculated that if Garlon®4 (the most toxic herbicide to fish of those considered) was applied at the highest reasonable application rate directly to water that water concentrations would likely remain below 1 mg/L (1 ppm). Based on the studies reviewed, this likely maximum concentration in surface water (1 mg/L) should be protective of both adult and juvenile Central California Coast steelhead and other potentially sensitive freshwater fish. The toxicity information summarized above describes toxicity associated with direct application to water or unintended contamination of surface water. However, direct application of herbicides to water of Wildcat Creek and San Leandro Creek is not proposed, and none of the three herbicides proposed for use are approved for direct application to water. Most importantly, best management practices will be implemented to prevent transport of herbicides to surface water bodies via runoff or drift. These include a 60 foot no-spray zone (no foliar application) around ephemeral or permanent surface water bodies, including Wildcat Creek and its tributaries, and no herbicide application if there is a 40% chance or greater of rain forecasted within 24 hours of application.

L.1.2.4.3 Application Recommendations/Cautions

The primary herbicide-related concern for Central California Coast steelhead is exposure to herbicides via direct contact with and ingestion of herbicide-contaminated surface water (*i.e.*, Wildcat Creek). The toxicity of these herbicides to salmonid fish is a concern under this potential scenario. Generally, Garlon® 4 and Roundup® are toxic at lower concentrations than Stalker®. Stalker® is not expected to be acutely harmful to fish. Roundup® is moderately toxic to fish and Garlon® 4 is considered highly toxic to fish. Seasonal timing of application, choosing application methods that limit runoff potential (e.g., direct application to stumps is preferred over foliar application) and drift to surface water bodies, implementation of a 60 foot no-spray zone, and choosing herbicides with lower toxicity (i.e., Garlon 3A is to be used instead of Garlon 4 Ultra for areas near surface waters) can mitigate potential adverse effects of herbicide use where salmonid fish might be present. Studies indicate that if Garlon® 4, the most toxic of the herbicides considered, was applied at the maximum application rate directly into water, the

levels would remain safe for aquatic life [Perkins, *et al.* (2000) in Bautista (2005)]. Best management practices for this action include the following:

- Foliar application of herbicides will not be allowed within 60 feet of surface water bodies.
- Although herbicide transport to surface waters is unexpected with the implementation of best management practices, the most toxic herbicide, Garlon 4 Ultra, will not be used where herbicide transport to surface waters could occur.
- Herbicides will only be applied when wind speed is less than 10 mph but greater than 2 mph to prevent drift to surface water bodies.
- Herbicides will not be applied within 24 hours of predicted rain events to minimize runoff.
- Direct application of herbicides to stumps will be used in preference to foliar application to the extent possible.

There is the potential for adult and juvenile steelhead to be present in Wildcat Creek (Leidy, *et al.* 2005). However, the best management practices listed above should result in no exposure of fish and other aquatic life to herbicides. In the unintended (and unlikely) event of herbicide contamination of surface waters, the aqueous degradation of these particular herbicides is likely to be rapid and accompanied by significant and rapid dilution.

Most of the proposed herbicide application areas are not near Wildcat Creek, and where application may be relatively close to Wildcat Creek, special precautions (listed above) will be implemented to limit the likelihood and/or amount of herbicides indirectly entering the creek.

L.1.3 Herbicide-Related Risks to Other Fish Species of Concern

Other fish species of concern (NMFS jurisdiction) that have been mentioned in connection with this BA include Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley DPS steelhead (*Oncorhynchus mykiss*), and Southern green sturgeon DPS (*Acipenser medirostris*).

None of these special status species or populations is expected to occur in surface waters near locations where herbicide use is proposed (see distributions and maps, below) and, therefore, these are preliminarily identified as Other Federally Listed Wildlife considered But Dismissed. Although none of these species are expected frequent the surface waters where herbicide use is proposed, if these species were to occur in such waters, herbicide-related risks to these fish species of concern are expected to be similar to those summarized above for Central California Coast Steelhead DPS.

L.1.3.1 Other Potential Effects

L.1.3.1.1 Effects of Chipped Eucalyptus and Pine Wood

Eucalyptus leaves contain eucalyptus oil and other phytochemicals that are known to repel insects and inhibit weeds (allelopathy), and antimicrobial and antifungal properties of eucalyptus have been reported. Most of the available information on antimicrobial properties of eucalyptus

oils and related phytochemicals relates to growth inhibition of human pathogens or other human health related microbes. Data are apparently lacking on the potential microbial inhibition of soil associated bacteria, including those considered beneficial for nutrient recycling. Eucalyptus mulch comprised of wood chips is, however, considered nontoxic to plants once aged. The designation of nontoxic to plants can be interpreted as no adverse effect on plants, suggesting no significant inhibition of beneficial soil microbes.

The following information is taken from W. May (2003), Gardner's Information Service Manager:

> "Phytochemical or allelochemical residues in eucalyptus are toxic to seedlings, and thus we would like to think that eucalyptus chips make nice bioherbicidal barriers," explains California Extension advisor Jim Downer. "But it turns out that these are quickly leached and lost, and the weed control effect from eucalyptus mulches is about the same as that of other organic materials."

Mary L. Duryea, assistant director of the Institute of Food and Agricultural Sciences at the University of Florida, has conducted research comparing several organic mulches, including eucalyptus. "Our studies show that all fresh mulches had some allelopathic effects maybe for the first 3 months in the landscape." This opinion suggests that allelopathic effects may occur where wood chips are left onsite, but such effects are likely to be relatively short lived (*i.e.*, approximately 3 months). "Regardless of its phytochemical traits, eucalyptus makes an excellent organic mulch that discourages weeds, moderates soil temperatures, and promotes water conservation." Pine contains resins, which are leached from wood upon aging. Once aged, pine wood chips are considered nontoxic and acceptable as garden mulch.

These findings suggest that short-term and localized effects on soil microbes, soil invertebrates, and terrestrial plant seedlings may result from exposure to fresh eucalyptus and possibly pine wood chips. Once aged, these chips are expected to be nonhazardous to soil associated organisms. Retaining wood chips onsite is expected to have no adverse effects on California red-legged frogs or Alameda whipsnakes. This conclusion is based on the assumption that removal of invasive plant species (primarily eucalyptus) would improve terrestrial habitats and have a net positive effect on terrestrial habitats potentially available for use by whipsnakes and, to a lesser degree, transformed frogs. Whipsnakes are unlikely to frequent areas of high wood chip density (*e.g.*, dense eucalyptus) until chips are sufficiently aged (approximately 3 months), at which time native plant species can become established and native habitats can be restored. The limited data as well as implementation of best management practices suggest that retaining wood chips onsite is also not expected to have adverse effects on fish (including steelhead) due to water quality concerns associated with runoff from the wood chips.

Species-specific Conclusions and Recommendations

The conclusions and recommendations presented here relate specifically to protection of the taxa of concern and should be considered a component of the more inclusive conclusions and recommendations based on the entire project evaluation.

Significant adverse project related effects are not anticipated for Alameda whipsnake and California red-legged frog if recommended application guidelines are followed. Of those two species, risks are greatest for larval frogs (tadpoles), and those risks can be substantially reduced by the timing of application as well as following the application methods (no use near water – spray during dry season – etc.). Timing should consider presence of tadpoles in surface waters, which is generally through spring to about mid (and possibly into late) summer. Application would be best after tadpoles have transformed (maybe September at the latest for most areas) but before breeding (starting approximately late November) to minimize exposures and possible toxicity-related impacts. Impacts to terrestrial snakes, including Alameda whipsnakes, are unexpected given the incomplete exposure pathways, based on following:

- The most important exposure pathway is likely dietary, but proposed herbicides have low bioaccumulation potential.
- Available toxicity data support the expectation of low toxicity to reptiles, even though ecotoxicity data for reptiles are limited and this statement cannot be made with a high degree of confidence.
- The habitat preferences for Alameda whipsnake suggest little use (infrequent/short duration at most) of areas where spraying will be most likely or most intense (*e.g.*, areas of dense eucalyptus).

If pallid manzanita individuals are present in or near proposed treatment areas, then risks to this species may be significant because all three herbicides could kill or harm pallid manzanita via direct contact with the above ground portions of the plants. Pallid manzanita is extremely endangered; therefore, any application of herbicides should ensure that all individuals are completely protected from accidental spray or wind born spray (*i.e.*, drift) of herbicides. This suggests that herbicides should be applied when wind speed is less than 10 mph but greater than 2 mph and at a sufficient distance from pallid manzanita plants. Also, avoidance of fine spray, which is more prone to drift, is recommended. Therefore, direct application of herbicides to stumps is preferred over foliar applications.

Central California Coast DPS steelhead have low potential to be exposed to proposed herbicides via direct contact with and ingestion of herbicide-contaminated water in Wildcat Creek. Such contamination is unexpected because best management practices will be implemented to eliminate or substantially reduce the likelihood of herbicides entering surface waters. In the unlikely event that herbicides reached Wildcat Creek, adverse effects to steelhead are unlikely to be observed because best management practices require use of less toxic Roundup® or Stalker® (and not Garlon® 4 near surface water bodies. Neither Stalker® nor Roundup® are considered highly toxic to fish. Seasonal timing of application, choosing application methods that limit runoff and drift or overspray potential (e.g., using direct application to stumps rather than foliar application), implementing a 60 foot no-spray zone (no foliar application) around surface water

bodies, not spraying within 24 hours of predicted rain events, and using herbicides with lower aquatic toxicity will eliminate or substantially reduce risks to fish, frogs, and other aquatic life.

Adverse effects to species of concern from contact with chipped wood or water quality effects related to transport of wood chips to water bodies are considered unlikely for the reasons discussed previously.

The recommended best management practices and related application precautions described throughout this appendix are, with one exception, consistent with California Department of Pesticide Regulation (CDPR) guidelines for protection of surface waters associated with pesticide application (CDPR, California Code of Regulations (Title 3, Division 6, Chapter 4, Subchapter 5, Article 1; http://www.cdpr.ca.gov/docs/legbills/calcode/subchpte.htm#pur).

The recommended 60 foot no-spray zone is based on information obtained from the website http://www.cdpr.ca.gov/docs/endspec/rl_frog/index.htm, and summarized below.

> On October 20, 2006, the U.S. District Court for the Northern District of California imposed no-use buffer zones around California red-legged frog upland and aquatic habitats for certain pesticides. This injunction and order are part of a settlement reached between U.S. EPA, CropLife America, American Forest and Paper Association, Western Plant Health Association, Oregonians for Food and Shelter, and Syngenta Corporation as co-defendants, and the Center for Biological Diversity as the plaintiff.
>
> This injunction and order will remain in effect for each pesticide listed below until EPA goes through formal 7(A)(2) consultation with FWS on each of the 66 active ingredients, and FWS issues a Biological Opinion including a "not likely to adversely affect" statement for the pesticides. Each pesticide in turn will be removed from the list, as this occurs.
>
> Under the injunction and order, no-use buffer zones of 60 feet for ground applications and 200 feet for aerial applications apply from the edge of the following California red-legged frog habitats as defined by the U.S. Fish & Wildlife Service and the Center for Biological Diversity: Aquatic Feature, Aquatic Breeding Habitat, Non- Breeding Aquatic Habitat, and Upland Habitat.

The implementation of the 60 foot no-spray zone required for protection of California red-legged frog is assumed to be adequately protective of all aquatic receptors that may occur in project area surface waters, including special status species (e.g., salmonid fish) and aquatic prey items important for the survival of special status species.

L.2 References

BASF 2012. Safety Data Sheet. STALKER HERBICIDE. BASF The Chemical Company. March 8. URL: http://www.cdms.net/LDat/mp01R011.pdf

Bautista, S.L. 2005. Preventing and Managing Invasive Plants. Final Environmental Impact Statement. DRAFT. Summary of Herbicide Effects to Wildlife. US Forest Service, Region 6 Regional Office, Portland, OR

Berrill, *et al.* (1994) in *Sparling DW, Linder G., Bishop CA, editors. 2000. Ecotoxicity of amphibians and reptiles. Pensacola, FL: Society of Environmental Toxicology and Chemistry (SETAC). 904 p.*

Center *for* Biological Diversity 2012. Pallid Manzanita Natural History. URL: http://www.biologicaldiversity.org/species/plants/pallid_manzanita/natural_history.html

Dow 2011. Material Safety Data Sheet Garlon 4®. Dow AgroSciences Canada Inc. Product Name: Garlon® 4 Herbicide Issue Date: September 14.0

Dow AgroSciences 2012a. Material Safety Data Sheet. Dow AgroSciences LLC. Product Name: Garlon® 4 Herbicide. April 26. URL: http://www.cdms.net/LDat/mp0B0001.pdf

Dow AgroSciences 2012b. Garlon® 4 Ultra specialty herbicide. URL: http://www.dowagro.com/PublishedLiterature/dh_0061/0901b80380061e1d.pdf

DowElanco. Undated. *Triclopyr Technical Information Guide.*

Folmar, L. C.; Sanders, H. O.; Julin, A. M. 1979. Toxicity of the herbicide glyphosate and several of its formulations to fish and aquatic invertebrates. *Arch. Environ. Contam. Toxicol.* 1979, 8, 269-278.

Forest Service Pacific Northwest Region 2001. Triclopyr Herbicide Information Profile. January 8. URL: http://www.fs.fed.us/r6/weeds/Triclopyr_Profile.PDF

Forest Service Pacific Northwest Region. 1996. *Triclopyr Herbicide Information Profile.* United States Department of Agriculture, Forest Service, Pacific Northwest Region. November. URL: http://www.fs.fed.us/r6/nr/fid/pubsweb/tri.pdf

Franz, J.E., M.K. Mao and J.A. Sikorski. 1997. Glyphosate: A Unique Global Herbicide. American Chemical Society. Chap. 4 pp. 65-97

IPCS 1994. Environmental Health Criteria 159 Glyphosate. International Programme on Chemical Safety. Published by the United Nations Environment Programme, the International Labour Organisation, and the World Health Organization. Geneva. URLs: http://www.inchem.org/documents/ehc/ehc/ehc159.htm#SectionNumber:1.1 and http://www.inchem.org/documents/ehc/ehc/ehc159.htm#SectionNumber:2.2

Kreutzwiser, D.P.; Holmes, S. B.; Behmer, D.J. 1992 in Syracuse Environmental Research Associates (SERA) Inc. 1996. *Effects of the Herbicide Hexazinone and Triclopyr Ester on Aquatic insects.* Exotoxicol. Environ. Safe. 23:364-374. Cited in SERA, Inc. p. 4-20.

Leidy, R.A., G.S. Becker, B.N. Harvey. 2005. Historical distribution and current status of steelhead/rainbow trout *(Oncorhynchus mykiss)* in streams of the San Francisco Estuary, California. Center for Ecosystem Management and Restoration, Oakland, CA.

Mangels, G.A. and A. Ritter. 2000. Estimated environmental concentration of imazapyr resulting from aquatic uses of Arsenal herbicide. Pesticide Registration Report # EXA 00-008, American Cyanamid Co.; Report Archived at Waterborne Environmental Inc., Leesburg, VA.

Marin Municipal Water District 2008. Marin Municipal Water District Vegetation Management Plan DRAFT-8/27/08 Herbicide Risk Assessment

May, W. 2003. Gardener's Information Service. Our Experts Answer Your Gardening Questions. May/June. URL: http://www.ahs.org/publications/the_american_gardener/pdf/0305/GIS_p_17.pdf

MDAR 2012. Massachusetts Department of Agricultural Resources Pesticide Program. Aquatic Documents. Appendix III - Triclopyr. URL: http://www.mass.gov/agr/pesticides/aquatic/docs/triclopyr.pdf

Morgan, J.; Vigers, G.; Farrell, A.; Janz, D.; Manville, J. 1991. *Acute avoidance reactions and behavioral responses of juvenile rainbow trout (Oncorhynchus mykiss) to garlon 4®, garlon 3A® and vision® herbicides.* Environmental Toxicology and Chemistry, Vol. 10: pp. 73-79.

National Marine Fisheries Service, Southwest Region. 2010. Federal Recovery Outline North American Green Sturgeon Southern Distinct Population Segment.

National Pesticide Information Center (NPIC). 2002. Triclopyr (General Fact Sheet). Oregon State University, 310 Weniger Hall, Corvallis, Oregon, 97331.

OSU 2012. Glyphosate Technical Fact Sheet. National Pesticide Information Center. Oregon State University. URL: http://npic.orst.edu/factsheets/glyphotech.pdf

OSU 2002. Imazapyr Pesticide Fact Sheet: Forestry Use. Oregon State University. Updated by W. Trevathan. November. URL: http://cms.oregon.gov/ODF/privateforests/docs/imazapyr.pdf

Schuette, J. 1998. *Environmental Fate of Glyphosate*, Environmental Monitoring & Pest Management, Department of Pesticide Regulation, Sacramento, CA 95824-5624. November.

SERA 2011. Glyphosate Human Health and Ecological Risk Assessment Final Report. Submitted to USDA/Forest Service, Southern Region. Syracuse Environmental Research Associates, Inc. March 25. URL: http://www.fs.fed.us/foresthealth/pesticide/pdfs/Glyphosate_SERA_TR-052-22-03b.pdf

SERA and SRC 1996. Selected Commercial Formulations of Triclopyr – Garlon 3A and Garlon 4 Risk Assessment Final Report. Submitted to Forest Service. Syracuse Environmental Research Associates, Inc. and Syracuse Research Corporation. March 31. URL: http://www.fs.fed.us/r5/hfqlg/publications/herbicide_info/1996b_triclopyr.pdf

Trumbo, J. and D. Waligora. 2009. The impact of the herbicides imazapyr and triclopyr triethylamine on bullfrog tadpoles. California Fish and Game 95(3):122-127.

Tu, M. C. Hurd, and J.M. Randall. 2001. Weed Control Methods Handbook: Tools & Techniques for Use in Natural Areas. The Nature Conservancy. Wildland Invasive Species Team. April.

U.S. DOE-Bonneville Power Administration 2000. Imazapyr Herbicide Fact Sheet. United States Department of Energy Bonneville Power Administration. March. URL: http://efw.bpa.gov/environmental_services/Document_Library/Vegetation_Management/sheets/Imazapyr.pdf

U.S. EPA 2011. U.S. Environmental Protection Agency Office of Pesticide Programs Notice of Pesticide Reregistration for Stalker Herbicide. Issued to BASF Corporation. April 28. URL: http://www.epa.gov/pesticides/chem_search/ppls/000241-00398-20110428.pdf

U.S. EPA 2007. Correspondence from EPA to Dow AgroSciences regarding Garlon 4 Herbicide Amended Labeling Submitted January 18, 2006. April. URL: http://www.epa.gov/pesticides/chem_search/ppls/062719-00040-20070418.pdf

U.S. EPA 2006. Reregistration Eligibility Decision for Imazapyr. Prevention, Pesticides, and Toxic Substances. EPA 738-R-06-007. OPP-2005-0495. Accessed at: http://www.epa.gov/oppsrrd1/REDs/imazapyr_red.pdf

U.S. EPA 1998. Reregistration Eligibility Decision (RED) Document: Triclopyr; EPA-738-R-98-011; U.S. Environmental Protection Agency, Office of Pesticide Programs, U.S. Government Printing Office: Washington, DC, Oct 1998; 3-58.

U.S. EPA undated. Technical Factsheet on: GLYPHOSATE, National Primary Drinking Water Regulations. URL: http://www.epa.gov/ogwdw/pdfs/factsheets/soc/tech/glyphosa.pdf

Wan, M.; Moul, D.; Watts, R. 1987. *Acute Toxicity to Juvenile Pacific Salmonids of Garlon 3A®, Triclopyr Ester, and Their Transformation Products: 3, 5, 6-Trichloro-2-pyridinol and 2-Methoxy-3, 5, 6-trichloropyridine.* Bull. Environ. Contam. Toxicol. 39: pp. 721-728.

WSSA (Weed Science Society of America). 1983. Weed Science Society of America, 5th ed.; published by the Weed Society of America, Champaign, IL.

APPENDIX M FIRE AND FUELS MODELING

- Part 1: Fire and Fuels Analysis for FEMA Grants in the East Bay Hills
- Part 2: Anchor Point Methodology

This page intentionally left blank.

FIRE/FUELS ANALYSIS
FOR FEMA GRANTS IN THE EAST BAY HILLS

Purpose

This document provides information regarding the specific metrics used to identify and evaluate on a polygon-by-polygon basis the fire/fuels performance, and effectiveness of the grant entitled EBRPD, HMGP 1731-16-34, UC Berkeley, PDM-PJ-09-CA-2005-003, UC Berkeley, PDM-PJ-09-CA-2005-011, City of Oakland, PDM-PJ-09-CA-2006-004, EBRPD, PDM-PJ-09-CA-2006-004, UC Berkeley, and PDM-PJ-09-CA-2006-004. By viewing the results collectively, one can also draw conclusions about landscape level performance and effectiveness of fire hazard reduction treatments.

This standard environmental analysis method accomplishes the following:

- Determines the effectiveness of the proposed treatments in achieving the intended purpose and need for the project in terms of predicted flame length and crown fire potential, and
- Provides a quantitative description of differing levels of residual live and dead fuel resulting from each alternative in terms of fuel volume,

Methods

The methods in the analysis follow the same as in the Wildfire Hazard Assessment (Wildland Resource Management, Inc., 2008) that appears in the EBRPD Wildfire Hazard Reduction and Resource Management Plan (LSA Inc. 2009). Fire behavior – specifically flame length and crown fire potential - was predicted for all grant areas using FlamMap (Finney 2006) for both existing conditions and conditions after proposed action and maintenance. Fuel models were developed that are consistent with the USDA Forest Service Fire Behavior Prediction System (FBPS) (Burgan and Rothermel 1984). The same weather conditions were used for all areas and for both the pre- and post-treatment scenarios. These weather parameters reflect the hot, dry mid-autumn conditions when severe, damaging wildfires have historically occurred here, and under which future large fires are likely to burn.

As described in the EBRPD Wildfire Hazard Reduction and Resource Management Plan (WHR&RMP), FlamMap was used to compare predicted fire behavior over the landscape. Inputs include fuel models, terrain, and weather information. The moisture of fuels in each fuel model is specified, which allows for higher fuel moistures in more mesic conditions as long as they are distinct from other fuel models.

Each polygon was assigned fuel characteristics as input to the models in the FBPS. These fuel characteristics include the surface fuel model, height to live crown base, tree height and canopy cover. The surface fuel model describes fuel volume (loads) in tons per acre by size class, if dead, and living material. Terrain data from the EBRPD Wildfire Hazard Assessment was used for both scenarios; that is, before and after fuel reduction treatments.

Assignment of Fuel Models – Existing Conditions

The Wildfire Hazard Assessment (WHA) within the EBRPD WHR&RMP contains the fuel characteristics for all areas in the District (LSA Inc. 2009). Specific areas owned by the University of California were included in the original mapping and thus had fuel characteristics for existing conditions already assigned to them.

The same fuel characteristics were assigned to vegetation types in the polygons owned by the City of Oakland and to areas owed by the University of California not included in the area previously mapped. The vegetation types and fuel characteristics in the areas owned by the University of California and the City of Oakland appear in Table 3 on pages 10 and 11. The same fuel models as in the EBRPD WHR&RMP were used and are described in that report (LSA Inc. 2009). The fuel volumes of the fuel models used in the WHRP&RMP and the analysis of existing conditions appear in Table 4 on page 12. Taken together, all areas proposed for treatment and evaluated in the FEMA environmental analysis were assessed.

The predicted flame length and crown fire potential for the polygons within the EBRPD are contained in the EBRPD WHR&RMP. The predicted flame length and crown fire potential of the areas within the University of California and the City of Oakland are portrayed in Appendix B and C, respectively.

Proposed Action and Maintenance Conditions

The actions that constitute fire hazard reduction treatments were analyzed in regards to the fuel characteristics that would result from the treatment. Fuel modification treatments follow the guidelines and goals described in the EBRPD WHR&RMP and the proposed treatment actions defined by UC Berkeley and the City of Oakland. For EBRPD, the section in the WHR&RMP that addresses Fire Hazard Reduction and Resource Management Goals, along with Treatment Considerations and Guidelines was considered in determining post-treatment conditions.

The post-treatment volume of dead fuel up to three inches in diameter, along with the volume of woody and herbaceous material, was estimated for each vegetation type that occurred in the polygons to be treated. The effect of treatments on tree height, fuel-bed height, height to the base of a live tree crown, and the canopy cover was estimated after reviewing the treatments proposed for each vegetation type.

The most appropriate fuel model for each post-treatment condition was selected from 40 standard fuel models developed by the USDA Forest Service (Scott and Burgan 2005).

The height to the base of the live tree crown is expected to be a minimum of eight feet in each of the EBRPD treatment areas since treatments are to include pruning of lower branches of trees in all the EBRPD treatments. Any location that had a higher value than eight feet was unchanged. Treatments on property owned by the City of Oakland are

expected to be consistent with the EBRPD treatments. Treatments on property owned by the University of California are expected to raise the height to live crown base but not specifically to eight feet; the values for the height to live crown base are adjusted within those specific polygons.

Tree heights are not expected to be altered by fuel treatments, with the exception of locations where pines and eucalyptus trees are to be removed. For those instances in the EBRPD lands the value for tree heights were changed within that specific polygon. For the lands owned by the University of California the tree heights were changed to be 40 feet for oak/bay regrowth or 6 feet for shrub regrowth.

Tree canopy cover is not expected to be changed enough by treatments to alter the category of canopy cover. Canopy cover is measured in four broad categories as described in the following table:

Canopy Cover Range	*Canopy Cover Category Number*
1-20	1
21-50	2
51-80	3
81-100	4

Where eucalyptus trees are to be removed canopy cover from existing shorter hardwoods is expected to expand. In these circumstances the canopy cover category in which the vegetation type was mapped was unchanged. This decision-rule does not apply to lands owned by the University of California where all eucalyptus and pines are to be removed. Where only shrub regrowth is expected the canopy cover was changed to 0. Where hardwoods are expected to regrow the canopy cover was changed to be either Category 2 or 3, depending on the dominance of hardwoods before treatment.

Assignment of Fuel Models – Post-Treatment Conditions

Post-treatment fuel models were organized in a separate and independent file from the file that describes existing fuel conditions. Post-treatment fuel models are described numerically in Table 2. The fuel model numbering has no relation to the number in Table 4.

Grass Fuel Models

Fuel Model #23 represents short grass, which has been grazed or mowed per the guidelines in the EBRPD Wildfire Hazard Reduction and Resource Management Plan. This fuel model is the same as Scott and Burgan Fuel Model GR1 (or 101). Fuel Model #43 has higher calorie content for the live and dead fuels. This represents fuels associated with vegetation types in which pines and eucalyptus occur.

Shrub Fuel Models

Fuel Model #26 represents treated northern maritime chaparral, i.e. any vegetation type with manzanita. These fuel loads are the same as Scott and Burgan Fuel Model SH2

(142). Fuel Model #66 has the same fuel characteristics (including fuel volumes) as Fuel Model #26, but is differentiated so that higher fuel moistures can be linked with this fuel type. .

Fuel Model #28 and #29 represent treated north coastal scrub. The treatments per the EBRPD Wildfire Hazard Reduction and Resource Management Plan result in a mixture of grass and shrub. The fuel characteristics are the same as the Scott and Burgan Fuel Model GS1 (also called 121). Fuel Models # 67 and #68 have the same fuel characteristics, but are differentiated so that the fuel moisture associated with this fuel type can be higher. Fuel Model #48 has higher calorie content for the live and dead fuels. This represents fuels associated with vegetation types in which pines and eucalyptus occur.

In areas where eucalyptus and/or pine were removed on lands owned by the University of California post-treatment conditions differ from goals and guidelines in the EBRPD WHR&RMP. Instead, moderate volumes of shrubs are expected to persist and regrow within a year or two in locations where shrubs are a common understory. Some herbaceous fuels will occur immediately after treatment. This condition is modeled as Fuel Model #78, typified as the Scott and Burgan Fuel Model SH3 (143), named Moderate Load, Humid Climate Shrub. The moisture of extinction is changed from 40 to 25, recognizing the difference between humid and dry climate types.

Eucalyptus and Pine Fuel Models

Fuel Model #33 represents the condition of young eucalyptus sprouts. This is the equivalent to Scott and Burgan Fuel Model TU4 (164) which typifies Dwarf Conifer with Understory.

Fuel Model #52 represents Treated Mature Eucalyptus where an overstory exists and the fuel that carries the fire consists of broadleaf litter. The Scott and Burgan fuel model is entitled Moderate Load Broadleaf Litter, TL6 (186). The calorie content of the fuels is elevated from this fuel model to adjust for the flammable nature and oils in the eucalyptus fuels.

Fuel Model #54 characterizes pine stands with grass or components of north coastal scrub in the understory. The Scott and Burgan Fuel Model is entitled Low Load Dry Climate Timber-Grass-Shrub, TU1 (161). The calorie content of the fuels is elevated from this fuel model to adjust for the flammable nature and oils in the pine fuels.

Oak-Bay Woodland and Redwood Forests

The FBPS standard Fuel Model #8 is usually assigned to oak-bay woodlands where understory shrubs are minimal, and typifies post-treatment conditions. The Fuel Model assigned to this condition in this analysis is Fuel Model #35. Fuel Model #75 has the same fuel characteristics and is separated only to allow for higher fuel moistures where appropriate. Fuel Model #55 has the same fuel characteristics except for the calorie content; where either pines are eucalyptus are to be expected post-treatment the calorie content of the fuel complex is elevated.

In areas where eucalyptus and/or pine were removed on lands owned by the University of California post-treatment conditions differ from goals and guidelines in the EBRPD WHR&RMP. Instead, where oak or bay are common in the understory these hardwoods are expected to persist and regrow within a year or two. The Fuel Model assigned to this condition in this analysis is Fuel Model #35, described above.

Redwood Forests

The Fuel Model #76 is used to represent Redwood Forests. The fuel characteristics are the same as oak/bay woodlands.

Riparian Woodlands

The Fuel Model #77 is used to represent areas with willows. The Scott and Burgan Fuel Model that best represents this condition is TL2 (182) described as Low Broadleaf Litter.

The following table contains the values for the fuel characteristics. The values are for the following sequence: Fuel Model, volume of one-hour fuels, volume of 10-hour fuels, volume of 100-hour fuels, herbaceous fuels, woody fuels, dynamic or static fuel model type, surface area to volume ratio for one-hour fuels, surface area to volume ratio for live herbaceous fuels, surface area to volume ratio for woody fuels, fuel bed height, moisture of extinction and calorie content of fuels. Volumes are measured in tons/ac. Surface area to volume ratios are measured in 1/ft, fuel bed depth is measured in feet, and heat content is measured in BTU/lb.

Table 1. Fuel characteristics for fuel models used in post-treatment fire behavior predictions

Fuel Model#	*Volume in tons/ac*					*Surface area to volume ratio*			*Fuel Bed Height*	*Moist of Extinction*	*Heat Content*
23	0.100	0.000	0.000	0.300	0.000	2200	2000	2000	0.400	15%	8000
26	1.350	2.400	0.750	0.000	3.850	2000	2000	1600	1.000	15%	8000
28	0.200	0.000	0.000	0.500	0.650	2000	1800	1800	0.900	15%	8000
29	0.200	0.000	0.000	0.500	0.650	2000	1800	1800	0.900	15%	8000
33	4.500	0.000	0.000	0.000	2.000	2300	2000	2000	0.500	12%	9980
35	1.500	1.000	2.500	0.000	0.000	1500	1500	1500	.2000	30%	8000
43	0.100	0.000	0.000	0.300	0.000	2200	2000	2000	0.400	15%	9980
48	0.200	0.000	0.000	0.500	0.650	2000	1800	1800	0.900	15%	9980
52	2.400	1.200	1.200	0.000	0.000	2000	2000	2000	0.300	25%	9980
54	0.200	0.900	1.500	0.200	0.900	2000	1800	1600	0.600	20%	9980
55	1.500	1.000	2.500	0.000	0.000	1500	1500	1500	.2000	30%	9980
66	1.350	2.400	0.750	0.000	3.850	2000	2000	1600	1.000	15%	8000
67	0.200	0.000	0.000	0.500	0.650	2000	1800	1800	0.900	15%	8000
68	0.200	0.000	0.000	0.500	0.650	2000	1800	1800	0.900	15%	8000
75	1.500	1.000	2.500	0.000	0.000	1500	1500	1500	0.200	30%	8000
76	1.500	1.000	2.500	0.000	0.000	1500	1500	1500	0.200	30%	8000
77	1.500	1.000	2.500	0.000	0.000	1500	1500	1500	0.200	30%	8000
78	0.450	3.000	0.000	0.000	6.200	1600	3500	1400	2.400	25%	8000

Table 2. Post-treatment fuel characteristics for EBRPD Recommended Treatment Area. Existing Conditions are described in the EBRPD WHR&RMP

	Post-Treatment Fuel Characteristics			
Mapped Vegetation Type	*Fuel Model #*	*Tree Height (ft)*	*Crown Base Height (ft)*	*Canopy Cover (category)*
Alder	77	40	12	4
Alvarado Staging Area - Live Oak - California Bay - Dense Bluegum Eucalyptus	55	100	8	3
Alvarado Staging Area - Paved parking	0	0	0	0
Annual Grassland	23	3	8	0
Annual Grassland - Broom	23	6	8	0
Annual Grassland - Coyote Brush	23	6	8	0
Annual Grassland - Coyote Brush - California Sage	23	6	8	0
Annual Grassland - Coyote Brush - Live Oak	23	40	8	1
Annual Grassland - Coyote Brush - Poison Oak	23	6	8	0
Annual Grassland - Coyote Brush - Scattered Live Oak - Ca Bay	23	40	8	1
Annual Grassland - Dense Bluegum Eucalyptus	43	100	8	4
Annual Grassland - Dense Bluegum Eucalyptus - Broom	43	100	8	1
Annual Grassland - Dense Bluegum Eucalyptus - Coyote Brush	43	100	8	3
Annual Grassland - Dense Bluegum Eucalyptus - Live Oak - California Bay	43	100	8	3
Annual Grassland - Dense Bluegum Eucalyptus - Mixed Conifer	43	100	8	1
Annual Grassland - Live Oak - California Bay	23	40	8	1
Annual Grassland - Mixed Conifer - Live Oak - California Bay	23	100	8	1
Annual Grassland - Poison Oak	23	6	8	0
Annual Grassland - Poison Oak - Coyote Brush	23	6	8	0
Annual Grassland - Poison Oak - Live Oak	23	40	8	1
Annual Grassland - Scattered Bluegum Eucalyptus	43	80	8	1
Blackberry - Coyote Brush - Live Oak - California Bay	28	40	8	1
Blackberry - Coyote Brush - Poison Oak	28	6	8	0
Blackberry - Live Oak - California Bay - Broom	28	40	8	1
Blackberry - Poison Hemlock	28	6	8	0
Blackberry - Poison Oak - Coyote Brush	28	6	8	0
Bluegum Sprouts	33	30	8	4
Broom	23	6	8	0
Broom - Annual Grassland	23	6	8	0
Broom - Blackberry	28	6	8	0
Broom - Dense Bluegum Eucalyptus - Blackberry	52	100	8	2
Broom - Elderberry	67	6	8	0
Broom - Hemlock - Coyote Brush	26	6	8	0
Broom - Willow - Pine	77	30	8	1

Mapped Vegetation Type	*Fuel Model #*	*Tree Height (ft)*	*Crown Base Height (ft)*	*Canopy Cover (category)*
California Bay	35	40	12	4
California Bay - Huckleberry	75	40	8	4
California Sage	28	6	8	0
California Sage - Annual Grassland - Coyote Brush	28	6	8	0
Children's play area	0	0	0	0
Coast Live Oak - California Bay	35	40	12	4
Coast Live Oak - California Bay - Madrone	35	40	8	4
Coast Live Oak - California Bay + occ. Madrone, Alder, Elderberry	75	40	8	3
Coast Live Oak - Mixed Trees/Shrubs	35	40	8	4
Coyote Brush	29	6	8	0
Coyote Brush - Annual Grassland	29	6	8	0
Coyote Brush - Annual Grassland - Dense Bluegum Eucalyptus	52	100	8	4
Coyote Brush - Annual Grassland - Hemlock	29	6	8	0
Coyote Brush - Annual Grassland - Huckleberry	67	6	8	0
Coyote Brush - Annual Grassland - Live Oak - California Bay	29	40	8	2
Coyote Brush - Annual Grassland - Poison Oak	28	6	8	0
Coyote Brush - Blackberry - Ocean Spray - Poison Oak	67	10	8	0
Coyote Brush - Broom	29	6	8	0
Coyote Brush - California Bay	35	40	8	2
Coyote Brush - California Sage	29	6	8	0
Coyote Brush - California Sage - Annual Grassland	29	6	8	0
Coyote Brush - California Sage - Poison Oak	29	6	8	0
Coyote Brush - Coffeeberry - Cal. Blackberry - Poison Oak - Poison Hemlock	67	6	8	0
Coyote Brush - Dense Bluegum Eucalyptus	52	100	8	2
Coyote Brush - Hemlock	29	6	8	0
Coyote Brush - Live Oak	35	40	8	2
Coyote Brush - Live Oak - California Bay	35	40	8	2
Coyote Brush - Live Oak - California Bay - Annual Grassland	35	40	8	2
Coyote Brush - Live Oak - California Bay - Poison Oak - Blackberry	35	40	8	2
Coyote Brush - Monkey Flower	28	6	8	0
Coyote Brush - N. Coastal Scrub Mix	28	6	8	0
Coyote Brush - Oak - Shrubland	29	40	8	1
Coyote Brush - Pine	48	80	8	2
Coyote Brush - Pine - Annual Grassland	48	80	8	2
Coyote Brush - Poison Oak	28	6	8	0
Coyote Brush - Poison Oak - Blackberry	28	6	8	0
Coyote Brush - Poison Oak - Blackberry - Elderberry	68	6	8	0

Mapped Vegetation Type	*Fuel Model #*	*Tree Height (ft)*	*Crown Base Height (ft)*	*Canopy Cover (category)*
Coyote Brush - Poison Oak - Blackberry - Live Oak - California Bay	28	40	8	1
Coyote Brush - Poison Oak - Dense Bluegum Eucalyptus	52	100	8	4
Coyote Brush - Poison Oak - Live Oak - California Bay	35	40	8	2
Coyote Brush - Poison Oak - Monkey Flower	28	6	8	0
Coyote Brush - Poison Oak - Monkey Flower - Pine	48	80	8	1
Coyote Brush - Shrubland - Coast Live Oak - California Bay - Madrone	35	40	8	2
Dense Bluegum - Poison Hemlock - Coyote Brush - Annual Grassland	52	100	8	4
Dense Bluegum Eucalyptus	52	100	8	4
Dense Bluegum Eucalyptus - California Bay	52	100	8	4
Dense Bluegum Eucalyptus - California Sage	52	100	8	3
Dense Bluegum Eucalyptus - Coyote Brush	52	100	8	4
Dense Bluegum Eucalyptus - Live Oak - California Bay	52	100	8	4
Dense Bluegum Eucalyptus - Pine	52	100	8	4
Developed	0	0	0	0
Environmental Education Center / Little Farm: Structures, irrigated park turf, bare dirt	0	0	0	0
Grassland	23	3	8	0
Grassland - Coyote Brush	23	6	8	0
Grassland - Coyote Brush - Live Oak - California Bay	23	40	8	1
Hemlock - Broom - Coyote Brush	28	6	8	0
Irrigated Park Turf	0	0	0	0
Lake Anza parking lot - irrigated park turf - structures - beach - landscape trees	35	0	0	0
Live Oak	35	40	12	4
Live Oak - California Bay	35	40	12	4
Live Oak - California Bay - Annual Grassland	35	40	8	3
Live Oak - California Bay - Annual Grassland - Coyote Brush	35	40	8	3
Live Oak - California Bay - California Sage	35	40	8	3
Live Oak - California Bay - Coyote Brush	35	40	8	3
Live Oak - California Bay - Coyote Brush - Annual Grassland	35	40	8	3
Live Oak - California Bay - Dense Bluegum Eucalyptus	55	100	8	4
Live Oak - California Bay - Huckleberry	75	40	8	4
Live Oak - California Bay - Manzanita	26	40	8	3
Live Oak - California Bay - Pine	55	80	12	4
Live Oak - California Bay - Redwood	35	100	12	4
Live Oak - California Bay - Thinned Bluegum Eucalyptus	55	100	8	4
Live Oak - California Bay - Willow	75	40	12	4
Live Oak - California Bay - Willows	75	40	12	4
Live Oak - California Buckeye	35	40	12	4

Mapped Vegetation Type	*Fuel Model #*	*Tree Height (ft)*	*Crown Base Height (ft)*	*Canopy Cover (category)*
Manzanita - Huckleberry	66	10	8	0
Manzanita - Huckleberry - Golden Chinkapin	66	15	8	0
Manzanita - Live Oak	26	40	8	2
Mixed Conifer	54	100	8	4
Mixed Conifer - Annual Grassland	43	100	8	3
Mixed Conifer - Coyote Brush - Live Oak - California Bay	54	100	8	4
Mixed Conifer - Live Oak - California Bay	54	100	12	4
Mixed Conifer - Live Oak - California Bay - Coyote Brush	54	100	8	4
Moist North Coastal Scrub - Oak - Bay	67	40	8	2
Monkey Flower - Poison Oak	28	6	8	0
Mowed Annual Grassland	23	3	8	0
Oak Bay Woodland	35	6	12	4
Ocean Spray - Poison Oak - Coyote Brush	67	15	8	0
Paved Parking Lot	0	0	0	0
Pine	54	80	12	4
Pine - Annual Grassland	42	80	12	3
Pine - Blackberry	48	80	8	3
Pine - Coyote Brush	48	80	8	3
Pine - Coyote Brush - Blackberry	48	80	8	3
Pine - Dense Bluegum Eucalyptus - Coyote Brush	48	100	8	4
Pine - Live Oak - California Bay	55	80	12	4
Pine - Live Oak - California Bay - Coyote Brush	55	80	8	3
Pine - Poison Oak	48	80	8	3
Poison Oak - Coyote Brush	28	6	8	0
Poison Oak - Coyote Brush - Annual Grassland	28	6	8	0
Poison Oak - Coyote Brush - Annual Grassland - low regrowth	28	2	8	0
Poison Oak - Coyote Brush - Annual Grassland - young regrowth	28	2	8	0
Poison Oak - Coyote Brush - Blackberry	28	6	8	0
Redgum Eucalyptus	52	100	8	3
Redgum Eucalyptus - California Bay	55	100	8	3
Redgum Eucalyptus - Live Oak - California Bay	55	100	8	3
Redwood	76	100	12	4
Rifle Range: Structures + bare soil	0	0	0	0
Staging Area: Developed	0	0	0	0
Structures and Parking	0	0	0	0
Structures, gravel parking lot, corrals	0	0	0	0
Structures, Roads, Corral	0	0	0	0
Swimming pool	0	0	0	0
Thinned Bluegum Eucalyptus	52	80	8	3
Thinned Bluegum Eucalyptus - Coyote Brush	52	80	8	3
Thinned Bluegum Eucalyptus - Emerging Coast Live Oak - California Bay	55	80	8	3

Mapped Vegetation Type	*Fuel Model #*	*Tree Height (ft)*	*Crown Base Height (ft)*	*Canopy Cover (category)*
Thinned Bluegum Eucalyptus - Redwood	56	100	8	3
Tilden Botanic Garden: California Native Plant Collection	0	0	0	0
Tilden golf course: irrigated park turf	0	0	0	0
Tilden golf course: Structures and Parking lot	0	0	0	0
Tilden golf course: Structures, irrigated turf, and landscape shrubs/trees	0	0	0	0
Urban / Developed	0	0	0	0
Water - Sand	0	0	0	0
Willow	77	30	8	4
Willow - California Bay	77	30	8	4
Willow - Coyote Brush	77	30	8	4
Willow - Live Oak - California Bay	77	40	8	4

Table 3. Existing and post-treatment fuel characteristics for lands owned by the University of California and the City of Oakland. A13 indicates pre-treatment fuel model, "Post" indicates post-treatment in all columns. CH indicates Canopy Height in feet, CBH indicates Crown Base Height (also called Height to Live Crown Base) in feet, and CC indicates Canopy Cover, in categories detailed in the table on page 3.

Mapped Vegetation Type	**A13**	**Fuel Model Post**	**CH**	**CH Post**	**CBH**	**CBH Post**	**CC**	**CC Post**
University of California Berkeley								
Alder	81	77	40	40	12	12	4	4
Blackberry - Coyote Brush - Live Oak - California Bay	5	28	40	40	1	1	1	1
Blackberry - Coyote Brush - Poison Oak	5	28	6	6	4	4	0	0
Blackberry - Live Oak - California Bay - Broom	5	28	40	40	4	4	1	1
California Bay	8	35	40	40	12	12	4	4
California Bay - Manzanita - Blackberry	4	35	40	40	2	2	3	3
Coyote Brush	5	29	6	6	2	2	0	0
Coyote Brush - Broom	5	29	6	6	2	2	0	0
Coyote Brush - California Bay	5	35	40	40	2	2	2	2
Coyote Brush - California Hazelnut - Blackberry - Live Oak - California Bay	5	67	40	40	2	2	2	2
Coyote Brush - California Sage	5	29	6	6	2	2	0	0
Coyote Brush - California Sage - Grassland	5	29	6	6	2	2	0	0
Coyote Brush - Dense Bluegum Eucalyptus	16	29	100	10	2	2	2	0
Coyote Brush - Dense Bluegum Eucalyptus - California Bay	16	29	100	10	2	2	2	2
Coyote Brush - Elderberry - Blackberry	50	67	6	6	2	2	0	0
Coyote Brush - Grassland	5	29	6	6	2	2	0	0
Coyote Brush - Grassland - California Sage	5	29	6	6	2	2	0	0
Coyote Brush - Live Oak - California Bay	5	35	40	40	2	2	2	2
Coyote Brush - Monkey Flower	5	29	6	6	2	2	0	0

Mapped Vegetation Type	A13	Fuel Model Post	CH	CH Post	CBH	CBH Post	CC	CC Post
Coyote Brush - Poison Oak - Redwood - Live Oak - California Bay	5	35	100	40	2	2	2	2
Dense Bluegum Eucalyptus	21	78	100	6	6	6	4	4
Dense Bluegum Eucalyptus - Broom - Live Oak - California Bay	21	35	100	40	6	6	4	2
Dense Bluegum Eucalyptus - Coyote Brush	16	29	100	6	2	2	4	0
Dense Bluegum Eucalyptus - Live Oak - California Bay	21	35	100	6	4	4	4	0
Dense Bluegum Eucalyptus - Live Oak - California Bay - Blackberry	21	35	100	6	4	4	4	0
Dense Bluegum Eucalyptus - Live Oak - California Bay - Coyote Brush	21	35	100	6	4	4	4	0
Dense Bluegum Eucalyptus - Pine	21	78	100	6	4	4	4	0
Grassland	1	23	3	3	1	1	0	0
Grassland - Coyote Brush	1	28	6	6	1	1	0	0
Ground Clover	1	23	40	40	6	6	1	1
Ground Clover - Coyote Brush - California Bay	1	35	40	40	6	6	1	1
Ground Clover - Grassland - Coyote Brush	1	28	40	40	6	6	0	0
Hemlock - Elderberry - Live Oak - California Bay	5	67	6	6	3	3	0	0
Live Oak - California Bay	8	35	40	40	12	12	4	4
Live Oak - California Bay - Blackberry	5	35	40	40	6	6	3	3
Live Oak - California Bay - Coyote Brush	8	35	40	40	2	2	3	3
Live Oak - California Bay - Coyote Brush - California Hazelnut	80	77	40	40	2	2	3	3
Live Oak - California Bay - Coyote Brush - Pine - Dense Bluegum Eucalyptus	18	35	100	40	2	2	4	3
Live Oak - California Bay - Dense Bluegum Eucalyptus - Coyote Brush	18	35	100	40	2	2	3	3
Live Oak - California Bay - Mixed Conifer - Coyote Brush	8	35	80	40	6	6	3	3
Live Oak - California Bay - Redwood - Coyote Brush	5	35	100	40	2	2	3	3
Mixed Conifer	9	78	100	6	6	6	4	0
Pine	19	78	80	6	12	12	4	0
Pine - Coyote Brush - Dense Bluegum Eucalyptus - Grassland	16	78	100	6	2	2	3	0
Pine - Dense Bluegum Eucalyptus - Coyote Brush	19	78	100	6	6	6	4	0
Pine - Live Oak - California Bay	18	35	80	6	12	12	4	2
Redwood	8	76	100	100	12	12	4	4
Willow	60	77	30	30	6			
City of Oakland								
Coyote Brush - Live Oak - California Bay - Poison Oak - Blackberry	5	28/35	40	40	8	8	2	2
Eucalyptus sprouts	22	33	50	50	8	8	3	2

Table 4. Fuel characteristics by fuel models used in the EBRPD WHR&RMP and for existing conditions in the treatment areas owned by the University of California and the City of Oakland (from Rothermel 1983).

Fuel Model	Typical Fuel Complex	Fuel Loading (T/A) 1-H	10-H	100-H	Live	Fuel Bed Height (ft)	Moist.of Extinction Dead Fuels (%)
1	Annual Grass	0.74	0.00	0.00	0.00	1.0	12
2	Savanna & Forest & Grass	2.00	1.00	.50	.50	1.0	15
4	Chaparral	5.01	4.01	2.00	5.01	6.0	20
5	Coastal Scrub	1.00	.50	.00	2.00	2.0	20
6	Riparian Woodland	1.50	2.50	2.00	.00	2.5	25
7	Eucalyptus Sprouts	1.13	1.87	1.50	.37	2.5	40
8	Oak/Bay Forest	1.50	1.00	2.50	0.00	0.2	30
9	Mixed Hardwood	2.92	.41	.15	.00	0.2	25
10	Redwood Forest	3.01	2.00	5.01	2.00	1.0	25

Many custom fuel models were used to portray with more accuracy the types of fuels found on the site. In all cases these custom fuel models used a standard fuel model as a base; the value of only one parameter was changed. In cases where especially flammable vegetation was present (eucalyptus and pines), the heat content of the dead and live fuel was raised. In cases where the foliage was expected to be more moist, the initial fuel moisture of the living material was raised.

	Standard Fuel Model	**New Custom Fuel Model**
Moist fuel models	1	61
Moist fuel models	4	40
Moist fuel models	6	60
Moist fuel models	5	50
Moist fuel models	8	80 & 81
Oily Fuels	1	14
Oily Fuels	2	15
Oily Fuels	5	16
Oily Fuels	7	22
Oily Fuels	6	17
Oily Fuels	8	18
Oily Fuels	9	19
Oily Fuels	10	21

Results

The results of the FlamMap analysis indicate that treatments do modify fuels to create a relatively fire safe environment. In almost all post-treatment locations flames are predicted to be no greater than four feet in length and to produce only surface fires, with little torching after treatment. No instance of independent crown fires was predicted following fuel reduction treatments.

There are several reasons for this to be an expected outcome. First, treatments reduce overall fuel volume, through grazing, prescribed burning, or removal of vegetation through thinning or complete tree removal. Fuel volume has a direct influence on fire intensity and flame length. Second, the material left is generally lush and young. Treatments are intended to remove dead material within shrubby fuels. The dead material in shrubby fuels is generally what will promote fire spread and intensity; live material alone is not likely to produce a dangerous wildfire, especially if the overall fuel volume is low. Last, treatments disrupted vertical continuity of fuels through the pruning of lower branches. This limits the ability of a fire to spread into the tree crown, or torch. In combination, treatments designed to inhibit long flame lengths and ember production are predicted to produce the desired results

The resulting flame length in post-treatment fuels indicates that fire suppression efforts are likely to be much more effective. Usually a flame length of four feet or shorter can be attacked directly with hand crews, whereas flame lengths greater than eight feet usually require indirect attack and is considered a more challenging fire to contain. The effectiveness of containment strategies has a direct effect on potential losses to structures since usually a smaller fire results in smaller losses.

Where a fire does impact structures, flame length is highly correlated to possible damage. Houses confronted with flames shorter than four feet are likely to be successfully extinguished, whereas longer flame lengths may doom the structure.

The lack of torching is a significant benefit of treatment because the embers this phenomenon produces are a main cause of structure loss (Foote, Liu and Manzello, 2011). Embers become lodged in crevices in the building or deck, coalescing into larger burning materials that can ignite the structure. Embers leapfrog ahead of the flaming front and can advance the fire more quickly, and confound suppression efforts because of simultaneous multiple ignitions. Because the treated areas are not predicted to produce embers, and produce fires that are more easily contained or burn with less vigor, these areas are locations where fire departments can more effectively defend structures and contain the fire.

Expected Changes In Fire Behavior within the Next Five to Ten Years

Fire behavior in treated polygons can be expected to change over time. The changes can be generalized by broad vegetation types. While living plants continue to grow dead material may or may not accumulate. For example, chips from treatments decompose

rapidly and become less of a hazard over time. The decomposition increases the compactness of the fuel bed, and the resulting depth of chips. Both these result in reduced fire hazard over time as measured by flame length of the fire front.

Hardwoods can be expected to expand without disturbance and where management removes shrub volumes near those hardwoods. The expansion of hardwoods in shrublands generally reduces fire hazard as measured by flame length. Thus within 5-10 years fire behavior should not be significantly more hazardous than current conditions.

Shrublands will continue to grow and without management, will increase in fuel volume in the next 5-10 years. However, growth is generally of live material, which is of reduced fire hazard. Not until shrubs reach canopy closure do they accumulate dead material which would ignite and carry a fire. Shrubs that are cut to a shorter height, or shrubs that are cut to form clumps or groups are not expected to form a closed canopy in the next 5-10 years.

Where hardwoods are already prevalent, the fire behavior can be expected to remain constant within a time frame of 5-10 years. The shade produced by the tree canopy inhibits shrub growth and limits the development of an understory in this period of time.

Grasslands will need to be treated annually to maintain the benefits in terms of reduced flame length.

Eucalyptus stands that remain will continue to grow from the tree tops and branch ends, but unlike shrubs, the material that is produced also includes dead material in the form of bark strands, leaf litter and small stems. This added dead volume can accumulate to form a significant hazard in 5-10 years and could warrant treatment within this time period. The fuel volume added within this time period would justify a change in fuel models to one that would produce more dramatic fire behavior.

In summary, polygons with remaining eucalyptus stands and grasslands are the only areas where fire behavior would not either remain constant or be more benign within the next 5-10 years. Periodic maintenance of hardwood stands and shrublands during the 5 to 10 years following initial treatment is expected to maintain fuels and fire behavior characteristics similar to those immediately following initial hazard reduction treatments.

Justification of a Treatment Width of 200-feet

The goal of selecting 200 feet as a width of fuel treatments was to create conditions that would produce flames shorter than 8 feet at the park district border. The distance is in addition to the defensible space created by the adjacent landowner. The 8-ft flame length is critical because effective direct attack can be made at this intensity or lower, but not with higher flame lengths.

Fire behavior can change over this distance to be 8 feet or less. Science has shown that crown fires can drop to surface fires of moderate fire behavior in this distance (Schroeder and Walkinshaw 2006). Cohen (2008) showed that structures built compliant with current codes resist ignition from crown fires (intense fires) only 100 feet away on flat ground. Because the District lands are sometimes located below structures, and the preheating that goes on, the distance was widened to 200 feet. Additionally, many structures are not ignition-resistant and thus a greater distance was provided to reduce the chance that nearby structures would ignite.

One of the most dramatic examples of the benefit of fuel treatments was demonstrated during the October 2007 Angora Fire in the Lake Tahoe area. See http://www.fs.fed.us/r5/angorafuelsassessment/feoaft.php. Schmidt et al (2010) reported that, "In most cases, crown fire behavior changed to surface fire within 50 m of encountering a fuel treatment." The effectiveness of treatments is based on changed fire behavior characteristics. Under changed fuel conditions crown fires become surface fires in a distance of approximately 50 meters, as observed in the Angora Fire.

Similarly, Schroeder and Walkinshaw (2006) reported that a crown fire in a jack pine stand "settled down" within 4 minutes of crossing into treated stands to become a surface fire, within a distance of less than 50 meters. This roughly corresponds to the selected treatment distance of 200 feet.

This photo indicates that a treatment that is a few hundred feet wide is sufficient to adequately modify fire behavior near structures (Finney 2010).

There is a "halo" or shadow of lower severity due to treatments but the distance where fire behavior is calmed is not wide. The ameliorated fire behavior effect spans as much

as a several hundred feet from the treatment areas. Beyond the halo in the untreated area the fire burned with much greater intensity. The effect of treatment in the managed area and the thin halo of lower intensity in untreated area is shown in the figure above (Finney 2010).

Conclusion

A uniform fire behavior analysis process was applied to proposed treatment areas on EBRPD, UC Berkeley and City of Oakland lands. Pretreatment, post treatment and long-term vegetative conditions were modeled for each treatment area. Estimates of fire behavior prior to fuels treatments uniformly exceeded acceptable standards of flame length, tree torching and ember production. Following treatment, predicted fire behavior consistently indicated acceptable flame lengths, an absence of torching and crown fires and therefore little likelihood of problematic ember production. These results strongly indicate that proposed fuels treatments will achieve and exceed the intended enhancements to fire protection.

Further, these treatments are expected to be long-lasting for most of the treatment areas. Grasslands will need to be treated annually, and eucalyptus stands treated will need to be treated within the 10-year time frame. The fire safety in other areas will be relatively constant or improve with time, as gauged by predicted flame length and crown fire potential.

The tables in the following appendix detail the predicted flame length and fire behavior in each of the treatment areas.

APPENDIX A
Fire Behavior by Treatment Area – Post Treatment
East Bay Regional Park District

This table displays the RTA name, the percentage of area in which different flame lengths and potential are predicted following planned fire hazard reduction treatments. For comparison, predicted pre-treatment fire behavior is described in the EBRPD WHR&RMP.

WHA-SO001

Flame length	Percentage	Crown Fire	Percentage
No Fire	35%	No Fire	22%
.01 - 4ft	56%	Surface Fire	72%
4.01-8ft	9%	Torching	5%
8.01 ft +	0%	Crown Fire	0%

WHA-SO002

Flame length	Percentage	Crown Fire	Percentage
No Fire	14%	No Fire	14%
.01 - 4ft	86%	Surface Fire	86%
4-8ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-KG001

Flame length	Percentage	Crown Fire	Percentage
No Fire	21%	No Fire	21%
.01 - 4ft	79%	Surface Fire	79%
4.01-8ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-KG002

Flame length	Percentage	Crown Fire	Percentage
No Fire	11%	No Fire	11%
.01 - 4ft	89%	Surface Fire	89%
4-8ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-KG003

Flame length	Percentage	Crown Fire	Percentage
No Fire	67%	No Fire	66%
.01 - 4ft	33%	Surface Fire	34%
4-8ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-KG004

Flame length	Percentage	Crown Fire	Percentage
No Fire	12%	No Fire	12%
.01 - 4ft	88%	Surface Fire	88%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LE001

Flame length	Percentage	Crown Fire	Percentage
No Fire	35%	No Fire	26%
.01 - 4ft	56%	Surface Fire	74%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LE002

Flame length	Percentage	Crown Fire	Percentage
No Fire	23%	No Fire	21%
.01 - 4ft	77%	Surface Fire	79%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LE003

Flame length	Percentage	Crown Fire	Percentage
No Fire	16%	No Fire	16%
.01 - 4ft	84%	Surface Fire	84%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LE004

Flame length	Percentage	Crown Fire	Percentage
No Fire	17%	No Fire	17%
.01 - 4ft	83%	Surface Fire	83%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LE005

Flame length	Percentage	Crown Fire	Percentage
No Fire	21%	No Fire	21%
.01 - 4ft	79%	Surface Fire	79%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LE006

Flame length	Percentage	Crown Fire	Percentage
No Fire	3%	No Fire	3%
.01 - 4ft	97%	Surface Fire	97%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC001

Flame length	Percentage	Crown Fire	Percentage
No Fire	8%	No Fire	8%
.01 - 4ft	92%	Surface Fire	92%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC002

Flame length	Percentage	Crown Fire	Percentage
No Fire	14%	No Fire	14%
.01 - 4ft	86%	Surface Fire	86%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC003

Flame length	Percentage	Crown Fire	Percentage
No Fire	7%	No Fire	7%
.01 - 4ft	93%	Surface Fire	93%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC004

Flame length	Percentage	Crown Fire	Percentage
No Fire	8%	No Fire	8%
.01 - 4ft	92%	Surface Fire	92%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC005

Flame length	Percentage	Crown Fire	Percentage
No Fire	26%	No Fire	26%
.01 - 4ft	74%	Surface Fire	74%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC006

Flame length	Percentage	Crown Fire	Percentage
No Fire	12%	No Fire	12%
.01 - 4ft	88%	Surface Fire	88%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC007

Flame length	Percentage	Crown Fire	Percentage
No Fire	9%	No Fire	9%
.01 - 4ft	91%	Surface Fire	91%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC008

Flame length	Percentage	Crown Fire	Percentage
No Fire	43%	No Fire	43%
.01 - 4ft	57%	Surface Fire	57%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC009

Flame length	Percentage	Crown Fire	Percentage
No Fire	6%	No Fire	6%
.01 - 4ft	94%	Surface Fire	94%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC010

Flame length	Percentage	Crown Fire	Percentage
No Fire	9%	No Fire	9%
.01 - 4ft	91%	Surface Fire	91%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-CC011

Flame length	Percentage	Crown Fire	Percentage
No Fire	4%	No Fire	4%
.01 - 4ft	96%	Surface Fire	96%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC001

Flame length	Percentage	Crown Fire	Percentage
No Fire	10%	No Fire	10%
.01 - 4ft	90%	Surface Fire	90%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC002

Flame length	Percentage	Crown Fire	Percentage
No Fire	12%	No Fire	12%
.01 - 4ft	88%	Surface Fire	88%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC003

Flame length	Percentage	Crown Fire	Percentage
No Fire	10%	No Fire	10%
.01 - 4ft	90%	Surface Fire	90%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC004

Flame length	Percentage	Crown Fire	Percentage
No Fire	17%	No Fire	17%
.01 - 4ft	83%	Surface Fire	83%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC005

Flame length	Percentage	Crown Fire	Percentage
No Fire	6%	No Fire	6%
.01 - 4ft	94%	Surface Fire	94%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC006

Flame length	Percentage	Crown Fire	Percentage
No Fire	11%	No Fire	11%
.01 - 4ft	89%	Surface Fire	89%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC007a

Flame length	Percentage	Crown Fire	Percentage
No Fire	49%	No Fire	49%
.01 - 4ft	51%	Surface Fire	51%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC007b

Flame length	Percentage	Crown Fire	Percentage
No Fire	29%	No Fire	29%
.01 - 4ft	71%	Surface Fire	71%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC008

Flame length	Percentage	Crown Fire	Percentage
No Fire	29%	No Fire	29%
.01 - 4ft	71%	Surface Fire	71%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC009

Flame length	Percentage	Crown Fire	Percentage
No Fire	11%	No Fire	11%
.01 - 4ft	89%	Surface Fire	89%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-WC010

Flame length	Percentage	Crown Fire	Percentage
No Fire	14%	No Fire	14%
.01 - 4ft	86%	Surface Fire	86%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI001

Flame length	Percentage	Crown Fire	Percentage
No Fire	35%	No Fire	21%
.01 - 4ft	56%	Surface Fire	79%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI002a

Flame length	Percentage	Crown Fire	Percentage
No Fire	6%	No Fire	6%
.01 - 4ft	94%	Surface Fire	94%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI002b

Flame length	Percentage	Crown Fire	Percentage
No Fire	6%	No Fire	6%
.01 - 4ft	94%	Surface Fire	94%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI002c

Flame length	Percentage	Crown Fire	Percentage
No Fire	29%	No Fire	29%
.01 - 4ft	71%	Surface Fire	71%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI003

Flame length	Percentage	Crown Fire	Percentage
No Fire	7%	No Fire	7%
.01 - 4ft	93%	Surface Fire	93%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI004

Flame length	Percentage	Crown Fire	Percentage
No Fire	13%	No Fire	13%
.01 - 4ft	87%	Surface Fire	87%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI005

Flame length	Percentage	Crown Fire	Percentage
No Fire	33%	No Fire	13%
.01 - 4ft	67%	Surface Fire	87%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI006

Flame length	Percentage	Crown Fire	Percentage
No Fire	13%	No Fire	13%
.01 - 4ft	77%	Surface Fire	77%
4-8 ft	10%	Torching	10%
8.01 ft +	0%	Crown Fire	0%

WHA-TI007a

Flame length	Percentage	Crown Fire	Percentage
No Fire	19%	No Fire	19%
.01 - 4ft	81%	Surface Fire	81%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI007b

Flame length	Percentage	Crown Fire	Percentage
No Fire	9%	No Fire	9%
.01 - 4ft	91%	Surface Fire	91%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI007c

Flame length	Percentage	Crown Fire	Percentage
No Fire	20%	No Fire	20%
.01 - 4ft	80%	Surface Fire	80%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI008a

Flame length	Percentage	Crown Fire	Percentage
No Fire	8%	No Fire	8%
.01 - 4ft	92%	Surface Fire	92%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI008b

Flame length	Percentage	Crown Fire	Percentage
No Fire	68%	No Fire	68%
.01 - 4ft	32%	Surface Fire	32%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI009

Flame length	Percentage	Crown Fire	Percentage
No Fire	7%	No Fire	7%
.01 - 4ft	93%	Surface Fire	93%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI010

Flame length	Percentage	Crown Fire	Percentage
No Fire	11%	No Fire	11%
.01 - 4ft	89%	Surface Fire	89%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI011

Flame length	Percentage	Crown Fire	Percentage
No Fire	14%	No Fire	14%
.01 - 4ft	86%	Surface Fire	86%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI012

Flame length	Percentage	Crown Fire	Percentage
No Fire	10%	No Fire	10%
.01 - 4ft	90%	Surface Fire	90%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI013

Flame length	Percentage	Crown Fire	Percentage
No Fire	11%	No Fire	11%
.01 - 4ft	89%	Surface Fire	89%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI014

Flame length	Percentage	Crown Fire	Percentage
No Fire	10%	No Fire	10%
.01 - 4ft	90%	Surface Fire	90%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI015

Flame length	Percentage	Crown Fire	Percentage
No Fire	21%	No Fire	21%
.01 - 4ft	79%	Surface Fire	79%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI016

Flame length	Percentage	Crown Fire	Percentage
No Fire	8%	No Fire	19%
.01 - 4ft	92%	Surface Fire	81%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI017

Flame length	Percentage	Crown Fire	Percentage
No Fire	43%	No Fire	43%
.01 - 4ft	57%	Surface Fire	57%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI018

Flame length	Percentage	Crown Fire	Percentage
No Fire	21%	No Fire	21%
.01 - 4ft	79%	Surface Fire	79%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI019

Flame length	Percentage	Crown Fire	Percentage
No Fire	17%	No Fire	18%
.01 - 4ft	83%	Surface Fire	82%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI020

Flame length	Percentage	Crown Fire	Percentage
No Fire	6%	No Fire	6%
.01 - 4ft	94%	Surface Fire	94%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI021

Flame length	Percentage	Crown Fire	Percentage
No Fire	71%	No Fire	71%
.01 - 4ft	29%	Surface Fire	29%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-TI022

Flame length	Percentage	Crown Fire	Percentage
No Fire	71%	No Fire	25%
.01 - 4ft	29%	Surface Fire	75%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-SR001

Flame length	Percentage	Crown Fire	Percentage
No Fire	16%	No Fire	16%
.01 - 4ft	84%	Surface Fire	84%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-SR002a

Flame length	Percentage	Crown Fire	Percentage
No Fire	4%	No Fire	4%
.01 - 4ft	93%	Surface Fire	96%
4-8 ft	2%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-SR002b

Flame length	Percentage	Crown Fire	Percentage
No Fire	7%	No Fire	10%
.01 - 4ft	77%	Surface Fire	90%
4-8 ft	16%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-SR003

Flame length	Percentage	Crown Fire	Percentage
No Fire	11%	No Fire	11%
.01 - 4ft	89%	Surface Fire	89%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-SR004

Flame length	Percentage	Crown Fire	Percentage
No Fire	14%	No Fire	14%
.01 - 4ft	84%	Surface Fire	86%
4-8 ft	2%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-SR005

Flame length	Percentage	Crown Fire	Percentage
No Fire	9%	No Fire	9%
.01 - 4ft	91%	Surface Fire	91%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-SR006

Flame length	Percentage	Crown Fire	Percentage
No Fire	10%	No Fire	10%
.01 - 4ft	90%	Surface Fire	90%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-SR007

Flame length	Percentage	Crown Fire	Percentage
No Fire	5%	No Fire	5%
.01 - 4ft	95%	Surface Fire	95%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-HP001

Flame length	Percentage	Crown Fire	Percentage
No Fire	17%	No Fire	15%
.01 - 4ft	83%	Surface Fire	85%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-HP002

Flame length	Percentage	Crown Fire	Percentage
No Fire	15%	No Fire	15%
.01 - 4ft	82%	Surface Fire	84%
4-8 ft	3%	Torching	1%
8.01 ft +	0%	Crown Fire	0%

WHA-HP003

Flame length	Percentage	Crown Fire	Percentage
No Fire	24%	No Fire	24%
.01 - 4ft	76%	Surface Fire	76%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-HP004

Flame length	Percentage	Crown Fire	Percentage
No Fire	34%	No Fire	34%
.01 - 4ft	66%	Surface Fire	66%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD001

Flame length	Percentage	Crown Fire	Percentage
No Fire	29%	No Fire	29%
.01 - 4ft	71%	Surface Fire	71%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD002

Flame length	Percentage	Crown Fire	Percentage
No Fire	5%	No Fire	5%
.01 - 4ft	95%	Surface Fire	95%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD003

Flame length	Percentage	Crown Fire	Percentage
No Fire	11%	No Fire	11%
.01 - 4ft	89%	Surface Fire	89%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD004

Flame length	Percentage	Crown Fire	Percentage
No Fire	10%	No Fire	10%
.01 - 4ft	90%	Surface Fire	90%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD005a

Flame length	Percentage	Crown Fire	Percentage
No Fire	25%	No Fire	25%
.01 - 4ft	75%	Surface Fire	75%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD005b

Flame length	Percentage	Crown Fire	Percentage
No Fire	23%	No Fire	23%
.01 - 4ft	77%	Surface Fire	77%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD006

Flame length	Percentage	Crown Fire	Percentage
No Fire	22%	No Fire	22%
.01 - 4ft	78%	Surface Fire	78%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD007

Flame length	Percentage	Crown Fire	Percentage
No Fire	18%	No Fire	18%
.01 - 4ft	82%	Surface Fire	82%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD008

Flame length	Percentage	Crown Fire	Percentage
No Fire	28%	No Fire	28%
.01 - 4ft	72%	Surface Fire	72%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD009

Flame length	Percentage	Crown Fire	Percentage
No Fire	36%	No Fire	36%
.01 - 4ft	64%	Surface Fire	64%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD010

Flame length	Percentage	Crown Fire	Percentage
No Fire	35%	No Fire	35%
.01 - 4ft	65%	Surface Fire	65%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-RD011

Flame length	Percentage	Crown Fire	Percentage
No Fire	45%	No Fire	45%
.01 - 4ft	55%	Surface Fire	55%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC001

Flame length	Percentage	Crown Fire	Percentage
No Fire	25%	No Fire	25%
.01 - 4ft	75%	Surface Fire	75%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC002

Flame length	Percentage	Crown Fire	Percentage
No Fire	17%	No Fire	17%
.01 - 4ft	83%	Surface Fire	83%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC003

Flame length	Percentage	Crown Fire	Percentage
No Fire	9%	No Fire	9%
.01 - 4ft	91%	Surface Fire	91%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC004

Flame length	Percentage	Crown Fire	Percentage
No Fire	12%	No Fire	12%
.01 - 4ft	88%	Surface Fire	88%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC006

Flame length	Percentage	Crown Fire	Percentage
No Fire	13%	No Fire	13%
.01 - 4ft	87%	Surface Fire	87%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC007

Flame length	Percentage	Crown Fire	Percentage
No Fire	5%	No Fire	5%
.01 - 4ft	95%	Surface Fire	95%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC008a

Flame length	Percentage	Crown Fire	Percentage
No Fire	1%	No Fire	1%
.01 - 4ft	99%	Surface Fire	99%
4-8 ft	2%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC008b

Flame length	Percentage	Crown Fire	Percentage
No Fire	1%	No Fire	1%
.01 - 4ft	99%	Surface Fire	99%
4-8 ft	2%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC008c

Flame length	Percentage	Crown Fire	Percentage
No Fire	1%	No Fire	1%
.01 - 4ft	99%	Surface Fire	99%
4-8 ft	2%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC008d

Flame length	Percentage	Crown Fire	Percentage
No Fire	2%	No Fire	2%
.01 - 4ft	98%	Surface Fire	98%
4-8 ft	2%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC009

Flame length	Percentage	Crown Fire	Percentage
No Fire	7%	No Fire	7%
.01 - 4ft	93%	Surface Fire	93%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC010

Flame length	Percentage	Crown Fire	Percentage
No Fire	3%	No Fire	3%
.01 - 4ft	97%	Surface Fire	97%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC011

Flame length	Percentage	Crown Fire	Percentage
No Fire	7%	No Fire	7%
.01 - 4ft	93%	Surface Fire	93%
4-8 ft	Torching	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC012

Flame length	Percentage	Crown Fire	Percentage
No Fire	6%	No Fire	6%
.01 - 4ft	94%	Surface Fire	94%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC013

Flame length	Percentage	Crown Fire	Percentage
No Fire	5%	No Fire	5%
.01 - 4ft	94%	Surface Fire	94%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-AC014

Flame length	Percentage	Crown Fire	Percentage
No Fire	2%	No Fire	2%
.01 - 4ft	98%	Surface Fire	98%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC001

Flame length	Percentage	Crown Fire	Percentage
No Fire	12%	No Fire	12%
.01 - 4ft	88%	Surface Fire	88%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC002

Flame length	Percentage	Crown Fire	Percentage
No Fire	20%	No Fire	20%
.01 - 4ft	80%	Surface Fire	80%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC003

Flame length	Percentage	Crown Fire	Percentage
No Fire	24%	No Fire	24%
.01 - 4ft	76%	Surface Fire	76%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC004

Flame length	Percentage	Crown Fire	Percentage
No Fire	16%	No Fire	16%
.01 - 4ft	84%	Surface Fire	84%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC005a

Flame length	Percentage	Crown Fire	Percentage
No Fire	31%	No Fire	31%
.01 - 4ft	69%	Surface Fire	69%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC005b

Flame length	Percentage	Crown Fire	Percentage
No Fire	28%	No Fire	28%
.01 - 4ft	72%	Surface Fire	72%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC006

Flame length	Percentage	Crown Fire	Percentage
No Fire	13%	No Fire	13%
.01 - 4ft	87%	Surface Fire	87%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC007a

Flame length	Percentage	Crown Fire	Percentage
No Fire	31%	No Fire	31%
.01 - 4ft	69%	Surface Fire	69%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC007b

Flame length	Percentage	Crown Fire	Percentage
No Fire	12%	No Fire	12%
.01 - 4ft	88%	Surface Fire	88%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC007c

Flame length	Percentage	Crown Fire	Percentage
No Fire	29%	No Fire	29%
.01 - 4ft	71%	Surface Fire	71%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC007d

Flame length	Percentage	Crown Fire	Percentage
No Fire	45%	No Fire	45%
.01 - 4ft	55%	Surface Fire	55%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC008

Flame length	Percentage	Crown Fire	Percentage
No Fire	21%	No Fire	21%
.01 - 4ft	79%	Surface Fire	79%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC009

Flame length	Percentage	Crown Fire	Percentage
No Fire	20%	No Fire	20%
.01 - 4ft	80%	Surface Fire	80%
4-8ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-LC010

Flame length	Percentage	Crown Fire	Percentage
No Fire	23%	No Fire	23%
.01 - 4ft	77%	Surface Fire	77%
4-8ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-MK001

Flame length	Percentage	Crown Fire	Percentage
No Fire	28%	No Fire	28%
.01 - 4ft	72%	Surface Fire	72%
4-8ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-MK002

Flame length	Percentage	Crown Fire	Percentage
No Fire	28%	No Fire	28%
.01 - 4ft	72%	Surface Fire	72%
4-8ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-MK003

Flame length	Percentage	Crown Fire	Percentage
No Fire	13%	No Fire	13%
.01 - 4ft	84%	Surface Fire	84%
4-8ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-MK004

Flame length	Percentage	Crown Fire	Percentage
No Fire	21%	No Fire	13%
.01 - 4ft	79%	Surface Fire	87%
4-8ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

WHA-MK005

Flame length	Percentage	Crown Fire	Percentage
No Fire	99%	No Fire	25%
.01 - 4ft	1%	Surface Fire	75%
4-8 ft	0%	Torching	0%
8.01 ft +	0%	Crown Fire	0%

APPENDIX B Fire Behavior by Treatment Area – Existing and Post Treatment
University of California

This table displays the RTA name, the percentage of area in which different flame lengths and potential are predicted following planned fire hazard reduction treatments.

Claremont Canyon Existing				Claremont Canyon Post-Treatment			
Flame length	Percentage	Crown Fire	Percentage	Flame length	Percentage	Crown Fire	Percentage
No Fire	1%	No Fire	1%	No Fire	1%	No Fire	1%
.01 - 4ft	23%	Surface Fire	8%	.01 - 4ft	99%	Surface Fire	99%
4-8ft	46%	Torching	91%	4-8ft	0%	Torching	0%
8.01-11ft	25%	Crown Fire	0%	8.01-11ft	0%	Crown Fire	0%
11.01 - 20ft	6%			11.01 - 20ft			

Strawberry Canyon Existing				Strawberry Canyon Post-Treatment			
Flame length	Percentage	Crown Fire	Percentage	Flame length	Percentage	Crown Fire	Percentage
No Fire	10%	No Fire	10%	No Fire	2%	No Fire	2%
.01 - 4ft	28%	Surface Fire	18%	.01 - 4ft	98%	Surface Fire	98%
4-8ft	40%	Torching	72%	4-8ft	0%	Torching	0%
8.01-11ft	14%	Crown Fire	0%	8.01-11ft	0%	Crown Fire	0%
11.01 - 20ft	6%			11.01 - 20ft			
20 ft +	1%			20 ft +			

Frowning Ridge Existing				Frowning Ridge Post-Treatment			
Flame length	Percentage	Crown Fire	Percentage	Flame length	Percentage	Crown Fire	Percentage
No Fire	1%	No Fire	1%	No Fire	1%	No Fire	1%
.01 - 4ft	43%	Surface Fire	65%	.01 - 4ft	99%	Surface Fire	99%
4-8ft	46%	Torching	34%	4-8ft	0%	Torching	0%
8.01-11ft	8%	Crown Fire	0%	8.01-11ft	0%	Crown Fire	0%
11.01 - 20ft	2%			11.01 - 20ft			

APPENDIX C

Fire Behavior by Treatment Area – Existing and Post Treatment

City of Oakland This table displays the RTA name, the percentage of area in which different flame lengths and potential are predicted following planned fire hazard reduction treatments.

Grizzly Peak Open Space Existing				Grizzly Peak Open Space Post-Treatment			
Flame length	Percentage	Crown Fire	Percentage	Flame length	Percentage	Crown Fire	Percentage
No Fire	10%	No Fire	10%	No Fire	2%	No Fire	4%
.01 - 4ft	32%	Surface Fire	0%	.01 - 4ft	98%	Surface Fire	96%
4-8 ft	50%	Torching	90%	4-8 ft	0%	Torching	0%
8.01 -11 ft	5%	Crown Fire	0%	8.01 -11 ft	0%	Crown Fire	0%
11.01 - 20ft	3%			11.01 - 20ft			
BallFields Existing				Ballfields Post-Treatment			
Flame length	Percentage	Crown Fire	Percentage	Flame length	Percentage	Crown Fire	Percentage
No Fire	3%	No Fire	0%	No Fire	0%	No Fire	3%
.01 - 4ft	22%	Surface Fire	0%	.01 - 4ft	98%	Surface Fire	28%
4-8 ft	64%	Torching	100%	4-8 ft	2%	Torching	69%
8.01 -11 ft	9%	Crown Fire	0%	8.01 -11 ft	0%	Crown Fire	0%
11.01 - 20ft	2%			11.01 - 20ft			

References

Burgan Robert E. and Dick C. Rothermel. 1984. BEHAVE: Fire behavior Prediction and Fuel Modeling System – FUEL Subsystem. Gen. Tech. Rep. INT-167. Intermountain Forest and Range Experiment Station, Ogden, UT. 132 p.

Cohen, Jack. 2008. Wildland Urban Interface Problem: A consequence of the fire exclusion paradigm (Forest History Today, Fall 2008).

Finney, Mark A. 2006. An Overview of FlamMap Fire Modeling Capabilities. p. 213-220 In: Andrews, Patricia L.; Butler, Bret W., comps. 2006. Fuels Management-How to Measure Success: Conference Proceedings. 28-30 March 2006; Portland, OR. Proceedings RMRS-P-41. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Finney, Mark. 2010. Scale Effects on Treatments: Parcel Scale to Landscape Scale, February 9, 2010. http://ucanr.org/sites/Prepostwildfire/files/257.pdf. Accessed October 21, 2020.

Foote, Ethan I. D., John Liu and Samnuel L. Manzello. 2011. Characterizing Firebrand Exposure during wildland-urban interface fires. Proceedings of the 12th International Conference on Fire and Materials, San Francisco, CA February 1, 2011.

LSA Associates, Inc. 2009. East Bay Regional Park District Wildfire Hazard Reduction and Resource Management Plan. Unpublished report prepared for the East Bay Regional Park District. Berkeley, CA. 218 pgs plus appendices.

Rapp, Valerie. 2007. Fire Science Brief. Issue 1, October 2007 Tested by Fire: What happens when wildfires meet fuel treatments? http://www.firescience.gov/projects/briefs/03-2-1-07_FSBrief1.pdf. Accessed October 15, 2010.

Rothermel, Richard C. 1983. How to predict the spread and intensity of forest and range fires. Gen. Tech. Rep INT-143. Ogden, UT. USDA Forest Service Intermountain Forest and Range Experiment Station. 161p.

Schmidt, David A., Alan H. Taylor, and Carl N. Skinner. 2008. The influence of fuels treatment and landscape arrangement on simulated fire behavior, Southern Cascade range, California. Forest Ecology and Management, Vol 255, Issues8-9: 3170-3184.

Schmidt, David A, Hugh Safford, and Chris Carlson. 2010. Effects of Fuel Treatments on Fire Severity During the 2007 Angora Fire. Pre-and Post Wildfire Conference, University of California Cooperative Extension, February 10, 2010. http://groups.ucanr.org/wildfire20/Poster_Session/.

Schroeder and Walkinshaw 2006. IAWF Fire Behavior and Fuels Conference, Portland, OR. http://fire.feric.ca/36232003/WorkshopPresentation.htm. Alberta Forest Protection Division Fuel Modification Overview, FERIC Fuel Modification Workshop, Hinton Training Centre, October 7, 2003

Scott, Joe H. and Burgan, Robert E. 2005. Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO, USDA Forest Service Rocky Mountain Research Station. 72p.

This page intentionally left blank.

FINAL
WILDFIRE HAZARD ASSESSMENT AND TREATMENT AREAS

Prepared for LSA Associates, Inc.
by
Wildland Resource Management, Inc.

October, 2008

TABLE OF CONTENTS

A. METHODS USED TO ASSESS WILDFIRE HAZARDS 2

B. DESCRIPTION OF WILDFIRE HAZARDS IN THE STUDY AREA 7

C. METHODS USED TO DETERMINE RECOMMENDED TREATMENT AREAS 9

TABLES

Table 1: Distribution of High-Hazard Ember Producing Tree Stands 8

Table 2: Distance of High-Hazard Ember Producing Tree Stands from Structures 8

Table 3: Developed Facilities in the Study Area 11

FIGURES

Figure 1: Application of Methodology Identifying High Fire Hazard 3

Figure 2: Draft Wildlife Hazard Assessment Map 13

WILDFIRE HAZARD ASSESSMENT AND TREATMENT AREAS

This Wildfire Hazard Assessment report was prepared by Carol Rice, Wildland Resource Management Inc., and LSA Associates Inc. This report describes the methods used to determine and confirm wildfire hazard levels for park lands within the Study Area for the Wildfire Hazard Reduction and Resource Management Plan (Plan), a general description of identified wildfire hazards in the Study Area, and the methods used to identify the recommended treatment areas (RTAs) discussed later in the Plan. The first assessment, completed in 2006, addressed the following Hillside parks: Wildcat Canyon Regional Park, Tilden Regional Park, Claremont Canyon Regional Preserve, Robert Sibley Volcanic Regional Preserve, Huckleberry Botanic Regional Preserve, Redwood Regional Park, Leona Canyon Regional Open Space and Preserve, Anthony Chabot Regional Park, and Lake Chabot Regional Park. A second assessment was conducted in 2007 to address the remaining parks: Sobrante Ridge Regional Preserve, Kennedy Grove Regional Recreation Area, Temescal Regional Recreation Area, Roberts Regional Recreation Area, Pt. Pinole Regional Shoreline, and Miller/Knox Regional Shoreline. Based on these initial assessments, five shoreline parks within the Study Area were excluded for detailed assessment because the level of wildfire hazard posed by vegetation in those parks was not considered to be high due to their proximity to the San Francisco Bay, the lack of wildland vegetation, and/or the developed nature of the parks. The parks not included for further study are: Brooks Island Regional Shoreline, Eastshore State Park, Middle Harbor Shoreline Park, Robert W. Crown Memorial State Beach, and Martin Luther King, Jr., Regional Shoreline.

The results of these wildfire hazard assessments are displayed graphically in Figure 1: Wildfire Hazard Assessment (WHA) Map. The purpose of the WHA Map is to identify at-risk areas for further assessment and fuel modification recommendations. Many of these areas lie within the wildland-urban interface, which for this Plan includes EBRPD land within 200 feet of a private structure under Diablo wind conditions for Hillside parks, and under a condition in which winds blow to the east for Shoreline parks. The size and boundaries of the wildland-urban interface area vary, depending on such site-specific conditions as property slope and types of vegetation present Based on these assessments, the following areas are identified on the WHA Map:

- Lands within 200 feet of high-value (irreplaceable) EBRPD facilities and park residences.
- Locations of Eucalyptus stands that represent significant threats from torching and crown fires that can cause ember flight.

- Other wildfire hazard assessment areas with identified high hazards for wildfires.

The wildfire hazard assessments provided the basis for determining RTAs. There are approximately 3,000 acres identified as having high wildfire hazards and potentially requiring treatment out of approximately 15,800 total acres included in the Study Area. Generally, areas requiring treatment are located along the western boundaries of Hillside parks in the Study Area and in tall tree stand stands on ridgetops within these parks.

A. METHODS USED TO ASSESS WILDFIRE HAZARDS

Based on available information, including aerial photographs, published reports, and site-specific data collected through site reconnaissance, the following process was used to determine what areas are identified on the WHA Map:

- Execute the FlamMap model using severe weather conditions to identify and evaluate areas where there is potential for greater than 8-foot flame lengths to be created as well as crowning and torching potential;
- Evaluate all areas with the potential for crown fires, torching, and ember production and throw (typically eucalyptus and pine groves);
- Identify locations of values-at-risk and high-value facilities within the Study Area;
- Identify Strategic Fire Routes;
- Coordinate and verify RTAs through site visits conducted in conjunction with EBRPD Fire Department, Stewardship, and Operations staff and the project team.

Criteria used in the fire behavior models to identify and designate high-hazard areas consisted of the following:

- Predicted flame length
- Spotting potential
- Proximity to structures both inside and outside the District boundaries
- Position of spotting hazards on slopes.

All fire behavior predictions are assumed to be under Diablo wind conditions with extremely hot, dry weather. Proximity to major evacuation routes was an additional consideration. Figure 1 shows how the wildfire assessment methodology was applied to evaluate and identify areas of high fire hazards.

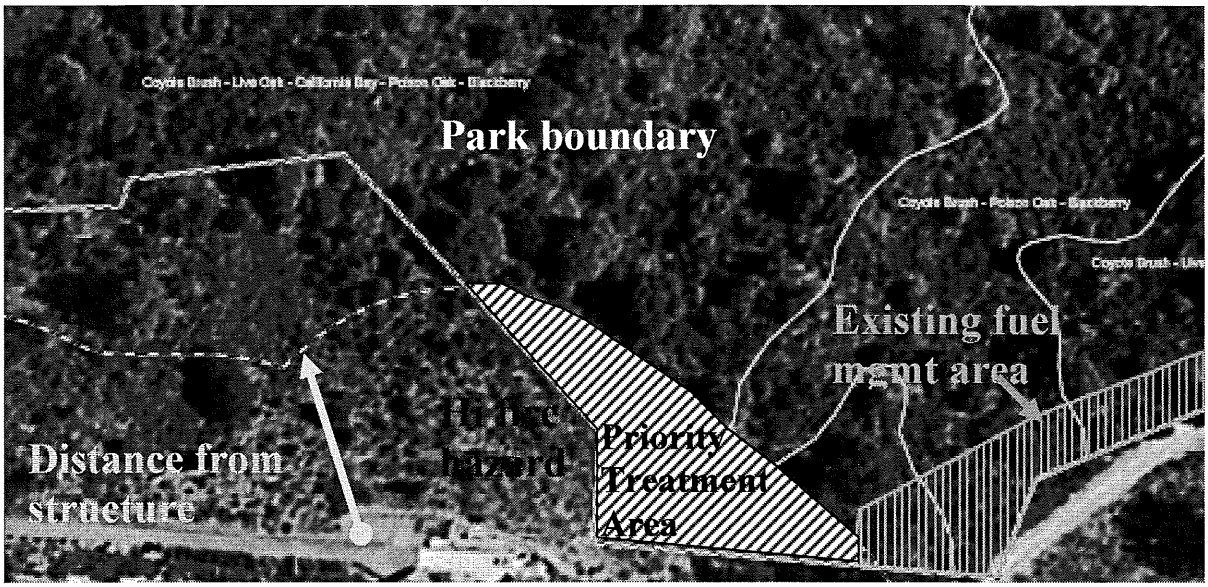


Figure 1: Application of Methodology Identifying High Fire Hazard

1. Fire Behavior Modeling

Most fire hazard assessments center on three main factors—fuels, weather, and topography—although elevation and fire history can also be included. Fire behavior results from the combination of these three factors, and predictions of fire behavior can use these factors to identify where containment areas may be most effective and where access may be precluded during a fire. Fire behavior outputs also can warn where natural resources may be unduly harmed by a wildfire and where it may be inconsequential to natural resources.

The FlamMap fire behavior prediction model was used for this wildfire hazard assessment. FlamMap is an updated version of the BEHAVE-type model outputs of the fire behavior prediction system and was used to assess current relative hazards throughout the Study Area.

FlamMap Development, Inputs and Assumptions

FlamMap is a computerized fuel and fire behavior prediction model developed by the USDA Forest Service at the Intermountain Forest Fire Research Laboratory. Heat transfer formulae in FlamMap are based on the software program BEHAVE, used in wildfire behavior prediction since the 1970s.

FlamMap allows prediction of fire behavior on a spatial basis, portraying the locations of various flame lengths, heat release, and rates of spread along with predicted types of fire (e.g., crown fire, surface fire, or a fire that torches trees).

FlamMap uses known data to describe the terrain, weather, and fuels on the site. In order to correctly model a fire, a number of data themes must be developed for the FlamMap program, including slope,

elevation, aspect, fuel model, tree height, height to live tree canopy base, tree crown density, weather, and wind speed and direction. Information in Appendix A includes the FlamMap input files and assumptions: units of measurement, sources of information, and effects of each input on fire behavior prediction. Burning characteristics associated with each fuel model are also described, including the general rate of fire spread, range of fire intensity, and the strata in which the fire burns. Weather inputs used for the fire behavior modeling include values for the temperature and relative humidity as well as the time of day in which the minimum and maximum values of both measurements occur. Hourly observations of wind speed and direction and presented, as are the fuel characteristics assigned to each vegetation type. The surface fuel model number, along with estimates for tree height, height to live crown base, and canopy cover are also presented. Appendices B and C include descriptions of fire behavior for the fuel models used in this WHA and the weather inputs used for the WHA's FlamMap simulations, respectively.

FlamMap Outputs

Two factors—flame length and crowning activity—are particularly important for prioritizing locations of high fire hazard. Flame length is often correlated to the ability to control a fire. A flame length of eight feet is typically used as a cut-off point for strategic firefighting decisions on whether to attack the fire directly or to attempt control through indirect methods. Attacking the fire directly involves efforts to slow the flaming front at its head – where it is advancing fastest. Indirect attack involves fire control methods on the fire's flank or well ahead of the fire (i.e., using backfires or retardants).

High flame lengths bear significant correlation to structural damage. Fire intensity, as determined by flame length, was determined to be the most important factor in many studies of structural damage from fire. Flame lengths are often used as a proxy for fire intensity because they are highly correlated to fire intensity.

Crowning activity indicates locations where fire is expected to travel into and possibly consume tree crowns. When a fire burns through tree crowns, countless embers are produced and are distributed, sometimes at long distances. These embers can start new fires, which can each grow and confound fire suppression activities. Hot fires can also create embers that loft ahead of the flaming front, igniting new fires called "spot fires". "Spotting potential" and "crowning potential" describe the propensity of vegetation to create and disburse embers that have the potential to start numerous new fires well in advance of the main fire.

Flame lengths that are greater than eight feet are especially important when nearer to high values at risk. Fire control is likely to be attempted nearest the structures, so a flame length below eight feet can be most effective in aiding fire control attempts. Additionally, reducing fire intensity nearest the structure also increases chances the structure will escape damage from fire. By contrast, areas further away from values at risk and away from strategic control locations may experience higher flame

lengths with lesser impact because the vegetation itself is adapted to fire of similar intensity, and less potential for damage to values at risk exists. It should be noted that not all areas with the potential for high flame lengths can be cost-effectively treated with minimal effects to the environment.

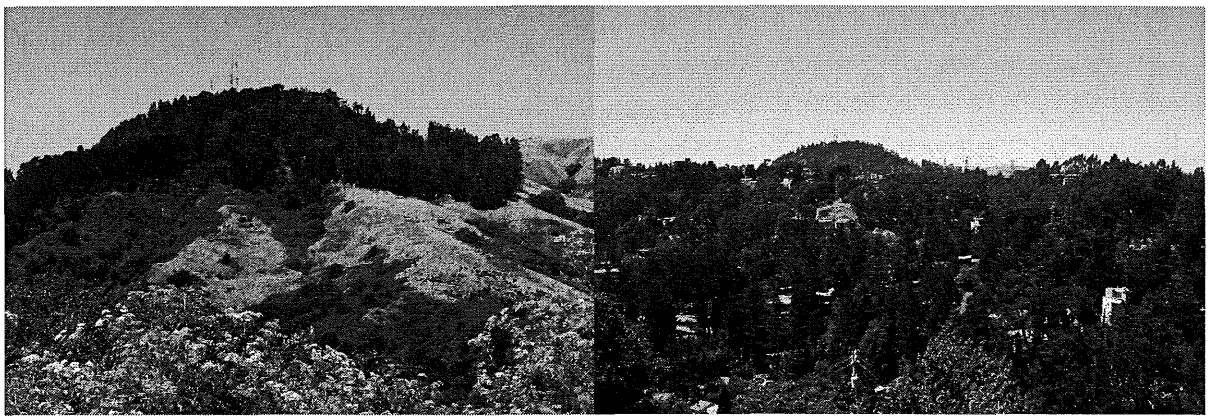
Within the Study Area's Hillside parks, approximately 357 acres of park land are located within 200 feet of structures outside EBRPD's jurisdiction; locations within this 357 acres in which flame lengths are predicted to have flames longer than eight feet were determined to be of high hazard.

2. Ember-Production Risk Assessment

Hazard assessment within pine and eucalyptus groves focused on ember production and distribution of these firebrands to values at risk – particularly structures along the western edges of park lands. The assessment considered the position of these pine and eucalyptus groves on slopes, their distance from structures, their elevation in relation to structures, and those groves larger than ½-acre in size. Figure 2 illustrates factors used to evaluate ember-producing tree stands.

- Ridgetop/Valley: Because it is much easier for crown fires to loft embers a long distance when the fire occurs at the top of a hill rather than down in a valley, ember-producing stands such as pine and eucalyptus were examined to determine whether they stood within 100 feet in elevation from ridgetops. By contrast, such stands in valley bottoms are less hazardous with respect to ember production and distribution.
- Torching: FlamMap outputs for crown fire prediction were used as the basis of for considering torching potential. The proportion of the stand predicted to torch was used as a factor in the determination of wildfire hazard. Overall, approximately 20 percent of RTAs in areas predominated by eucalyptus stands were predicted to torch.
- Proximity to Homes: While eucalyptus—and to a lesser extent, pine trees—have been known to deposit burning embers miles away, the closer the structure is to any ember producer, the greater the risk of starting fires. Stands within 500 feet of structures were determined to be more hazardous than those further away.

As with areas of high flame length, not all the areas of high ember production or spotting potential can reasonably be treated without significant cost or environmental concerns. For those areas of high spotting potential, position on the slope greatly influences how far embers can be cast; therefore, this aspect factors into prioritizing treatment areas. Embers originating on the top of a slope can travel farther than embers lofted from a valley floor. Approximately 1,115 acres were considered to have a high potential for crown fire production and ember throw in the Study Area.



These two photographs illustrate factors considered in the analysis of eucalyptus groves. The peak of Round Top (left, and right rear) is covered with eucalyptus stands several hundred feet above homes west of Skyline Blvd. and would be vulnerable to ignition from embers under Diablo wind conditions.

3. Fire Professional Judgment

Fire behavior models are best used in conjunction with professional expertise. This different perspective buffers any faulty assumptions or biases the model might resulting from variations in model inputs, and offers a level of ground-truthing to the assessment of potential fire hazards. As part of this assessment EBRPD staff and local vegetation and fire protection experts were consulted regarding the values to be used when defining fuel characteristics based on the structure and growth patterns of various vegetation types present.

4. Strategic Fire Routes

Strategic Fire Routes to facilitate and support emergency access as well as evacuation during an emergency incident were determined based on the professional knowledge, expertise, and field review and validation of Park Supervisors, Park Unit Managers, the EBRPD Fire Chief, and the Chief of Park Operations. As part of the annual review and update of the Plan, EBRPD staff will continuously review and revise the strategic fire routes map as necessary in response to changing conditions.

5. Site Confirmation

Areas of potential high fire hazard in each park were visited to confirm information included on the WHA Map; photographs of each location were taken to document existing conditions. Based on site-specific conditions seen during these site visits, the information displayed on the WHA Map was either verified or updated to reflect existing conditions, and boundaries of hazard areas were further delineated. Confirmation of the hazard assessment was performed by EBRPD staff and local fire protection and vegetation experts; as the planning process for this Plan was executed, additional confirmation of existing conditions onsite and the corollary information displayed on the WHA Map was conducted.

B. DESCRIPTION OF WILDFIRE HAZARDS IN THE STUDY AREA

This section describes the potential wildfire hazards found within the Study Area that were used to determine RTAs for the Plan. The Draft WHA Map, as shown in Figure 3, displays the spatial distribution of locations that were assessed for potential flame lengths and crown fire activity. As noted previously, flame lengths are closely related to the vegetation types.

1. Vegetation Types with High Hazard Areas

The longest flame lengths are found in areas of north coastal scrub; the lowest are found in oak woodlands where no understory is present. Flame lengths in grasslands are high, but with regular treatment flame lengths are dramatically reduced. However, serpentine grasslands are assumed to produce low flame lengths even without treatment.

2. Locations of Crown Fire Activity and Torching

There are many locations where the potential for crown fire activity is significant; these areas generally have dense canopies of eucalyptus or pines with concentrations of understory vegetation. Each patch of vegetation with the potential for active crown fires is less than 10 acres.

Areas of possible torching, where flames involve the tree crown but fire does not spread from crown to crown, are more common and generally result from an accumulation of understory vegetation and low-hanging branches. By contrast, crown fires spread from tree canopy to tree canopy and require dense overstory vegetation to perpetuate the fire.

3. Areal Extent of High Fire Hazard Areas

Only 7.5 percent of vegetated areas within the Hillside parks are predicted to produce flame lengths longer than 8 feet, with the majority of the Hillside parks predicted to generate flames less than 8 feet in length. In the Shoreline parks only 13 percent of the total vegetated areas are expected to produce flames of 8 feet or longer.

The total area where active crown fire potential exists was less than one percent in the Hillside parks, and slightly more than one percent for the Shoreline parks. However, the acres covered by vegetation expected to torch during wildfires that occur under high fire danger conditions is considerably greater, covering approximately 20 percent of the Hillside parks and 13 percent of the Shoreline parks.

4. Characteristics of Ember-Producing Areas

A total of 1,507 acres of eucalyptus and pine stands were determined to be of high hazard, based on a variety of characteristics, including crown fire potential, distance from structures, and position on the slope. Of the 1,507 acres, approximately 74 percent were predicted to have a high crown fire potential, and 82 percent were located on ridgetops. Some of these areas are also located within 200 feet of structures and/or have the potential to produce flame lengths greater than 8 feet. Areas with a high potential for long-range ember production and distribution were located in all of the parks with the exception of Temescal, Pt. Pinole, and Sobrante Ridge. Tables 1 and 2 list the distance and distribution, respectively, of high hazard ember-producing stands in the Study Area as well as the approximate total acreages of these areas in each park.

Table 1: Distribution of High-Hazard Ember Producing Tree Stands

Park	Acres
Chabot	805
Claremont Canyon	17
Huckleberry	3
Kennedy Grove	5
Lake Chabot	58
Leona	0
Miller-Knox	3
Pt. Pinole	0
Redwood	105
Sibley	84
Sobrante Ridge	0
Temescal	0
Tilden	396
Wildcat	38

Source: East Bay Regional Park District. 2007. File "Ebhil_06.dbf" dated 11-1-07.

Firebrands have been known to ignite new fires well over one mile from their source. More firebrands are distributed in shorter distances from the source, making the distance from an ember-producing stand an important factor in hazard identification. Approximately 25 percent of the high hazard ember-producing areas are within 500 feet of structures outside EBRPD lands; approximately 75 percent of the areas are within ½ mile of structures outside EBRPD lands.

Table 2: Distance of High-Hazard Ember Producing Tree Stands from Structures

Distance of Stands to Structures Acres	
Stand w/in 500 ft of structures	410
Stand 500 - 1000 ft of structures	86
Stand 1000 – ¼ mile of structures	189
Stand ¼ - ½ mile of structures	438
Stand ½ -1 mile of structures	198
Stand great than 1 mile from structures	186

Source: Wildland Resource Management, Inc. 2007. East Bay Regional
Park District. 2007.
File "Ebhil_06.dbf" dated 11-1-07.

5. Discontinuity of High Fire Hazard Areas

Areas of long flame length are not continuous along the western borders of the Hillside parks because of previous maintenance work undertaken by EBRPD and because some areas, such as oak/bay woodlands with sparse understory or irrigated landscapes such as golf courses, are inherently low hazard. Areas of predicted crown fire activity are predominantly discontinuous and positioned inside areas of increased torching potential and where flame lengths are greater than 8 feet. The greatest concentration of predicted active crown fire occurs in the eucalyptus groves in Lake Chabot Park. Other areas of predicted active crown fire are located along Inspiration Point, north and east of the Nature Center in Tilden Park, and on the western slope of Miller Knox south of the Corporation Yard.

Areas of torching are more widespread, but are located in the same vicinity as areas of predicted crown fire spread. Areas predicted to produce long flame lengths were also discontinuous in nature.

C. METHODS USED TO DETERMINE RECOMMENDED TREATMENT AREAS

While the Wildfire Hazard Assessment identified primarily areas of high hazard, additional considerations were incorporated into the process of selecting and mapping Recommended Treatment Areas (RTAs) for fuel reduction and vegetation management activities to be undertaken by EBRPD. These considerations include whether an area may be rated as lower in relative hazard but is expected to become a high hazard area without continuing action or initial treatment. In other areas, hazards may not be sufficient to warrant ranking as a high hazard area, but an immediate need for defensible space would be required and maintained according to applicable regulations and to protect some facilities that are deemed irreplaceable. Another situation that would require treatment regardless of its existing hazard rating is the installation of potential safety zones to serve as firefighter refuges during fire suppression operations.

The process for determining which areas were selected as RTAs involved the following tasks:

- Include areas identified in the WHA as requiring treatment (i.e., areas of high flame length within 200 feet of the western boundary and areas of high ember production and distribution). The western boundary of the Hillside parks, which contains the dominant portion of the wildland-urban interface in the Study Area, was determined to be the location where the greatest values at risk are exposed during Diablo wind conditions that coincide with high fire danger.
- Identify values within the Study Area that require development and maintenance of defensible space (Park District facilities at risk).
- Identify areas for potential use as firefighter safety and refuge during suppression activities (safety zones), or areas critical for firefighting operations aimed at fire containment.
- Identify and evaluate areas where fuel modification activities have previously taken place and must be continued to maintain fire-safe conditions.
- Coordinate and ground-truth potential treatment areas with the EBRPD Fire Department, Stewardship, and Operations staff and the project team.
- Identify and evaluate where fuel modification activities are proposed (FEMA plan).
- Assess onsite conditions to confirm FlamMap models and fuel conditions for vegetation types present.

The factors considered in identifying and mapping the RTAs are described below. Information within this section is based on available information including EBRPD staff reports, meetings with EBRPD staff, published reports, and site reconnaissance. The Polygon Justification section in Appendix E

details specific reasons why RTAs were selected. Appendix F provides the amount of each vegetation type (greater than 0.1 acres) for each RTA.

1. Areas of High Wildfire Hazard

See the information provided in Section A. Methods Used to Assess Wildfire Hazard above.

2. Firefighting Safety and Operations

Safety zones may be used in times of fire suppression as a place of refuge during unexpected fire behavior or unanticipated changes in operations. The location of six safety zones were identified in Redwood and Anthony Chabot parks. Safety zones were located at the intersections of fire roads and in areas of moderate to low hazard.

Several locations were identified that are critical to firefighting efforts in containing a wildfire spreading under Diablo wind conditions. These strategic locations area generally situated at ridgelines between major watersheds or on spur ridgelines where containment efforts could reduce fire spread towards residential neighborhoods.

3. Facilities at Risk

A 200-foot buffer was identified around facilities at risk (shown in Table 3) that were identified by EBRPD as highly valued. Facilities were considered to be at high fire risk when flame lengths inside or adjacent to the 200-foot buffer around the facility were modeled at 8 feet or longer. Only those facilities that were highly valued and those at high fire risk were identified as RTAs, with one exception. A residence, irrespective of the risk it currently faced, was identified as an RTA because of potential life-safety concerns.

4. Locations of Previous Fuel Modification Activities

Where fuel modification activities have previously taken place, continued maintenance must typically be performed to maintain fire-safe conditions. Despite previous work, in some locations high flame lengths are predicted due to vegetation types present and the nature of fuels treatment activities previously performed. In these circumstances, new methods or a new interval between treatments may be recommended. Based on the wildfire hazard assessment, areas where previous vegetation management activities have created a self-sustaining fire-safe condition (i.e., where maintenance is not necessary) were also identified for future monitoring and treatment, if needed.

Table 3: Developed Facilities in the Study Area[a]

Facility	Facility Type	RTA	Facility at Risk?
Kennedy Grove Regional Recreation Area			
Fem Cottage	Building	KG003	✓
Kennedy Grove Park Office & Service Yard	Building	KG003	✓
Wildcat Canyon Regional Park			
Alvarado Office/Service Yard	Building	WC005	✓
Tilden Regional Park			
Wildcat View Group Shelter (WCC)	Camp	TI002a	✓
EEC Complex and Residence	Building	TI002a	✓
New Woodland Camp Shelter	Camp	TI002a	✓
Merry-Go-Round Complex/Residence & MGR Bathroom	Building	TI008b	✓
Tilden Corp Yard and Residence	Building	TI015	✓
GGLS Clubhouse/Train Facilities	Building	TI015	✓
Steam Trains Bathroom/Roundhouse & Facilities	Building	TI015	✓
Botanic Garden	Garden	TI021	✓
Pony Ride Complex	Equestrian		
Lake Anza Complex/Concession/Residence	Building		
Brazil Building and Residence	Building		
Tilden Golf Course Facility	Building		
Tilden Golf Course Maintenance Structures	Building		
Gillespie Group Camp	Camp		
Claremont Canyon Regional Preserve			
Gelston Street Field Offices/Park Office	Building	CC008	✓
Temescal Regional Recreation Area			
Temescal Bathing Facility	Bath House	TM001	✓
Temescal Park Office and Restrooms	Building		
Sibley Volcanic Regional Preserve			
Park Residence	Building	SR005	✓
Sibley Visitors Center	Building	SR005	✓
Sibley Office/Shop/Park Residence	Building		
Redwood Regional Park			
Redwood Skyline Gate Residence	Building	RD001	✓
Girls' Camp Shelter & Picnic Area	Camp	RD003	✓
Archery Range	Building	RD005b	✓
Redwood Bowl Residence	Building	RD005b	✓
Park Residence	Building	RD006	✓
Park Office	Building	RD006	✓
Concession, Swim Complex	Building	RD006	✓
Trudeau Center	Building	RD008	✓
Stable	Equestrian	RD009	✓
Redwood Stables Residence	Building	RD009	✓
Redwood Schoolhouse	Building	RD010	✓
Fire Station #2	Building	RD010	✓
Chabot Space and Science Center	Building		
Redwood Park Entrance Residence	Building		
Office/Garage/Service Yard	Building		
Anthony Chabot Regional Park			
Chabot Equestrian Center	Equestrian	AC007	✓
Marksmanship Water Tank	Water Tank	AC010	✓
Group Camp - Hawk Ridge Shelter	Camp	AC0ll	✓
Skyline Ranch Stables	Equestrian		
Marksman Range, Residence, Office	Building		
Service Yard, Park Residence, Kiosk	Building		
Willow Park Golf Course Structure	Building		

Table 3 *Continued*

Facility	Facility Type	RTA	Facility at Risk?
Anthony Chabot Re2ional Park			
Public Safety HQ, Nike Classroom and Park Office	Building		
Lake Chabot Residence/Marina/Cafe	Building		
South County Yard	Building		
Point Pinole Regional Shoreline			
Point Pinole Park Office & Corporate Yard	Building		
Miller/Know Regional Shoreline			
Golden State Railroad Museum & Park Office	Building		

[a] Facilities outside of RTAs have not been further evaluated in this Plan.
Source: East Bay Regional Park District, 2008. Various GIS files, 10-22-08.

5. Site Confirmation

RTAs in each park were visited and photographed to confirm mapping and record vegetation types currently onsite. Based on site-specific conditions seen during these site visits, the information displayed on the WHA Map was either verified or updated to reflect existing conditions, and boundaries of hazard areas were further delineated. Confirmation of the hazard assessment was performed by EBRPD staff and local fire protection and vegetation experts; as the planning process for this Plan was executed, additional confirmation of existing conditions onsite and the corollary information displayed on the WHA Map was conducted.

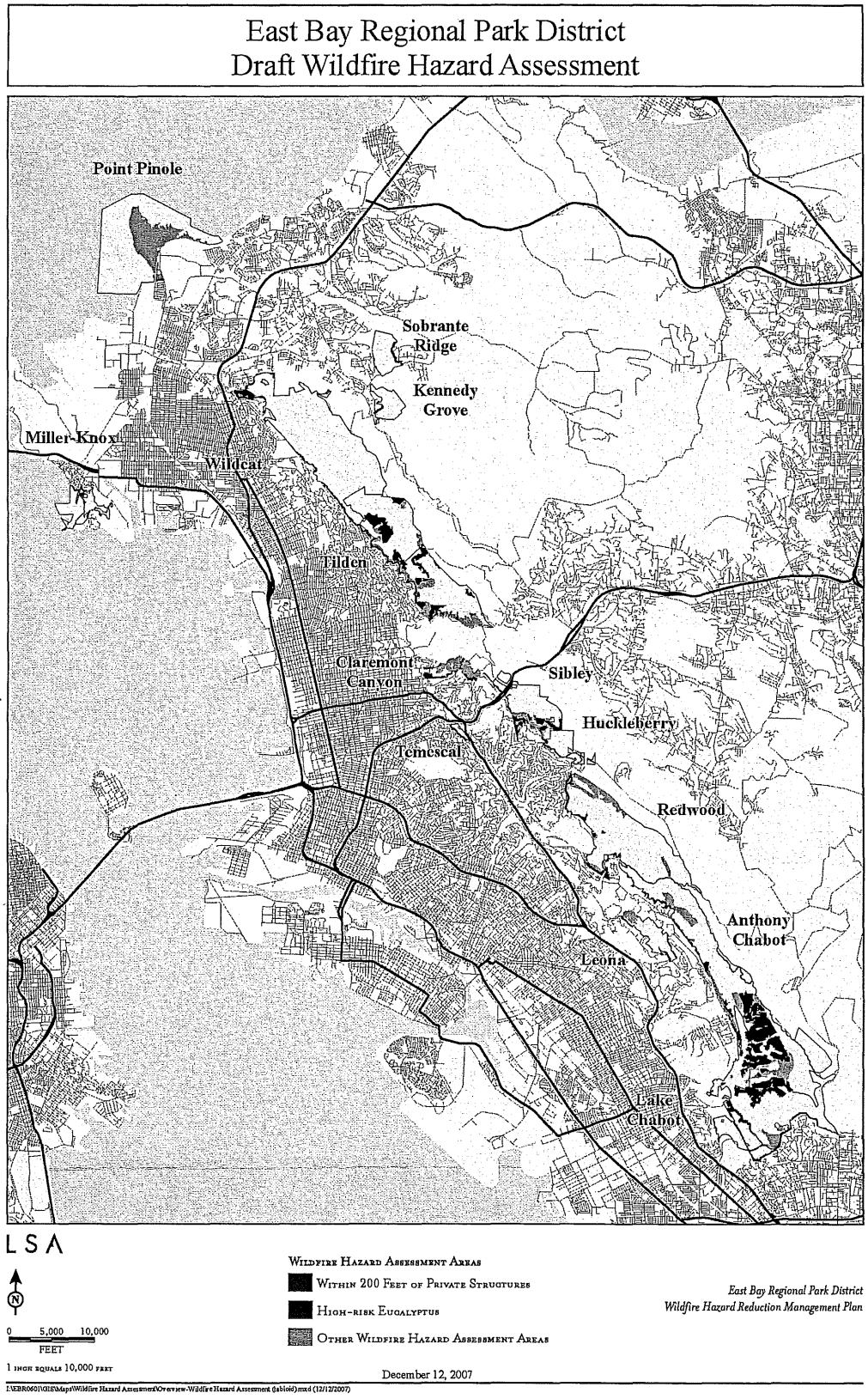


Figure 2: Draft Wildlife Hazard Assessment Map

This page intentionally left blank.

APPENDIX A: FLAMMAP INPUT FILES AND ASSUMPTIONS

To model fire behavior a number of data themes must be developed for the FLAMMAP program. These include:

Elevation: Measured in feet above sea level. This is necessary for adiabatic adjustment of temperature and humidity between elevations and for conversion of fire spread between horizontal and slope distances
Source: USGS digital elevation models

Slope: Percent of inclination from the horizontal. Slope is used to compute steepness effects on fire spread and solar irradiance.
Source: USGS digital elevation models

Aspect: Azimuth values degree clockwise from north. Aspect is used to compute effects on fire spread and solar irradiance.
Source: USGS digital elevation models

Fuel Model: Fuel models, organized and described as Fire Behavior Prediction System in terms of fuel volume, structure, and chemistry. Fuel types were determined using a set of decision rules that translate vegetation to fuel types. This approach was preferred over using state-wide fuels map developed by CDF (available from the internet) because the state-wide map was deemed less accurate. The vegetation was mapped by EBRPD staff, updated in 2006. Approximately 300 vegetation types were mapped, with details noted regarding understory and overstory dominance of various species present. See Appendix A for a description of the Fire Behavior for the fuel models selected.
Source: Aerial photography, botanical field surveys, translation from vegetation maps, expert opinion

Canopy Cover: Canopy cover is necessary to compute shading and wind reduction factors. Was determined by the 2006 vegetation type map and adjusted by field observations and/or expert opinion.
Source: Aerial photography, botanical field surveys, translation from vegetation maps, expert opinion

Tree Height: Tree height is used to compute spotting distance and crown fire characteristics. Was determined by the 2006 vegetation type map and adjusted by field observations and/or expert opinion.
Source: Aerial photography, botanical field surveys, translation from vegetation maps, expert opinion

Crown Base Height, or Height to Live Canopy: Crown base height is an important parameter for determining the transition from surface fire to crown fire. This value incorporates the effects of ladder fuels in increasing vertical continuity and assisting transition to crown fire. Was determined by the 2006 vegetation type map and adjusted by field observations and/or expert opinion.
Source: Aerial photography, botanical field surveys, translation from vegetation maps, expert opinion

Weather: Weather is important to determine environmental conditions during the simulation. The weather data theme describes the maximum and minimum temperature and relative humidity, and the time in which the maximum and minimum temperature occurs in order to dry and moisten fuels accordingly. Weather data was collected for a 10-year period; the actual observations for October 23-28, 2003 were used for the simulation. The weather observed on these days is among the driest in the previous 10 years.
Source: Oakland North remote automated weather station, located near Grizzly Peak and Marlborough Terrace in Oakland, above Gwin Canyon.

Wind: Wind provides a heat transfer mechanism and influences the direction of fire spread. The wind data theme describes the wind speed and direction every hour throughout the simulation. Weather data was collected for a 10-year period; the actual observations for October 23-28, 2003 were used for the simulation. The wind speed observed on these days is among the windiest in the previous 10 years. The direction of the wind was consistent with a long-term Diablo Wind event.
Source: Oakland North remote automated weather station

FLAMMAP and FARSITE Inputs Files

The following discussion describes files used as inputs to the wildfire simulation program, FARSITE. These consist of:

1. ***conversion files*** (*.cnv), where the fuel model specified in the spatial categorization of fuels is changed to another fuel model, or a custom fuel model.
2. ***adjustment files***, where the rates of spread for each fuel model are adjusted to account for the inherent over-prediction of spread rates by the heat transfer models,
3. ***custom fuel models*** (*.fmd) where fuels are defined that are not part of the standard fuel models (such as grazed grass, or an interpretation of mature landscaping),
4. ***fuel moisture files*** (*.fms), where for each fuel model, the initial fuel moisture for each size class of fuels is defined for each fuel model. The moisture content of live woody fuels and live herbaceous fuels are similarly defined for each fuel model.

In all files, the format follows that required by the FARSITE version 4.0, 1997, by Mark A. Finney. FARSITE is available from Systems for Environmental Management, PO Box 8868, Missoula, MT, 59807, or from www.fire.org/tools.

Conversion file
No conversion files were used.

Adjustment file
An adjustment factor of .4 was selected for both fuel models because the spread of unadjusted simulations appeared to be unrealistic. The fire behavior prediction model assumes a steady and constant wind speed which would produce a fire with optimum spread rates. In reality, wind speeds fluctuate, causing fire spread to stop, and requires re-acceleration. Thus the spread of fire routinely is over-predicted. The wind speeds were less than 20 miles per hour, and while quite windy, could not merit a higher adjustment factor. All fuel models were assigned an adjustment factor of 0.4.

Custom Fuel Model file
Many custom fuel models were used to portray with more accuracy the types of fuel models found on the site. In all cases these custom fuel models used a standard fuel model as a base; the value of only one parameter was changed. In cases where especially flammable vegetation was

present (eucalyptus and pines), the heat content of the dead and live fuel was raised. In cases where the foliage was expected to be more moist, the initial fuel moisture of the living material was raised.

	Standard Fuel Model	New Custom Fuel Model
Moist fuel models	1	61
Moist fuel models	2	20
Moist fuel models	3	30
Moist fuel models	4	40
Moist fuel models	6	60
Moist fuel models	5	50
Moist fuel models	8	80
Oily Fuels	1	14
Oily Fuels	2	15
Oily Fuels	5	16
Oily Fuels	6	17
Oily Fuels	8	18
Oily Fuels	9	19
Oily Fuels	10	21

Fuel Moisture file

This file specifies the moisture in the fuels of various sizes, and specifies how much moisture is in leaves as well. The weather files then dry out or add moisture depending on ambient conditions. The first column is the fuel model number, the remaining columns are moistures by size class and live material. These values were taken from a range of moistures monitored throughout the state for the last 20 years.

This page intentionally left blank.

APPENDIX B: DESCRIPTIONS OF FIRE BEHAVIOR FOR FUEL MODELS

From: Anderson, Hal E; Aids to Determining Fuel Models for Estimating Fire Behavior. Gen. Tech Report INT-122, 1982, and Rothermel, Richard C. How to predict the Spread and Intensity of Forest and Range Fires, Gen. Tech. Report INT-143.

FUEL MODEL 1: GRASS AND CUSTOM FUEL MODEL OF GRAZED GRASS. Primary carrier of the fire is grass. Expected rate of spread in ungrazed grass is moderate to high, with low to moderate fireline intensity (flame length). Fires are surface fires that move rapidly through cured grass and associated material. Grazed grass produces significantly lower flame lengths and spreads slower by one-quarter to one-half the rate.

The entire fuel volume, estimated to range between .75 and 3 tons/acre consists of fine fuels, (<.25 inches in diameter). The fuel bed depth is expected to be the approximate height of the grass, or one foot tall.

FUEL MODEL 2: (Savannas and Forest & Grass) Primary carrier of the fire is shrub or litter beneath the shrub. Expected rate of spread and fireline intensities are moderate to high. Fire spread is through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, besides litter and dead-down stemwood from the open shrub or timber overstory, contribute to fire intensity.

Of the total 4 tons/acre fuel loading in Savannas, one-half, or 2 tons/acre, is found in fine fuels (<.25 inches in diameter). Twigs from .25 inches to one inch in diameter comprise 1 ton/acre; larger branches from 1 to 3 inches in diameter represent .5 tons/acre. Live foliage also comprises .5 tons/acre. The fuel bed depth is expected to be the approximate height of the grass, or one foot tall.

FUEL MODEL 4: (Chaparral) Fire intensity and fast-spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary overstory. Stands of mature shrub, 6 or more feet tall, such as California mixed chaparral...are typical candidates. Besides flammable foliage, there is dead woody material in the stand that significantly contributes to the fire intensity. Height of stands qualifying for this model depends on local conditions. There may be also a deep litter layer that confounds suppression efforts.

This fuel model has a large portion of fuel as foliage in the canopy. The fuel loading by size class follows: Fine dead fuels (<.25 inch diameter) represents 5.01 tons per acre. Fuels which are .25 - 1.00 inches in diameter total 4.01 tons/acre, and fuels between 1 to 3 inches in diameter total 2.00 tons per acre. Live herbaceous fuels are not a significant component in this fuel model, however live woody fuels constitute 5.01 tons per acre of fuel. The total loading of fuel exceeds that of fuel model 9, over 16 tons/acre.

FUEL MODEL 5: (Coastal Scrub) Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs, and the grasses or forbs in the understory. The fires are generally not very intense because surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Fuel loads are less than 5.5 tons per acre, with almost one-half in twig-sized fuels and live fuels. The FBPS notes that shrubs are not very tall, but typically scrub in the District is to 10 feet tall.

FUEL MODEL 6: (Riparian Woodland) Fire carries through the shrub layer where the foliage is more flammable than fuel model 5, but requires moderate winds, greater than 8 mi/hr at midflame height. Fire will drop to the ground at low windspeeds or openings in the stand. The shrubs are older, but not as tall as shrub types of model 4, nor do they contain as much fuel as fuel model 4. A broad

range of shrub conditions is covered by this model. Fuel situations to consider include intermediate-aged stands of chamise, chaparral, and oak brush.

FUEL MODEL 8: (Oak Forest) Slow burning ground fires with low flame heights are generally the case, although an occasional "jackpot" or heavy fuel concentration may cause a flare up. Only under severe weather conditions involving high temperatures, low humidities and high wind do the fuels pose fire hazards. A compact litter layer (composed of needles, leaves, and some twigs) supports fire, since little undergrowth is present in the stand.

The total fuel load of the Oak Forest is 5 tons/acre, with one-half of the volume consisting of material one to three inches in diameter. 1.5 tons/acre is found in fine dead fuels (<.25 inch diameter). Fuels which are .25 - 1.00 inches in diameter total 1 ton/acre. Live herbaceous and live woody fuels are not a significant component of this fuel model. While the forest height may be greater than 40 ft, the fuel bed height is considered .2 ft, or under 2.5 inches.

FUEL MODEL 9: (Mixed Hardwood) Fire runs through the surface litter faster than model 8 and has a higher flame height. Both long-needle conifer and hardwood stands...are typical. Fall fires in hardwoods are representative, but high winds will actually cause higher rates of spread than predicted. This is due to spotting caused by rolling and blowing leaves. Closed stands of long-needled pine like ponderosa, Jeffrey, and red pines ...are grouped in this model. Concentrations of dead-down woody material will contribute to possible torching out of trees, spotting, and crowning.

FUEL MODEL 10: (Redwood Forest) The fires burn in the surface and ground fuels with greater fire intensity than the other timber litter models. Dead down fuels include greater quantities of 3-inch or larger limbwood resulting from over-maturity or natural events than create a large load of dead material on the forest floor. Crowning out, spotting, and torching of individual trees is more frequent in this fuel situation, leading to potential fire control difficulties. Any forest type may be considered if heavy down material is present; for example, insect- or disease-ridden stands, wind-thrown stands, over-mature stands with deadfall, and aged slash from light thinning or partial cutting.

The following table identifies 13 standard fuel models. These fuel models were identified by Hal E. Anderson in *Aids to Determining Fuel Models for Estimating Fire Behavior. Gen. Tech Report INT-122, 1982* and Richard C. Rothermel in *How to predict the Spread and Intensity of Forest and Range Fires, Gen. Tech. Report INT-143*. T/A indicates tons per acre. 1-H is an abbreviation for fuels smaller than ¼ inch in diameter. 10-H, for fuels ¼ - 1 inch in diameter, 100-H for fuels 1 – 3 inches in diameter. "Live" indicates living herbaceous fuels, and "woody" indicates foliar fuels of woody shrubs. Fuel Bed Depth is the height above ground in which the fuel is distributed. The moisture of extinction is the amount of dryness at which fire will not be sustained. ROS is Rate of fire spread, and FL is flame length.

Table 1: Description of Fuel Models

Fuel Model	Typical Fuel Complex	Fuel Loading (T/A)				Fuel Bed Depth (ft)	Moist. of Extinction Dead Fuels(%)	ROS* ch/h	FL* (ft)
		1-H	10-H	100-H	Live				
1	Short Grass	0.74	0	0	0	1	12	78	4
2	Timber	2	1	0.5	0.5	1	15	35	6
3	Tall Grass	3.01	0	0	0	2.5	25	104	12
4	Chaparral	5.01	4.01	2	5.01	6	20	75	19
5	Brush	1	0.5	0	2	2	20	18	4
6	Dormant brush	1.5	2.5	2	0	2.5	25	32	6
7	Southern Rough	1.13	1.87	1.5	0.37	2.5	40	20	5
8	Closed Timber Litter	1.5	1	2.5	0	0.2	30	2	1
9	Hardwood Litter	2.92	0.41	0.15	0	0.2	25	8	3
10	Timber	3.01	2	5.01	2	1	25	8	5
11	Light Logging Slash	1.5	4.51	5.51	0	1	15	6	4
12	Medium Logging Slash	4.01	14.03	16.53	0	2.3	20	13	8
13	Heavy Logging Slash	7.01	23.04	28.05	0	3	25	14	11

*ROS and FL are represented under a fine dead fuel moisture of 8%, a midflame windspeed of 5 mi/h, and live fuel moisture, if present, of 100% (Anderson, 1982).

This page intentionally left blank.

APPENDIX C: WEATHER INPUTS FOR FLAMMAP SIMULATIONS

October 23-28, 2003

Date	*ppt*	*time of min T*	*time of max T*	*min T*	*maxT*	*max RH*	*min RH*	*elev*
10 23	00	0100	1500	55	81	99	9	1500
10 24	00	0800	1500	64	79	23	10	1500
10 25	00	0600	1600	66	81	23	15	1500
10 26	00	2300	1400	67	84	23	15	1500
10 27	00	0100	1400	71	89	24	15	1500
10 28	00	2400	1100	71	88	26	15	1500
10 28	00	2400	1100	71	88	26	15	1500

Wind Data

Date time speed dir cloud cvr	Date time speed dir cloud cvr	Date time speed dir cloud cvr
10 23 0000 3 292 0	10 23 0000 3 292 0	10 24 0000 18 13 0
10 23 0100 6 332 0	10 23 0100 6 332 0	10 24 0100 18 23 0
10 23 0200 6 284 0	10 23 0200 6 284 0	10 24 0200 15 55 0
10 23 0300 5 210 0	10 23 0300 5 210 0	10 24 0300 15 57 0
10 23 0400 3 263 0	10 23 0400 3 263 0	10 24 0400 16 58 0
10 23 0500 4 234 0	10 23 0500 4 234 0	10 24 0500 18 52 0
10 23 0600 11 1 0	10 23 0600 11 1 0	10 24 0600 15 71 0
10 23 0700 11 53 0	10 23 0700 11 53 0	10 24 0700 17 56 0
10 23 0800 10 71 0	10 23 0800 10 71 0	10 24 0800 18 73 0
10 23 0900 14 54 0	10 23 0900 14 54 0	10 24 0900 16 51 0
10 23 1000 14 27 0	10 23 1000 14 27 0	10 24 1000 15 70 0
10 23 1100 18 37 0	10 23 1100 18 37 0	10 24 1100 12 62 0
10 23 1200 6 60 0	10 23 1200 6 60 0	10 24 1200 12 71 0
10 23 1300 6 25 0	10 23 1300 6 25 0	10 24 1300 7 52 0
10 23 1400 4 114 0	10 23 1400 4 114 0	10 24 1400 17 64 0
10 23 1500 7 324 0	10 23 1500 7 324 0	10 24 1500 16 66 0
10 23 1600 7 11 0	10 23 1600 7 11 0	10 24 1600 16 70 0
10 23 1700 3 241 0	10 23 1700 3 241 0	10 24 1700 10 30 0
10 23 1800 10 332 0	10 23 1800 10 332 0	10 24 1800 17 66 0
10 23 1900 14 357 0	10 23 1900 14 357 0	10 24 1900 16 52 0
10 23 2000 22 8 0	10 23 2000 22 8 0	10 24 2000 21 57 0
10 23 2100 20 9 0	10 23 2100 20 9 0	10 24 2100 20 63 0
10 23 2200 23 10 0	10 23 2200 23 10 0	10 24 2200 13 46 0
10 23 2300 23 8 0	10 23 2300 23 8 0	10 24 2300 20 58 0

Date time speed dir cloud cvr	Date time speed dir cloud cvr	Date time speed dir cloud cvr
10 25 0000 6 33 0	10 26 1700 2 287 0	10 28 1000 18 64 0
10 25 0100 7 57 0	10 26 1800 22 61 0	10 28 1100 8 18 0
10 25 0200 8 68 0	10 26 1900 25 65 0	10 28 1200 15 38 0
10 25 0300 11 62 0	10 26 2000 27 56 0	10 28 1300 26 48 0
10 25 0400 17 56 0	10 26 2100 26 57 0	10 28 1400 16 60 0
10 25 0500 15 57 0	10 26 2200 23 63 0	10 28 1500 4 211 0
10 25 0600 16 59 0	10 26 2300 23 61 0	10 28 1600 12 60 0
10 25 0700 20 52 0	10 27 0000 3 301 0	10 28 1700 3 342 0
10 25 0800 21 74 0	10 27 0100 16 35 0	10 28 1800 4 0 0
10 25 0900 22 70 0	10 27 0200 15 73 0	10 28 1900 26 41 0
10 25 1000 22 74 0	10 27 0300 4 321 0	10 28 2000 11 33 0
10 25 1100 24 62 0	10 27 0400 12 64 0	10 28 2100 7 39 0
10 25 1200 25 67 0	10 27 0500 8 83 0	10 28 2200 7 94 0
10 25 1300 24 59 0	10 27 0600 17 31 0	10 28 2300 2 159 0
10 25 1400 29 57 0	10 27 0700 13 52 0	
10 25 1500 28 63 0	10 27 0800 4 262 0	
10 25 1600 29 63 0	10 27 0900 4 296 0	
10 25 1700 25 58 0	10 27 1000 1 55 0	
10 25 1800 21 63 0	10 27 1100 4 277 0	
10 25 1900 28 56 0	10 27 1200 13 57 0	
10 25 2000 30 54 0	10 27 1300 6 97 0	
10 25 2100 29 41 0	10 27 1400 1 303 0	
10 25 2200 23 59 0	10 27 1500 3 255 0	
10 25 2300 19 64 0	10 27 1600 4 292 0	
10 26 0000 3 10 0	10 27 1700 9 59 0	
10 26 0100 11 67 0	10 27 1800 5 99 0	
10 26 0200 18 61 0	10 27 1900 2 289 0	
10 26 0300 11 71 0	10 27 2000 5 56 0	
10 26 0400 17 63 0	10 27 2100 5 101 0	
10 26 0500 7 77 0	10 27 2200 2 129 0	
10 26 0600 12 58 0	10 27 2300 3 145 0	
10 26 0700 23 49 0	10 28 0000 3 348 0	
10 26 0800 20 64 0	10 28 0100 14 63 0	
10 26 0900 6 36 0	10 28 0200 17 70 0	
10 26 1000 5 6 0	10 28 0300 16 62 0	
10 26 1100 25 57 0	10 28 0400 3 279 0	
10 26 1200 4 3 0	10 28 0500 4 208 0	
10 26 1300 3 331 0	10 28 0600 5 212 0	
10 26 1400 2 228 0	10 28 0700 4 311 0	
10 26 1500 20 65 0	10 28 0800 3 80 0	
10 26 1600 1 203 0	10 28 0900 18 49 0	

APPENDIX D: CROSSWALK FROM VEGETATION TO FUEL CHARACTERISTICS

Vegetation Type per NOTES	Old Fuel Model	Burgan & Scott Fuel Model	Tree Height (ft)	Height To Live Crown (ft)	Canopy Cover (category)
Acacia	6	182	20	6	4
Acacia - Palm - Live Oak - California Bay	8	182	40	6	4
Alder	**81**	**190**	**40**	**12**	**4**
Alvarado Staging Area - Live Oak - California Bay - Dense Bluegum Eucalyptus	8	182	100	6	3
Alvarado Staging Area - Paved parking	0	99	0	0	0
Annual Grassland	1	104	3	1	0
Annual Grassland	1	104	3	1	0
Annual Grassland - Artichoke Thistle	1	104	3	1	0
Annual Grassland - Broom	1	122	6	1	0
Annual Grassland - Coyote Brush	1	122	6	1	0
Annual Grassland - Coyote Brush	1	122	3	1	0
Annual Grassland - Coyote Brush - California Sage	1	122	6	1	0
Annual Grassland - Coyote Brush - Live Oak	1	122	40	1	1
Annual Grassland - Coyote Brush - Live Oak - California Bay	1	122	40	1	1
Annual Grassland - Coyote Brush - Poison Oak	1	122	6	1	0
Annual Grassland - Coyote Brush - Scattered Live Oak - Ca Bay	1	122	40	1	1
Annual Grassland - Coyote Brush - Scotch Broom	1	122	6	1	0
Annual Grassland - Coyote Brush 15.9.14	1	122	3	1	0
Annual Grassland - Dense Bluegum Eucalyptus	*14*	*111*	*100*	*1*	*2*
Annual Grassland - Dense Bluegum Eucalyptus - Coyote Brush	*5*	*166*	*100*	*1*	*3*
Annual Grassland - Dense Bluegum Eucalyptus - Live Oak - California Bay	*9*	*111*	*100*	*3*	*3*
Annual Grassland - Dense Bluegum Eucalyptus - Mixed Conifer	*14*	*127*	*100*	*6*	*1*
Annual Grassland - Dense Eucalyptus - Broom	*14*	*127*	*100*	*1*	*1*
Annual Grassland - Live Oak - California Bay	1	122	40	6	1
Annual Grassland - Live Oak - California Bay	1	122	40	6	1
Annual Grassland - Mixed Conifer - Live Oak - California Bay 15.23	1	164	100	6	1
Annual Grassland - Mixed Conifer - Live Oak - California Bay 23.14	9	111	80	6	3
Annual Grassland - Poison Oak	1	122	6	1	0
Annual Grassland - Poison Oak - Coyote Brush	1	122	6	1	0
Annual Grassland - Poison Oak - Live Oak	1	122	40	1	1
Annual Grassland - Steep Rock	1	121	1	1	0
Annual Grassland - Woodchips	1	101	1	1	0

APPENDIX D: CROSSWALK FROM VEGETATION TO FUEL CHARACTERISTICS

Vegetation Type per NOTES	Old Fuel Model	Burgan & Scott Fuel Model	Tree Height (ft)	Height To Live Crown (ft)	Canopy Cover (category)
Annual Grassland Nasella 10-30% cover	1	104	2	1	0
Annual Grassland Nasella pulchra	1	104	3	1	0
Artichoke Thistle	3	141	3	1	0
Blackberry	5	149	6	4	0
Blackberry - Coyote Brush	5	149	6	4	0
Blackberry - Coyote Brush - Live Oak - California Bay	5	149	40	1	1
Blackberry - Coyote Brush - Poison Oak	5	147	6	4	0
Blackberry - Live Oak - California Bay	5	186	40	4	1
Blackberry - Live Oak - California Bay - Broom	5	186	40	4	1
Blackberry - Poison Hemlock	5	148	6	1	0
Blackberry - Poison Oak - Coyote Brush	5	149	6	2	0
Bluegum Eucalyptus	*21*	*192*	*100*	*4*	*4*
Broom	6	149	6	2	0
Broom - Annual Grassland	6	122	6	2	0
Broom - Blackberry	6	149	6	2	0
Broom - Dense Bluegum Eucalyptus - Blackberry	*17*	*166*	*100*	*4*	*2*
Broom - Elderberry	**60**	**150**	**6**	**2**	**0**
Broom - Hemlock - Coyote Brush	6	149	6	2	0
Broom - Willow - Pine	**60**	**152**	**30**	**2**	**1**
California Bay	8	186	40	12	4
California Bay - Huckleberry	**60**	**152**	**40**	**6**	**4**
California Bay - Manzanita - Blackberry	4	162	40	2	3
California Bulrush	**30**	**126**	**3**	**1**	**0**
California Bulrush + Willows	**60**	**190**	**30**	**6**	**0**
California Sage	5	147	6	2	0
California Sage - Annual Grassland - Coyote Brush	5	147	6	2	0
California Sagebrush	5	147	6	2	0
Cattails	**60**	**110**	**6**	**2**	**0**
Children's play area	0	91	0	0	0
Clotbur + mud	**61**	**125**	**2**	**2**	**0**
Coast Live Oak - California bay	8	182	40	12	4
Coast Live Oak - California Bay - Coffeeberry	**80**	**182**	**40**	**6**	**4**

APPENDIX D: CROSSWALK FROM VEGETATION TO FUEL CHARACTERISTICS

Vegetation Type per NOTES	Old Fuel Model	Burgan & Scott Fuel Model	Tree Height (ft)	Height To Live Crown (ft)	Canopy Cover (category)
Coast Live Oak - California Bay - Madrone	8	182	40	6	4
Coast Live Oak - California Bay - Willows	**80**	**190**	**40**	**6**	**3**
Coast Live Oak - California Bay + occ. Madrone, Alder, Elderberry	**80**	**191**	**40**	**6**	**3**
Coast Live Oak - Coyote Brush - Scotch Broom	5	147	40	2	2
Coast Live Oak - Mixed Trees/Shrubs	5	147	40	2	4
Coast Live Oak - Redwood - Poison Oak - Mixed Trees/Shrubs	8	182	100	6	4
Coyote Brush	5	147	6	2	0
Coyote Brush - Annual Grassland	5	122	6	2	0
Coyote Brush - Annual Grassland	5	122	6	2	0
Coyote Brush - Annual Grassland - Dense Bluegum Eucalyptus	5	189	100	1	4
Coyote Brush - Annual Grassland - Hemlock	5	122	6	2	0
Coyote Brush - Annual Grassland - Huckleberry	**50**	**126**	**6**	**2**	**0**
Coyote Brush - Annual Grassland - Live Oak - California Bay	5	122	40	2	2
Coyote Brush - Annual Grassland - Poison Oak	5	122	6	2	0
Coyote Brush - Blackberry - Ocean Spray - Poison Oak	**50**	**152**	**10**	**2**	**0**
Coyote Brush - Blackberry - Poison Oak	5	147	6	2	0
Coyote Brush - Blackberry - Poison Oak - Elderberry - Live Oak - California Bay	**5**	**170**	**40**	**2**	**2**
Coyote Brush - Blackberry - Poison Oak - Live Oak - California Bay	5	165	40	2	2
Coyote Brush - Broom	5	147	6	2	0
Coyote Brush - California Bay	5	147	40	2	2
Coyote Brush - California Buckeye - Live Oak - California Bay - Poison Oak - Blackberry	5	147	40	2	2
Coyote Brush - California Hazelnut - Blackberry - Live Oak - California Bay	**5**	**170**	**40**	**2**	**2**
Coyote Brush - California Sage	5	147	6	2	0
Coyote Brush - California Sage - Annual Grassland	5	147	6	2	0
Coyote Brush - California Sage - Blackberry	5	147	6	2	0
Coyote Brush - California Sage - Grassland	5	147	6	2	0
Coyote Brush - California Sage - Live Oak	5	147	40	2	1
Coyote Brush - California Sage - Live Oak - California Bay	5	147	40	2	2
Coyote Brush - California Sage - Monkey Flower - Live Oak - California Bay	5	147	40	2	2
Coyote Brush - California Sage - Poison Oak	5	147	6	2	0
Coyote Brush - California Sagebrush	5	147	6	2	0

APPENDIX D: CROSSWALK FROM VEGETATION TO FUEL CHARACTERISTICS

Vegetation Type per NOTES	Old Fuel Model	Burgan & Scott Fuel Model	Tree Height (ft)	Height To Live Crown (ft)	Canopy Cover (category)
Coyote Brush - Coffeeberry - Cal. Blackberry - Poison Oak - Poison Hemlock	**50**	**147**	**6**	**2**	**0**
Coyote Brush - Dense Bluegum Eucalyptus	*16*	*209*	*100*	*2*	*2*
Coyote Brush - Dense Bluegum Eucalyptus - California Bay	*16*	*209*	*100*	*2*	*2*
Coyote Brush - Dense Bluegum Eucalyptus - Live Oak - California Bay - Annual Grassland	*16*	*209*	*100*	*2*	*2*
Coyote Brush - Elderberry	**50**	**150**	**6**	**2**	**0**
Coyote Brush - Elderberry - Blackberry	50	150	6	2	0
Coyote Brush - Elderberry - Live Oak - California Bay	**50**	**150**	**40**	**2**	**2**
Coyote Brush - Elderberry - Poison Oak	5	149	6	2	0
Coyote Brush - French Broom	5	147	6	2	0
Coyote Brush - Grassland	5	122	6	2	0
Coyote Brush - Grassland - California Sage	5	122	6	2	0
Coyote Brush - Hemlock	5	147	6	2	0
Coyote Brush - Live Oak	5	147	40	2	2
Coyote Brush - Live Oak - Broom	5	147	40	2	2
Coyote Brush - Live Oak - California Bay - Annual Grassland	5	147	40	2	2
Coyote Brush - Live Oak - California Bay - Blackberry - Poison Oak	5	149	40	2	2
Coyote Brush - Live Oak - California Bay - Elderberry	**50**	**152**	**40**	**2**	**2**
Coyote Brush - Live Oak - California Bay - Poison Oak - Blackberry	5	147	40	2	2
Coyote Brush - Live Oak - California Bay - Willow	**50**	**151**	**30**	**2**	**2**
Coyote Brush - Live Oak - Willow	**50**	**152**	**40**	**2**	**2**
Coyote Brush - Mixed Conifer	5	165	100	2	2
Coyote Brush - Mixed Conifer - Live Oak - California Bay	5	165	100	2	2
Coyote Brush - Monkey Flower	5	147	6	2	0
Coyote Brush - N. Coastal Scrub Mix	5	147	6	2	0
Coyote Brush - Oak - Shrubland	5	147	40	1	1
Coyote Brush - Pine	*16*	*209*	*80*	*2*	*2*
Coyote Brush - Pine - Annual Grassland	5	165	80	2	2
Coyote Brush - Poison Hemlock	5	147	6	2	0
Coyote Brush - Poison Oak	5	147	6	2	0
Coyote Brush - Poison Oak - Blackberry	5	149	6	2	0
Coyote Brush - Poison Oak - Blackberry - Dense Bluegum Eucalyptus	*16*	*209*	*100*	*1*	*4*
Coyote Brush - Poison Oak - Blackberry - Elderberry	**50**	**152**	**6**	**2**	**0**

APPENDIX D: CROSSWALK FROM VEGETATION TO FUEL CHARACTERISTICS

Vegetation Type per NOTES	Old Fuel Model	Burgan & Scott Fuel Model	Tree Height (ft)	Height To Live Crown (ft)	Canopy Cover (category)
Coyote Brush - Poison Oak - Blackberry - Live Oak - California Bay	5	149	40	2	1
Coyote Brush - Poison Oak - Blackberry - Mixed Conifer	5	147	80	1	1
Coyote Brush - Poison Oak - California Sage	5	147	6	2	0
Coyote Brush - Poison Oak - Dense Bluegum Eucalyptus	*16*	*209*	*100*	*1*	*4*
Coyote Brush - Poison Oak - Live Oak - California Bay	5	147	40	2	2
Coyote Brush - Poison Oak - Live Oak - California Bay - Hemlock	5	147	40	2	2
Coyote Brush - Poison Oak - Monkey Flower	5	147	6	2	0
Coyote Brush - Poison Oak - Monkey Flower - Pine	*16*	*209*	*80*	*2*	*1*
Coyote Brush - Poison Oak - Redwood - Live Oak - California Bay	5	147	100	2	2
Coyote Brush - Prunus - Poison Hemlock - Bay - Willow - etc.	**50**	**152**	**40**	**2**	**1**
Coyote Brush - Scotch Broom	5	147	6	2	0
Coyote Brush - Shrubland - Coast Live Oak - California Bay - Madrone	5	147	40	2	2
Coyote Brush - Willow	**50**	**152**	**30**	**2**	**2**
Dense Bluegum Eucalyptus - Broom - Live Oak - California Bay	*21*	*192*	*100*	*6*	*4*
Dense Bluegum Eucalyptus - California Bay	*21*	*192*	*100*	*6*	*4*
Dense Bluegum Eucalyptus - California Bay	*21*	*192*	*100*	*6*	*4*
Dense Bluegum Eucalyptus - California Bay - Pine	*21*	*192*	*100*	*6*	*4*
Dense Bluegum Eucalyptus - California Sage	*16*	*166*	*100*	*2*	*3*
Dense Bluegum Eucalyptus - Coyote Brush	*16*	*209*	*100*	*2*	*4*
Dense Bluegum Eucalyptus - Live Oak - California Bay	*21*	*192*	*100*	*4*	*4*
Dense Bluegum Eucalyptus - Live Oak - California Bay - Blackberry	*21*	*192*	*100*	*4*	*4*
Dense Bluegum Eucalyptus - Live Oak - California Bay - Coyote Brush	*21*	*192*	*100*	*4*	*4*
Dense Bluegum Eucalyptus - Pine	*21*	*192*	*100*	*4*	*4*
Dense Eucalyptus	*21*	*192*	*100*	*6*	*4*
Developed	0	91	0	0	0
Developed - Franklin Ridge Staging Area	0	91	0	0	0
Developed/Landscaped	0	93	0	0	0
Environmental Education Center / Little Farm: Structures, irrigated turf, bare dirt	0	91	0	0	0
Golf Course - Irrigated Turf and Trees	0	93	0	0	0
Golf Course: Developed	0	93	0	0	0
Golf Course: Water	0	98	0	0	0
Grassland	1	104	3	1	0

APPENDIX D: CROSSWALK FROM VEGETATION TO FUEL CHARACTERISTICS

Vegetation Type per NOTES	Old Fuel Model	Burgan & Scott Fuel Model	Tree Height (ft)	Height To Live Crown (ft)	Canopy Cover (category)
Grassland - Coyote Brush	1	122	6	1	0
Grassland - Coyote Brush - California Sage	1	122	6	1	0
Grassland - Coyote Brush - Live Oak - California Bay	1	122	40	1	1
Grassland - Live Oak	1	122	40	6	1
Ground Clover	1	122	40	6	1
Ground Clover - Coyote Brush - California Bay	1	122	40	6	1
Ground Clover - Grassland - Coyote Brush	1	122	40	6	0
Hemlock - Annual Grassland	3	122	6	3	0
Hemlock - Artichoke Thistle	5	121	6	3	0
Hemlock - Broom - Coyote Brush	5	147	6	3	0
Hemlock - Elderberry - Live Oak - California Bay	5	147	6	3	0
Irrigated turf	0	93	0	0	0
Lake Anza parking lot - irrigated turf - structures - beach - landscape trees	0	93	0	0	0
Lake Chabot Marina - Developed	0	91	0	0	0
Landscaped Parking Lot	0	93	0	0	0
Live Oak	8	182	40	12	4
Live Oak - California Bay	8	182	40	12	4
Live Oak - California Bay	8	182	40	12	4
Live Oak - California Bay - Annual Grassland	1	182	40	2	3
Live Oak - California Bay - Annual Grassland - Coyote Brush	5	182	40	2	3
Live Oak - California Bay - Blackberry	5	182	40	6	3
Live Oak - California Bay - Broom - Pine	*17*	*112*	*40*	*2*	*4*
Live Oak - California Bay - California Buckeye - Bigleaf Maple - Alder	**80**	**191**	**40**	**12**	**4**
Live Oak - California Bay - California Buckeye - Bigleaf Maple - Alder - Redwood	**80**	**191**	**100**	**12**	**4**
Live Oak - California Bay - California Buckeye - Madrone	8	182	40	12	4
Live Oak - California Bay - California Sage	8	182	40	2	3
Live Oak - California Bay - Coyote Brush	8	182	40	2	3
Live Oak - California Bay - Coyote Brush	8	182	40	2	3
Live Oak - California Bay - Coyote Brush - Annual Grassland	5	181	40	2	3
Live Oak - California Bay - Coyote Brush - Bigleaf Maple	**80**	**191**	**40**	**2**	**4**
Live Oak - California Bay - Coyote Brush - California Hazelnut	**80**	**191**	**40**	**2**	**3**
Live Oak - California Bay - Coyote Brush - Dense Bluegum Eucalyptus	*16*	*210*	*100*	*2*	*4*

APPENDIX D: CROSSWALK FROM VEGETATION TO FUEL CHARACTERISTICS

Vegetation Type per NOTES	Old Fuel Model	Burgan & Scott Fuel Model	Tree Height (ft)	Height To Live Crown (ft)	Canopy Cover (category)
Live Oak - California Bay - Coyote Brush - Elderberry	**50**	**152**	**40**	**2**	**3**
Live Oak - California Bay - Coyote Brush - Pine - Dense Bluegum Eucalyptus	*18*	*210*	*100*	*2*	*4*
Live Oak - California Bay - Coyote Brush - Poison Oak	5	182	40	2	3
Live Oak - California Bay - Coyote Brush - Poison Oak - Blackberry	5	182	40	2	3
Live Oak - California Bay - Coyote Brush - Willow	**50**	**152**	**40**	**6**	**3**
Live Oak - California Bay - Dense Bluegum Eucalyptus	*18*	*112*	*100*	*6*	*4*
Live Oak - California Bay - Dense Bluegum Eucalyptus - Coyote Brush	*18*	*210*	*100*	*2*	*3*
Live Oak - California Bay - Huckleberry	**80**	**191**	**40**	**6**	**4**
Live Oak - California Bay - Madrone	8	182	40	12	4
Live Oak - California Bay - Madrone - Redwood	8	182	100	12	4
Live Oak - California Bay - Manzanita	4	182	40	6	3
Live Oak - California Bay - Mixed Conifer	8	182	40	12	4
Live Oak - California Bay - Mixed Conifer - Coyote Brush	8	161	80	6	3
Live Oak - California Bay - Pine	*19*	*210*	*80*	*12*	*4*
Live Oak - California Bay - Redwood	8	182	100	12	4
Live Oak - California Bay - Redwood - Coyote Brush	5	164	100	2	3
Live Oak - California Bay - Willow	**80**	**191**	**40**	**12**	**4**
Live Oak - California Bay - Willow - Coyote Brush	**80**	**191**	**40**	**2**	**3**
Live Oak - California Bay - Willows	**80**	**191**	**40**	**12**	**4**
Live Oak - California Buckeye	8	182	40	12	4
Live Oak - Coyote Brush	5	147	40	2	2
Live Oak - Coyote Brush - California Sage	5	147	40	2	2
Live Oak - Manzanita	4	147	40	2	3
Live Oak - Redwood	8	182	100	12	4
Manzanita	4	147	10	2	0
Manzanita - Huckleberry	**40**	**205**	**10**	**2**	**0**
Manzanita - Huckleberry - Golden Chinkapin	**40**	**205**	**15**	**2**	**0**
Manzanita - Live Oak	4	147	40	2	2
Mixed Conifer	9	184	100	6	4
Mixed Conifer - Annual Grassland	2	164	100	2	3
Mixed Conifer - Coyote Brush	5	164	100	2	3
Mixed Conifer - Coyote Brush - Live Oak - California Bay	8	182	100	2	4

APPENDIX D: CROSSWALK FROM VEGETATION TO FUEL CHARACTERISTICS

Vegetation Type per NOTES	Old Fuel Model	Burgan & Scott Fuel Model	Tree Height (ft)	Height To Live Crown (ft)	Canopy Cover (category)
Mixed Conifer - Live Oak - California Bay	8	182	100	12	4
Mixed Conifer - Live Oak - California Bay - Coyote Brush	9	161	100	6	4
Moist North Coastal Scrub - Oak - Bay	**5**	**205**	**40**	**6**	**2**
Monkey Flower - Poison Oak	5	147	6	2	0
Monterey Cypress	8	182	80	12	4
Monterey Pine	*19*	*210*	*80*	*12*	*4*
Mowed Annual Grassland	1	104	3	1	0
Mowed Annual Grassland - Live Oak	2	161	3	12	1
Mowed Annual Grassland / Temp Parking	1	101	1	6	0
Oak Bay Woodland	8	182	6	12	4
Ocean Spray	**60**	**152**	**15**	**6**	**0**
Ocean Spray - Poison Oak - Coyote Brush	**60**	**152**	**15**	**6**	**0**
Paved parking	0	99	0	0	0
Pine	*19*	*210*	*80*	*12*	*4*
Pine - Annual Grassland	*15*	*168*	*80*	*12*	*3*
Pine - Blackberry	*16*	*166*	*80*	*6*	*3*
Pine - Broom - Live Oak - California Bay	*16*	*167*	*80*	*6*	*4*
Pine - California Bay	*19*	*169*	*80*	*6*	*4*
Pine - Coyote Brush	*16*	*166*	*80*	*2*	*3*
Pine - Coyote Brush - Blackberry	*16*	*166*	*80*	*2*	*3*
Pine - Coyote Brush - Dense Bluegum Eucalyptus - Grassland	*16*	*166*	*100*	*2*	*3*
Pine - Dense Bluegum Eucalyptus - Coyote Brush	*19*	*166*	*100*	*6*	*4*
Pine - Live Oak - California Bay	*18*	*169*	*80*	*12*	*4*
Pine - Live Oak - California Bay - Coyote Brush	*16*	*166*	*80*	*6*	*3*
Pine - Poison Oak	*19*	*166*	*80*	*6*	*3*
Poison Hemlock	5	147	6	2	0
Poison Hemlock - Coyote Brush - Annual Grassland	5	145	6	2	0
Poison Oak	5	143	6	2	0
Poison Oak - Coyote Brush	5	147	6	2	0
Poison Oak - Coyote Brush - Annual Grassland	5	147	6	2	0
Poison Oak - Coyote Brush - Annual Grassland - low regrowth	5	141	2	2	0
Poison Oak - Coyote Brush - Annual Grassland - young regrowth	5	141	2	2	0

APPENDIX D: CROSSWALK FROM VEGETATION TO FUEL CHARACTERISTICS

Vegetation Type per NOTES	Old Fuel Model	Burgan & Scott Fuel Model	Tree Height (ft)	Height To Live Crown (ft)	Canopy Cover (category)
Poison Oak - Coyote Brush - Blackberry	5	147	6	2	0
Redgum Eucalyptus	*21*	*192*	*100*	*6*	*3*
Redgum Eucalyptus - California Bay	*21*	*192*	*100*	*6*	*3*
Redgum Eucalyptus - Live Oak - California Bay	*21*	*192*	*100*	*4*	*3*
Redgum Eucalyptus - Live Oak - California Bay	*21*	*192*	*100*	*4*	*3*
Redgum Eucalyptus - Live Oak - California Bay	*21*	*192*	*100*	*4*	*3*
Redgum Eucalyptus - Live Oak - California Bay - Willow	*21*	*192*	*100*	*6*	*3*
Redwood	8	182	100	12	4
Redwood - Live Oak - California Bay	8	182	100	12	4
Redwood Equestrian Arena	0	91	0	0	0
Rifle Range: Structures + bare soil	0	99	0	0	0
Rotary Peace Grove : Giant Redwoods	8	181	100	12	4
Rush	**61**	**206**	**1**	**1**	**0**
Rush - Annual Grassland	**61**	**206**	**1**	**1**	**0**
Rush (Juncus sp.)	**61**	**206**	**1**	**1**	**0**
Scotch Broom - Coyote Brush	5	149	6	2	0
Sedge	1	121	1	1	0
Spikerush - Pennyroyal	1	121	1	1	0
Staging Area: Developed	0	91	0	0	0
Structures and Parking	0	99	0	0	0
Structures, gravel parking lot, corrals	0	91	0	0	0
Structures, roads, corrals	0	91	0	0	0
Swimming pool	0	98	0	0	0
Thinned Bluegum Eucalyptus	*18*	*182*	*80*	*6*	*3*
Thinned Bluegum Eucalyptus	*18*	*182*	*80*	*6*	*3*
Thinned Bluegum Eucalyptus - Coyote Brush	*16*	*161*	*80*	*6*	*3*
Thinned Bluegum Eucalyptus - Emerging Coast Live Oak - California Bay	*18*	*182*	*80*	*6*	*3*
Thinned Bluegum Eucalyptus - Redwood	*18*	*182*	*100*	*6*	*3*
Tilden Botanic Garden: California Native Plant Collection	0	93	0	0	0
Tilden golf course: irrigated park turf	0	93	0	0	0
Tilden golf course: irrigated turf and landscape shrubs/trees	0	93	0	0	0
Tilden golf course: Structures and Parking lot	0	91	0	0	0

APPENDIX D: CROSSWALK FROM VEGETATION TO FUEL CHARACTERISTICS

Vegetation Type per NOTES	Old Fuel Model	Burgan & Scott Fuel Model	Tree Height (ft)	Height To Live Crown (ft)	Canopy Cover (category)
Tules (Bulrush)	0	0	0	0	0
Urban / Developed	0	91	0	0	0
Water - Sand	0	98	0	0	0
Willow	**60**	**190**	**30**	**6**	**4**
Willow - California Bay	**60**	**190**	**30**	**6**	**4**
Willow - Coyote Brush	**60**	**207**	**30**	**6**	**4**
Willow - Coyote Brush - Poison Oak - Blackberry	**60**	**190**	**30**	**6**	**3**
Willow - Live Oak - California Bay	**60**	**190**	**40**	**6**	**4**
Willow - Live Oak - California Bay - Coyote Brush	**60**	**208**	**40**	**6**	**4**
Willow - Poison Oak - Blackberry	**60**	**208**	**30**	**6**	**3**
Willow - Walnut - Bigleaf Maple - Live Oak - California Buckeye	**60**	**190**	**40**	**12**	**4**
Willow - Walnut - Bigleaf Maple - Live Oak - California Buckeye	**60**	**190**	**40**	**12**	**4**
Willows - Coast Live Oak - California Bay	**60**	**190**	**40**	**6**	**4**

Fuel models with high foliar moisture (indicated in blue) have custom fuel models assigned. The only difference between the custom fuel model and new B&S fuel model is the fuel moisture that can be assigned for the duration of the simulation.

Fuel models with high foliar oils (indicated in orange have custom fuel models assigned. The only different between the custom fuel model and new B&S fuel model is the calorie content that was assigned to the custom fuel model.

APPENDIX E - RECOMMENDED TREATMENT AREA JUSTIFICATION

Park	WHA Code	Within 200ft of Private Structure	Flame length >8ft within 200ft of private structure	Within 200 ft of Facility-at-Risk	High-risk Ember Prod	Category	Existing Project Expansion
SO	WHA-SO001	yes	yes	no	no	New Work	no
SO	WHA-SO002	yes	no	no	no	Maintenance	no
KG	WHA-KG001	yes	yes	no	no	New Work	no
KG	WHA-KG002	some	no	no	yes	New Work	no
KG	WHA-KG003	no	no	yes	no	New Work	no
KG	WHA-KG004	yes	yes	no	no	New Work	no
WC	WHA-WC001	yes	no	no	no	Maintenance	no
WC	WHA-WC002	yes	no	no	no	Maintenance	no
WC	WHA-WC003	yes	yes	no	no	New Work	no
WC	WHA-WC004	yes	no	no	no	Maintenance	no
WC	WHA-WC005	yes	no	no	yes	New Work	no
WC	WHA-WC006	no	no	no	no	Maintenance	no
WC	WHA-WC007a	yes	no	no	yes	New Work	no
WC	WHA-WC007b	yes	no	no	yes	New Work	no
WC	WHA-WC008	yes	no	no	no	Maintenance	no
WC	WHA-WC009	yes	yes	no	no	New Work	yes
WC	WHA-WC010	yes	yes	no	no	New Work	yes
WC	WHA-WC011	yes	yes	no	no	New Work	yes
TI	WHA-TI001	no	no	no	yes	New Work	no
TI	WHA-TI002a	no	no	yes	yes	New Work	no
TI	WHA-TI002a	no	no	yes	no	New Work	no
TI	WHA-TI003	no	no	no	no	New Work	no
TI	WHA-TI004	no	no	no	yes	New Work	no
TI	WHA-TI005	no	no	no	no	New Work	no
TI	WHA-TI006	yes	yes	no	yes	New Work	yes
TI	WHA-TIOO7a	no	no	no	yes	New Work	no
TI	WHA-TIOO7b	no	no	no	yes	New Work	no
TI	WHA-TIOO7c	no	no	no	yes	New Work	no
TI	WHA-TI008a	no	no	yes	yes	New Work	no
TI	WHA-TI008b	no	no	yes	no	Maintenance	no
TI	WHA-TI009	yes	no	no	no	New Work	yes
TI	WHA-TI010	yes	yes	no	yes	New Work	yes
TI	WHA-TI011	yes	no	no	no	Maintenance	no
TI	WHA-TI012	yes	yes	no	yes	Maintenance, ~~N~~	yes
TI	WHA-TI013	no	no	no	yes	New Work	no
TI	WHA-TI014	no	no	no	yes	New Work	no
TI	WHA-TI015	no	no	yes	no	Maintenance, ~~N~~	yes
TI	WHA-TI016	no	no	no	no	New Work	no
TI	WHA-TI017	no	no	no	no	New Work	no
TI	WHA-TI018	no	no	no	yes	New Work	no
TI	WHA-TI019	no	no	no	yes	New Work	no
TI	WHA-TI020	no	no	yes	yes	New Work	no
TI	WHA-TI021	no	no	yes	no	New Work	no
TI	WHA-TI022	no	no	yes	no	New Work	yes

APPENDIX E - RECOMMENDED TREATMENT AREA JUSTIFICATION

Park	WHA Code	Within 200ft of Private Structure	Flame length >8ft within 200ft of private structure	Within 200 ft of Facility-at-Risk	High-risk Ember Prod	Category	Existing Project Expansion
CC	WHA-CC001	yes	yes	no	yes	New Work	yes
CC	WHA-CC002	yes	no	no	no	Maintenance	no
CC	WHA-CC003	yes	yes	no	no	New Work	no
CC	WHA-CC004	no	no	no	yes	New Work	no
CC	WHA-CC005	no	no	no	yes	New Work	no
CC	WHA-CC006	yes	yes	no	no	New Work	no
CC	WHA-CC007	no	no	no	no	Maintenance	no
CC	WHA-CC008	no	no	yes	no	New Work	no
CC	WHA-CC009	yes	no	no	no	Maintenance	no
CC	WHA-CC010	yes	no	no	no	Maintenance	no
CC	WHA-CC011	no	no	no	no	Maintenance	no
CC	WHA-CC012	no	no	no	no	New Work	no
SR	WHA-SR001	yes	yes	no	no	New Work	yes
SR	WHA-SR002a	yes	yes	no	yes	Maintenance	no
SR	WHA-SR002b	yes	yes	no	yes	New Work	no
SR	WHA-SR003	yes	yes	no	no	Maintenance	no
SR	WHA-SR004	no	yes	no	no	New Work	no
SR	WHA-SR005	yes	no	no	yes	New Work	yes
SR	WHA-SR006	no	no	no	yes	New Work	no
SR	WHA-SR007	no	no	no	yes	New Work	no
HP	WHA-HP001	no	no	no	yes	New Work	no
HP	WHA-HP002	yes	yes	no	no	New Work	yes
HP	WHA-HP003	yes	yes	no	no	New Work	no
HP	WHA-HP004	yes	no	no	no	New Work	no
RD	WHA-RD002	no	no	no	yes	New Work	yes
RD	WHA-RD003	no	no	no	no	New Work	yes
RD	WHA-RD004	yes	yes	no	no	New Work	no
RD	WHA-RD005a	no	no	no	yes	New Work	no
RD	WHA-RD005b	yes	yes	no	no	New Work	no
RD	WHA-RD006	no	no	yes	no	New Work	no
RD	WHA-RD007	no	no	no	yes	New Work	no
RD	WHA-RD008	no	no	yes	no	New Work	no
RD	WHA-RD009	no	no	y	yes	New Work	no
AC	WHA-AC001	yes	yes	no	yes	New Work	yes
AC	WHA-AC002	yes	no	no	no	Maintenance	no
AC	WHA-AC003	yes	yes	no	no	New Work	no
AC	WHA-AC004	yes	yes	no	no	Maintenance	no
AC	WHA-AC006	yes	yes	no	no	New Work	yes
AC	WHA-AC007a	yes	yes	no	yes	New Work	yes
AC	WHA-AC007b	yes	yes	no	yes	Maintenance	yes
AC	WHA-AC007c	yes	yes	no	yes	New Work	yes
AC	WHA-AC008	no	no	no	yes	New Work	yes
AC	WHA-AC009	no	no	no	yes	New Work	no
AC	WHA-AC010	no	no	no	yes	New Work	yes

APPENDIX E - RECOMMENDED TREATMENT AREA JUSTIFICATION

Park	WHA Code	Within 200ft of Private Structure	Flame length >8ft within 200ft of private structure	Within 200 ft of Facility-at-Risk	High-risk Ember Prod	Category	Existing Project Expansion
AC	WHA-AC011	no	no	no	yes	New Work	no
AC	WHA-AC012	no	no	no	yes	New Work	yes
AC	WHA-AC013	no	no	no	yes	New Work	no
AC	WHA-AC014	no	no	no	no	Maintenance	no
LC	WHA-LC001	no	no	no	yes	New Work	no
LC	WHA-LC002	no	no	no	yes	New Work	no
LC	WHA-LC003	no	no	no	yes	New Work	no
LC	WHA-LC004	no	no	no	yes	New Work	no
LC	WHA-LC005a&b	no	no	no	yes	New Work	no
LC	WHA-LC006	no	no	no	yes	New Work	no
LC	WHA-LC007a-d	no	no	no	yes	New Work	no
LC	WHA-LC008	yes	no	no	yes	New Work	yes
LC	WHA-LC009	yes	yes	no	no	Maintenance	yes
LC	WHA-LC010	yes	yes	no	no	New Work	no
TM	WHA-TM001	no	no	yes	no	Maintenance	no
LE	WHA-LE001	yes	no	no	no	Maintenance	no
LE	WHA-LE002	yes	yes	no	no	New Work	no
LE	WHA-LE003	yes	no	no	no	Maintenance	no
LE	WHA-LE004	yes	no	no	no	Maintenance	no
LE	WHA-LE005	yes	yes	no	no	New Work	no
LE	WHA-LE006	no	no	yes	no	New Work	no
PP	WHA-PP001	no	no	no	no	Maintenance	no
PP	WHA-PP002	no	no	no	no	Maintenance	no
PP	WHA-PP003	yes	no	no	no	Maintenance	no
MK	WHA-MK001	yes	yes	no	no	New Work	no
MK	WHA-MK002	no	yes	no	no	New Work	no
MK	WHA-MK003	yes	no	yes	no	New Work	no
MK	WHA-MK004	no	no	no	no	New Work	no
MK	WHA-MK005	no	no	no	no	New Work	no

This page intentionally left blank.

Appendix F: Vegetation Types Within Each Recommended Treatment Area (RTA)		
RTA	**Vegetation Type**	**Acreage[a] (> 0.1 acre present)**
Sorbents Ridge Regional Preserve		
SO001	Northern Maritime Chaparral	2.4
	Oak-Bay Woodland/Forest	1.7
	RTA Total	**4.1**
SO002	Oak-Bay Woodland/Forest	8.4
	California Annual Grassland	4.9
	Riparian Woodland	0.3
	RTA Total	**13.7**
Kennedy Grove Regional Recreation Area		
KG001	Coastal Scrub (xeric)	0.8
	RTA Total	**0.8**
KG002	Eucalyptus Forest/Plantation	4.5
	RTA Total	**4.5**
KG003	Developed/Disturbed/Landscaped	2.2
	Eucalyptus Forest/Plantation	1.0
	California Annual Grassland	0.4
	Oak-Bay Woodland/Forest	0.1
	RTA Total	**3.7**
KG004	Oak-Bay Woodland/Forest	3.1
	Eucalyptus Forest/Plantation	2.1
	California Annual Grassland	0.9
	RTA Total	**6.1**
Wildcat Canyon Regional Park		
WC001	California Annual Grassland	3.8
	Oak-Bay Woodland/Forest	0.6
	RTA Total	**4.4**
WC002	California Annual Grassland	4.0
	RTA Total	**4.0**
WC003	Coyote Brush Scrub	1.7
	RTA Total	**1.7**
WC004	California Annual Grassland	2.9
	Oak-Bay Woodland/Forest	2.8
	Coastal Scrub (xeric)	1.9
	RTA Total	**7.6**
WC005	Eucalyptus Forest/Plantation	23.6
	Oak-Bay Woodland/Forest	11.5
	Developed/Disturbed/Landscaped	5.3
	Non-native Coniferous Forest	2.4
	California Annual Grassland	1.2
	Redwood Forest	0.4
	RTA Total	**44.3**
WC006	California Annual Grassland	0.9
	Coastal Scrub (xeric)	0.2
	Oak-Bay Woodland/Forest	0.1
	RTA Total	**1.2**
WC007a	Eucalyptus Forest/Plantation	0.7
	RTA Total	**0.7**
WC007b	Eucalyptus Forest/Plantation	0.5
	RTA Total	**0.5**
WC008	Oak-Bay Woodland/Forest	0.2
	RTA Total	**0.2**
WC009	Oak-Bay Woodland/Forest	6.7
	Coastal Scrub (mesic)	2.3
	Riparian Woodland	1.6

RTA	Vegetation Type	Acreage[a] (> 0.1 acre present)
	Coastal Scrub (xeric)	0.8
	RTA Total	**11.5**
WC010	Oak-Bay Woodland/Forest	5.5
	Coastal Scrub (mesic)	5.2
	Coastal Scrub (xeric)	0.1
	RTA Total	**10.8**
WC011	Coastal Scrub (mesic)	16.8
	Oak-Bay Woodland/Forest	12.7
	Riparian Woodland	1.4
	California Annual Grassland	1.2
	Eucalyptus Forest/Plantation	1.1
	Developed/Disturbed/Landscaped	1.1
	Coastal Scrub (xeric)	0.4
	RTA Total	**34.8**
Tilden Regional Park		
TI001	Eucalyptus Forest/Plantation	17.3
	Coyote Brush Scrub	4.5
	Coastal Scrub (xeric)	3.8
	Non-native Coniferous Forest	1.6
	Riparian Woodland	1.4
	RTA Total	**28.6**
TI002a	Eucalyptus Forest/Plantation	105.2
	Developed/Disturbed/Landscaped	2.0
	Non-native Coniferous Forest	1.2
	California Annual Grassland	0.3
	Coastal Scrub (xeric)	0.2
	Riparian Woodland	0.1
	RTA Total	**109.0**
TI002b	Developed/Disturbed/Landscaped	2.3
	Riparian Woodland	1.3
	Coastal Scrub (xeric)	0.7
	Oak-Bay Woodland/Forest	0.6
	Non-native Coniferous Forest	0.3
	RTA Total	**5.2**
TI002c	Non-native Coniferous Forest	0.7
	Developed/Disturbed/Landscaped	0.1
	RTA Total	**0.8**
TI003	Non-native Coniferous Forest	14.4
	Coastal Scrub (xeric)	0.8
	California Annual Grassland	0.2
	Coyote Brush Scrub	0.2
	RTA Total	**15.6**
TI004	Eucalyptus Forest/Plantation	45.0
	Non-native Coniferous Forest	3.4
	Coyote Brush Scrub	0.1
	RTA Total	**48.5**
TI005	Coastal Scrub (xeric)	4.3
	Non-native Coniferous Forest	2.0
	RTA Total	**6.3**
TI006	Oak-Bay Woodland/Forest	7.7
	Eucalyptus Forest/Plantation	1.4
	Broom Scrub	1.3
	Developed/Disturbed/Landscaped	0.3
	Coyote Brush Scrub	0.1
	RTA Total	**10.7**
TI007a	Eucalyptus Forest/Plantation	2.4
	RTA Total	**2.4**

RTA	Vegetation Type	Acreage[a] (> 0.1 acre present)
TI007b	Eucalyptus Forest/Plantation	1.3
	RTA Total	**1.3**
TI007c	Eucalyptus Forest/Plantation	2.2
	RTA Total	**2.2**
TI008a	Eucalyptus Forest/Plantation	28.8
	RTA Total	**28.8**
TI008b	Developed/Disturbed/Landscaped	1.8
	Oak-Bay Woodland/Forest	0.7
	RTA Total	**2.6**
TI009	Oak-Bay Woodland/Forest	13.9
	California Annual Grassland	5.5
	Coastal Scrub (xeric)	4.0
	Redwood Forest	2.1
	Riparian Woodland	0.3
	Eucalyptus Forest/Plantation	0.2
	RTA Total	**26.0**
TI010	Non-native Coniferous Forest	13.5
	California Annual Grassland	7.1
	Oak-Bay Woodland/Forest	4.1
	Developed/Disturbed/Landscaped	1.5
	Redwood Forest	1.3
	Eucalyptus Forest/Plantation	0.4
	RTA Total	**27.8**
TI011	Oak-Bay Woodland/Forest	6.9
	Developed/Disturbed/Landscaped	2.0
	Coastal Scrub (xeric)	1.7
	Non-native Coniferous Forest	1.2
	Redwood Forest	0.6
	Riparian Woodland	0.2
	RTA Total	**12.6**
TI012	Eucalyptus Forest/Plantation	35.4
	California Annual Grassland	16.6
	Non-native Coniferous Forest	11.9
	Oak-Bay Woodland/Forest	10.1
	Coastal Scrub (xeric)	8.2
	Coyote Brush Scrub	4.6
	Redwood Forest	1.7
	Developed/Disturbed/Landscaped	1.5
	Coastal Scrub (mesic)	0.6
	RTA Total	**90.7**
TI013	Oak-Bay Woodland/Forest	6.3
	Coastal Scrub (xeric)	3.4
	Non-native Coniferous Forest	1.7
	Eucalyptus Forest/Plantation	1.4
	California Annual Grassland	1.2
	Riparian Woodland	0.9
	Coyote Brush Scrub	0.8
	RTA Total	**15.7**
TI014	Eucalyptus Forest/Plantation	3.5
	RTA Total	**3.5**
TI015	Oak-Bay Woodland/Forest	21.3
	Coyote Brush Scrub	11.2
	Developed/Disturbed/Landscaped	8.3
	Redwood Forest	5.4
	Coastal Scrub (xeric)	3.1
	Non-native Coniferous Forest	3.0
	California Annual Grassland	1.7
	RTA Total	**54.0**

RTA	Vegetation Type	Acreage[a] (> 0.1 acre present)
TI016	Eucalyptus Forest/Plantation	1.4
	RTA Total	**1.4**
TI017	Non-native Coniferous Forest	0.9
	RTA Total	**0.9**
TI018	Eucalyptus Forest/Plantation	0.6
	RTA Total	**0.6**
TI019	Eucalyptus Forest/Plantation	2.0
	RTA Total	**2.0**
TI020	Eucalyptus Forest/Plantation	11.3
	Oak-Bay Woodland/Forest	3.0
	Riparian Woodland	1.1
	Developed/Disturbed/Landscaped	0.2
	RTA Total	**15.8**
TI021	Developed/Disturbed/Landscaped	11.8
	Oak-Bay Woodland/Forest	4.0
	Non-native Coniferous Forest	2.0
	RTA Total	**17.8**
TI022	Coyote Brush Scrub	2.6
	Non-native Coniferous Forest	2.5
	Developed/Disturbed/Landscaped	1.0
	California Annual Grassland	0.3
	California Annual Grassland	1.0
	Non-native Coniferous Forest	0.4
	RTA Total	**6.4**
Claremont Canyon Regional Preserve		
CC001	Eucalyptus Forest/Plantation	13.4
	Oak-Bay Woodland/Forest	2.0
	Coastal Scrub (xeric)	1.8
	California Annual Grassland	1.4
	Coyote Brush Scrub	0.4
	RTA Total	**19.0**
CC002	California Annual Grassland	5.1
	Oak-Bay Woodland/Forest	0.8
	Coyote Brush Scrub	0.2
	RTA Total	**6.1**
CC003	Coastal Scrub (xeric)	5.8
	California Annual Grassland	3.5
	Broom Scrub	2.3
	Coyote Brush Scrub	2.0
	Eucalyptus Forest/Plantation	0.2
	RTA Total	**13.8**
CC004	Eucalyptus Forest/Plantation	2.6
	RTA Total	**2.6**
CC005	Eucalyptus Forest/Plantation	0.6
	RTA Total	**0.6**
CC006	Oak-Bay Woodland/Forest	2.3
	Coastal Scrub (xeric)	1.0
	RTA Total	3.3
CC007	Coastal Scrub (xeric)	1.0
	California Annual Grassland	0.7
	RTA Total	**1.7**
CC008	Oak-Bay Woodland/Forest	1.5
	Developed/Disturbed/Landscaped	0.9
	Coyote Brush Scrub	0.8
	Coastal Scrub (xeric)	0.5
	Eucalyptus Forest/Plantation	0.3
	RTA Total	**4.0**

RTA	Vegetation Type	Acreage[a] (> 0.1 acre present)
CC009	Coastal Scrub (xeric)	45.0
	Oak-Bay Woodland/Forest	9.9
	Coyote Brush Scrub	9.3
	California Annual Grassland	1.0
	Non-native Coniferous Forest	0.4
	RTA Total	**65.6**
CC010	Oak-Bay Woodland/Forest	3.9
	Coyote Brush Scrub	1.2
	Eucalyptus Forest/Plantation	0.8
	Coastal Scrub (xeric)	0.3
	RTA Total	**6.2**
CC011	Coastal Scrub (xeric)	27.8
	Coyote Brush Scrub	7.0
	Oak-Bay Woodland/Forest	5.4
	RTA Total	**40.2**
CC012	Coyote Brush Scrub	2.1
	Non-native Coniferous Forest	0.3
	RTA Total	**2.4**
Temescal Regional Recreation Area		
TM001	Developed/Disturbed/Landscaped	0.9
	Oak-Bay Woodland/Forest	0.6
	California Annual Grassland	8.7
	Eucalyptus Forest/Plantation	3.0
	Oak-Bay Woodland/Forest	0.6
	RTA Total	**1.5**
Sibley Volcanic Regional Preserve		
SR001	Oak-Bay Woodland/Forest	4.0
	Non-native Coniferous Forest	2.6
	Coyote Brush Scrub	1.2
	RTA Total	**7.8**
SR002a	Eucalyptus Forest/Plantation	13.4
	Oak-Bay Woodland/Forest	8.4
	Coastal Scrub (xeric)	3.0
	Coastal Scrub (mesic)	2.1
	Broom Scrub	0.7
	Coyote Brush Scrub	0.1
	RTA Total	**27.7**
SR002b	Eucalyptus Forest/Plantation	9.0
	Broom Scrub	3.3
	California Annual Grassland	1.2
	Oak-Bay Woodland/Forest	0.9
	Coastal Scrub (mesic)	0.2
	Coastal Scrub (xeric)	0.1
	RTA Total	**14.7**
SR003	California Annual Grassland	16.5
	RTA Total	**16.5**
SR004	Oak-Bay Woodland/Forest	8.6
	Coastal Scrub (xeric)	2.9
	California Annual Grassland	1.4
	RTA Total	**12.9**
SR005	Oak-Bay Woodland/Forest	16.6
	Non-native Coniferous Forest	9.5
	Coyote Brush Scrub	5.3
	Coastal Scrub (mesic)	3.2
	California Annual Grassland	0.9
	Riparian Woodland	

RTA	Vegetation Type	Acreage[a] (> 0.1 acre present)
	Developed/Disturbed/Landscaped	0.9
	Coastal Scrub (xeric)	0.1
	RTA Total	**37.4**
SR006	Eucalyptus Forest/Plantation	38.4
	RTA Total	**38.4**
SR007	Eucalyptus Forest/Plantation	6.0
	RTA Total	**6.0**
Huckleberry Botanic Regional Preserve		
HP001	Eucalyptus Forest/Plantation	1.7
	RTA Total	**1.7**
HP002	Oak-Bay Woodland/Forest	8.9
	Northern Maritime Chaparral	4.2
	RTA Total	**13.1**
HP003	Northern Maritime Chaparral	1.0
	RTA Total	**1.0**
HP004	Oak-Bay Woodland/Forest	0.8
	Coastal Scrub (mesic)	0.4
	RTA Total	**1.2**
Redwood Regional Park		
RD001	Non-native Coniferous Forest	38.7
	Eucalyptus Forest/Plantation	16.4
	California Annual Grassland	4.9
	Oak-Bay Woodland/Forest	1.5
	Coastal Scrub (xeric)	1.4
	Broom Scrub	0.5
	Developed/Disturbed/Landscaped	0.1
	RTA Total	**63.6**
RD002	Eucalyptus Forest/Plantation	5.0
	RTA Total	**5.0**
RD003	Eucalyptus Forest/Plantation	10.2
	Riparian Woodland	6.2
	Coyote Brush Scrub	5.0
	Oak-Bay Woodland/Forest	4.2
	Redwood Forest	1.3
	Developed/Disturbed/Landscaped	0.7
	RTA Total	**27.6**
RD004	Non-native Coniferous Forest	12.8
	Oak-Bay Woodland/Forest	6.7
	California Annual Grassland	6.2
	Coyote Brush Scrub	1.8
	Developed/Disturbed/Landscaped	0.4
	Eucalyptus Forest/Plantation	0.3
	RTA Total	**28.3**
RD005a	Eucalyptus Forest/Plantation	1.1
	RTA Total	**1.1**
RD005b	Non-native Coniferous Forest	4.5
	Developed/Disturbed/Landscaped	1.5
	Redwood Forest	1.1
	Coyote Brush Scrub	0.5
	California Annual Grassland	0.5
	Oak-Bay Woodland/Forest	0.3
	RTA Total	**8.4**
RD006	Oak-Bay Woodland/Forest	4.1
	Redwood Forest	2.4
	Developed/Disturbed/Landscaped	1.1
	RTA Total.	**7.6**

RTA	Vegetation Type	Acreage[a] (> 0.1 acre present)
RD007	Eucalyptus Forest/Plantation	2.1
	RTA Total	**2.1**
RD008	Coyote Brush Scrub	2.7
	Developed/Disturbed/Landscaped	0.8
	Non-native Coniferous Forest	0.1
	Serpentine Bunchgrass Prairie	0.1
	RTA Total	**3.7**
RD009	Eucalyptus Forest/Plantation	5.8
	Developed/Disturbed/Landscaped	2.1
	Coastal Scrub (xeric)	1.0
	Oak-Bay Woodland/Forest	0.8
	RTA Total	**9.6**
RD010	Oak-Bay Woodland/Forest	0.7
	Non-native Coniferous Forest	0.6
	Developed/Disturbed/Landscaped	0.5
	Eucalyptus Forest/Plantation	0.4
	Redwood Forest	0.3
	RTA Total	**2.4**
RD011	Coastal Scrub (xeric)	0.5
	RTA Total	**0.5**
Leona Canyon Regional Open Space Preserve		
LE001	Oak-Bay Woodland/Forest	5.7
	RTA Total	**5.7**
LE002	Coyote Brush Scrub	0.4
	RTA Total	**0.4**
LE003	Oak-Bay Woodland/Forest	2.0
	Coastal Scrub (xeric)	1.7
	California Annual Grassland	1.1
	RTA Total	**4.8**
LE004	Oak-Bay Woodland/Forest	4.3
	Coyote Brush Scrub	3.4
	Coastal Scrub (xeric)	0.9
	California Annual Grassland	0.8
	RTA Total	**9.5**
LE005	Coastal Scrub (xeric)	3.9
	California Annual Grassland	0.4
	Non-native Coniferous Forest	0.2
	Oak-Bay Woodland/Forest	0.1
	RTA Total	**4.6**
LE006	Coastal Scrub (xeric)	25.5
	California Annual Grassland	10.9
	Oak-Bay Woodland/Forest	2.9
	Broom Scrub	0.4
	RTA Total	**39.7**
Anthony Chabot Regional Park[b]		
AC001	Oak-Bay Woodland/Forest	4.4
	California Annual Grassland	2.7
	Eucalyptus Forest/Plantation	1.3
	Coastal Scrub (xeric)	0.8
	Developed/Disturbed/Landscaped	0.3
	Non-native Coniferous Forest	0.2
	RTA Total	**9.6**
AC002	California Annual Grassland	2.2
	Non-native Coniferous Forest	0.2
	Developed/Disturbed/Landscaped	0.1
	RTA Total	**2.5**

RTA	Vegetation Type	Acreage[a] (> 0.1 acre present)
AC003	Coastal Scrub (xeric)	3.2
	Oak-Bay Woodland/Forest	1.6
	RTA Total	**4.7**
AC004	Coastal Scrub (xeric)	13.0
	Oak-Bay Woodland/Forest	7.2
	Coyote Brush Scrub	2.9
	Non-native Coniferous Forest	0.4
	RTA Total	**23.5**
AC006	Coyote Brush Scrub	12.5
	Oak-Bay Woodland/Forest	12.4
	Coastal Scrub (xeric)	2.8
	Non-native Coniferous Forest	1.3
	Eucalyptus Forest/Plantation	1.2
	California Annual Grassland	0.5
	RTA Total	**30.7**
AC007	Coyote Brush Scrub	33.9
	Eucalyptus Forest/Plantation	21.9
	Coastal Scrub (xeric)	14.6
	California Annual Grassland	8.4
	Non-native Coniferous Forest	6.3
	Oak-Bay Woodland/Forest	6.1
	Developed/Disturbed/Landscaped	4.4
	Redwood Forest	1.3
	Broom Scrub	0.7
	RTA Total	**97.5**
AC008a	Eucalyptus Forest/Plantation	57.3
	Coyote Brush Scrub	6.6
	Oak-Bay Woodland/Forest	5.2
	Coastal Scrub (xeric)	0.7
	California Annual Grassland	0.3
	RTA Total	**70.1**
AC008b	Coastal Scrub (xeric)	27.5
	Eucalyptus Forest/Plantation	27.0
	Coyote Brush Scrub	0.5
	Oak-Bay Woodland/Forest	0.1
	RTA Total	**55.1**
AC008c	Eucalyptus Forest/Plantation	194.7
	Oak-Bay Woodland/Forest	28.9
	Coastal Scrub (xeric)	3.8
	Coyote Brush Scrub	2.8
	California Annual Grassland	0.9
	RTA Total	**231.1**
AC009	Eucalyptus Forest/Plantation	24.8
	RTA Total	**24.8**
AC010	Eucalyptus Forest/Plantation	90.1
	RTA Total	**90.1**
AC011	Eucalyptus Forest/Plantation	86.0
	Coyote Brush Scrub	22.2
	Oak-Bay Woodland/Forest	1.4
	Developed/Disturbed/Landscaped	1.4
	California Annual Grassland	1.2
	RTA Total	**112.1**
AC012	Coyote Brush Scrub	18.9
	Eucalyptus Forest/Plantation	9.5
	RTA Total	**28.4**
AC013	Eucalyptus Forest/Plantation	183.2
	California Annual Grassland	19.5
	Coyote Brush Scrub	5.8

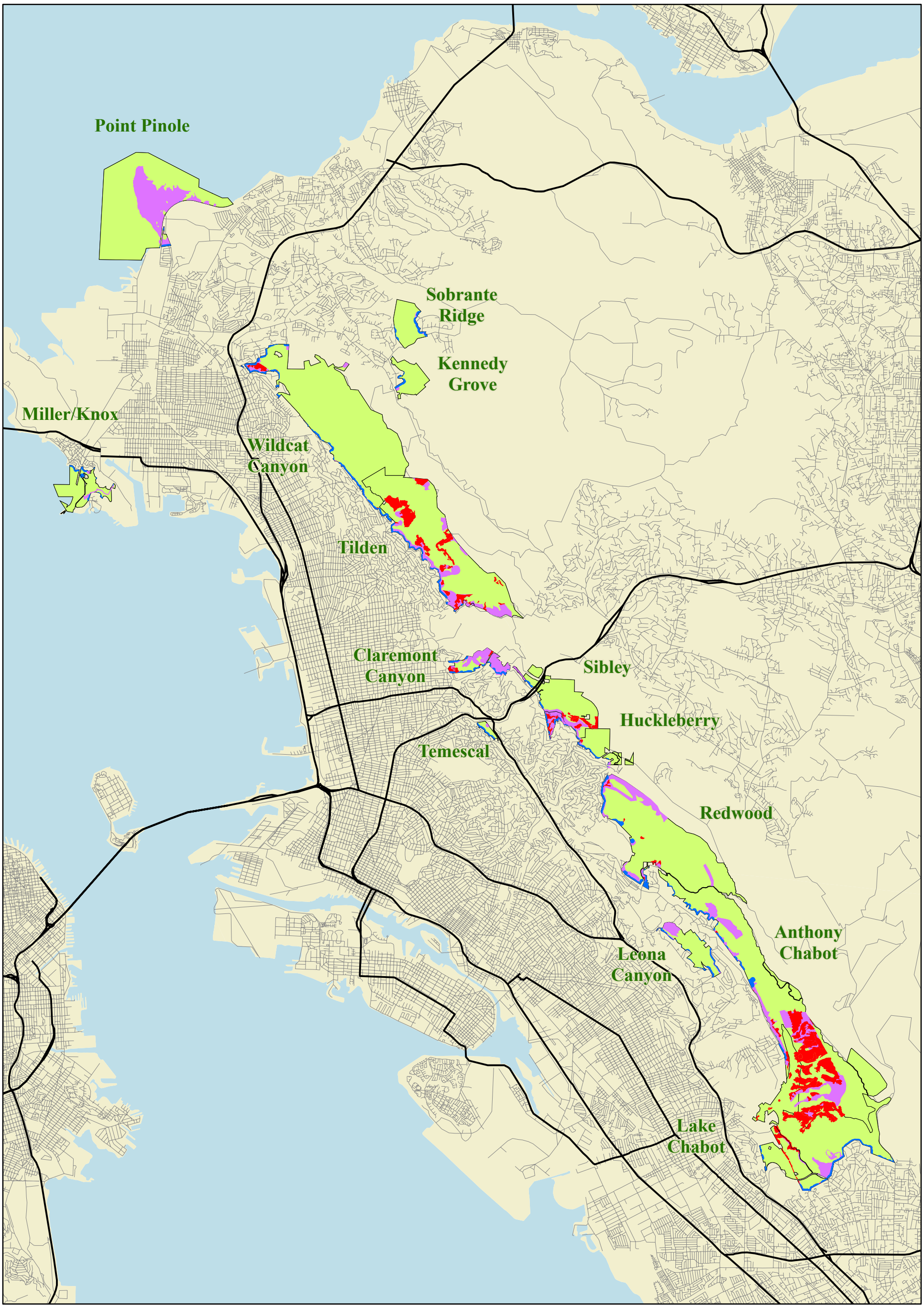
RTA	Vegetation Type	Acreage[a] (> 0.1 acre present)
	Developed/Disturbed/Landscaped	0.9
	RTA Total	**209.4**
AC014	Coyote Brush Scrub	61.6
	California Annual Grassland	16.5
	Oak-Bay Woodland/Forest	9.8
	Coastal Scrub (xeric)	4.5
	Eucalyptus Forest/Plantation	0.4
	Riparian Woodland	0.1
	RTA Total	**93.0**
Lake Chabot Regional Park		
LC001	Eucalyptus Forest/Plantation	3.5
	RTA Total	**3.5**
LC002	Eucalyptus Forest/Plantation	1.2
	RTA Total	**1.2**
LC003	Eucalyptus Forest/Plantation	1.9
	RTA Total	**1.9**
LC004	Eucalyptus Forest/Plantation	2.1
	RTA Total	**2.1**
LC005a	Eucalyptus Forest/Plantation	2.1
	RTA Total	**2.1**
LC005b	Eucalyptus Forest/Plantation	5.2
	RTA Total	**5.2**
LC006	Eucalyptus Forest/Plantation	25.2
	Oak-Bay Woodland/Forest	4.9
	Coyote Brush Scrub	0.7
	California Annual Grassland	0.1
	RTA Total	**30.9**
LC007a	Eucalyptus Forest/Plantation	2.4
	RTA Total	**2.4**
LC007b	Eucalyptus Forest/Plantation	2.7
	RTA Total	**2.7**
LC007c	Eucalyptus Forest/Plantation	3.5
	RTA Total	**3.5**
LC007d	Eucalyptus Forest/Plantation	0.8
	RTA Total	**0.8**
LC008	California Annual Grassland	8.7
	Eucalyptus Forest/Plantation	3.0
	Oak-Bay Woodland/Forest	0.6
	RTA Total	**12.3**
LC009	California Annual Grassland	20.7
	Coastal Scrub (xeric)	3.4
	Coyote Brush Scrub	1.6
	Developed/Disturbed/Landscaped	1.4
	Oak-Bay Woodland/Forest	1.0
	RTA Total	**28.1**
LC010	California Annual Grassland	2.2
	Coastal Scrub (xeric)	2.1
	Oak-Bay Woodland/Forest	0.5
	RTA Total	. **4.8**
Point Pinole Regional Shoreline		
PP001	Eucalyptus Forest/Plantation	181.3
	Coastal Prairie	154.1
	Non-native Grassland	42.9
	Ruderal	27.9
	Coyote Brush Scrub	23.6
	Coastal Scrub (xeric)	10.1

RTA	Vegetation Type	Acreage[a] (> 0.1 acre present)
	Coastal Scrub (mesic)	0.5
	Oak-Bay Woodland/Forest	0.5
	Non-native Perennial Grassland	0.3
	Developed/Disturbed/Landscaped	0.3
	Freshwater Marsh	0.2
	Aquatic/Open Water	0.1
	Riparian Woodland	0.1
	RTA Total	**441.9**
PP001a	California Annual Grassland	0.3
	RTA Total	**0.3**
PP001b	Coyote Brush Scrub	1.7
	RTA Total	1.7
PP002	Eucalyptus Forest/Plantation	7.2
	Coyote Brush Scrub	4.0
	Non-native Grassland	2.9
	RTA Total	**14.1**
PP003	Eucalyptus Forest/Plantation	3.7
	Non-native Grassland	0.4
	RTA Total	**4.2**
PP004	Coyote Brush Scrub	1.6
	RTA Total	**1.6**
PP005a	Coastal Prairie	11.6
	Developed/Disturbed/Landscaped	2.0
	RTA Total	**13.6**
PP005b	Coastal Prairie	1.0
	RTA Total	**1.0**
Miller/Knox Regional Shoreline		
MK001	Broom Scrub	4.3
	Coastal Prairie / Non-native Grassland	0.6
	Eucalyptus Forest/Plantation	0.5
	Developed/Disturbed/Landscaped	0.4
	RTA Total	**5.9**
MK002	Coyote Brush Scrub	0.3
	Non-native Coniferous Forest	0.1
	RTA Total	**0.4**
MK003	Coastal Prairie / Non-native Grassland	2.7
	RTA Total	**2.7**
MK004	Non-native Coniferous Forest	2.9
	Coastal Scrub (xeric)	0.3
	RTA Total	3.2
MK005	Coastal Prairie / Non-native Grassland	4.8
	Coastal Scrub (mesic)	3.3
	Coastal Scrub (xeric)	1.8
	Non-native Coniferous Forest	0.1
	RTA Total	**10.0**

[a] In this table, the RTA totals show the approximate vegetation acreage within each identified RTA. This total does not include roadways and may not represent the actual size of the RTA identified in Table 111-2 of the EBRPD Wildfire Hazard Reduction and Resource Management Plan. The actual vegetation types present must be determined by site assessment visits.

[b] AC005 was an area covered by EBRPD's FEMA EA to install fencing. Since its creation the project has not been completed and has been canceled. As a result, this RTA was deleted from further consideration.

Source: EBRPD GIS Database 2004 Vegetation Data.



LSA

FIGURE III-1

Wildfire Hazard Assessment Areas

Within 200 Feet of Private Structures

High-Hazard Eucalyptus

Other Wildfire Hazard Assessment Areas

N

0 5,000 10,000
FEET

EBRPD Wildfire Hazard Reduction and Resource Management Plan

Wildfire Hazard Assessment Areas

I:\EBR0601\GIS\Maps\Fire Plan\FigureIII-1_Wildfire Hazard Assessment.mxd (10/28/2008)

This page intentionally left blank.

APPENDIX M PART 2 ANCHOR POINT METHODOLOGY

The current fire behavior modeling for the East Bay Hills project area represents a combination of methodologies that have been used at various stages of the environmental assessment process (initial proposal, draft EIS, etc.) on the four grant applications from East Bay Regional Park District (EBRPD), City of Oakland (Oakland) and the University of California, Berkeley (UCB). Anchor Point's approach has been to build on previous work while bringing all areas covered by the current EIS up to similar standards of fire behavior modeling and subsequent analysis. It was necessary to take different approaches for different areas because the data availability varied from location to location, especially with regard to cross walking vegetation data to fire behavior input data. Every effort was made to maintain a high standard of accuracy across all areas covered by the EIS. In all cases, Anchor Point converted any existing work from custom fuel modeling inputs to standard fire behavior fuel models (FBFM) (Scott and Burgan 2005). This process involved examining previous work by fire behavior experts for validity and agreement with standard fire behavior modeling practice.

The current set of proposed and connected project areas include areas that have been previously assessed in terms of vegetation and fuel modeling cross walks. For instance, some areas have more detailed vegetation information than others. In some areas, vegetation had already been cross-walked to fuel model information, while other areas had not. The proposed and connected project areas can be broken down into four different situations with regard to data availability. These four situations also determined which data shortfalls needed to be addressed so that all areas would have the same fire behavior inputs.

The four situations were as follows:

1) Less-detailed vegetation data with some vegetation to fuel model cross walking complete (e.g., pre-treatment conditions present, post-treatment needed). The Miller-Knox Regional Shoreline project area fit into this category. Post-treatment conditions were assigned based on previous fire behavior modeling by Carol Rice after review and conversion to the standard Burgan and Scott (2005) FBFM by Anchor Point.

2) More-detailed vegetation description data, no vegetation to fuel model cross walking complete. Claremont Canyon Regional Preserve, Frowning Ridge-PDM and Strawberry Canyon-PDM are representative of this situation. Missing cross walk data were filled in based on Carol Rice's previous work following review and conversion to the standard Burgan and Scott (2005) FBFM by Anchor Point.

3) Less-detailed vegetation description data with no vegetation to fuel model cross walking complete. North Hills-Skyline-PDM and Caldecott Tunnel-PDM fit this situation. Missing cross walk data were filled in based on Carol Rice's previous work after review and conversion to the standard Burgan and Scott (2005) FBFM by Anchor Point.

4) The remainder of the proposed and connected project areas were included in the work by Carol Rice as detailed in Appendix M, Part A. Anchor Point reviewed all data and

converted it to the standard Burgan and Scott (2005) FBFMs before using the data in the fire behavior modeling process.

Once all the gaps in the data were addressed, all of the proposed and connected project areas contained equivalent data that could then be used as inputs for fire behavior modeling. Standard fire behavior analysis practices were used (See section 4.3 of the EIS) to generate fire behavior predictions for the proposed and connected actions and the no action alternative. The weather and fuel moisture values shown in Table M-1 were used for the FlamMap runs.

Table M-1. Weather and Fuel Moisture Values for FlamMap

20 ft. Windspeed	22 mph
Wind Direction	60° Azimuth
1 hour fuel moisture	2%
10 hour fuel moisture	3%
100 hour fuel moisture	7%
Live herbaceous fuel moisture	70%
Live woody fuel moisture	70%
Foliar moisture content	70%

After generating fire behavior analysis outputs, Anchor Point evaluated differences between the proposed and connected actions and the no action alternative. All analyses subsequent to generating equivalent fuel model inputs across all proposed and connected project areas were independent of any previous work and were solely the work of Anchor Point.

Flame length and crown fire activity outputs from the no action alternative and the proposed and connected actions were exported from FlamMap to be used for further analysis. Outputs from FlamMap come in the form of raster cells (30m x 30m). These cells were converted to a vector point file. Points with flame lengths greater than 8 feet were extracted and buffered by 200ft.

Structure data were not available for the area, so structure locations (points) were digitized from an aerial photograph. This method probably missed a few structures that were obscured by vegetation when observed from above, but a majority of structures were located using this methodology.

Structure locations were buffered by 200 feet and the number of structures located within 200 feet of 8-foot flame lengths were counted for both alternatives. The points with 8-foot flame lengths and their associated buffers were spatially associated with the proposed or connected project area in which they were located so that the each proposed or connected project area that would expose a structure to 8-foot flame lengths could be identified. The results of this analysis are presented in section 5.2 of the EIS.

Table M-2. Vegetation Description to Fuel Models Inputs Cross Walk Values

Vegetation Type	Pre- Burgan & Scott Fuel Model	Pre- Tree Height (ft)	Pre- Height To Live Crown (ft)	Pre- Canopy Cover (category)	Post- Burgan & Scott Fuel Model	Post- Tree Height (ft)	Post- Height To Live Crown (ft)	Post- Canopy Cover (category)
Caldecott Tunnel-PDM								
coastal scrub xeric	145	40	2	2	121	0	0	0
developed/landscaped disburbed	91	0	0	0	91	0	0	0
eucalyptus forest/plantation	192	100	6	4	143	0	0	0
oak-bay woodland/forest	145	40	2	4	121	0	0	0
Riparian Woodland	182	100	4	4	182	100	4	4
Claremont-PDM								
Coyote Brush	142	6	2	0	142	6	2	0
Coyote Brush - California Sage	142	6	2	0	142	6	2	0
Coyote Brush - Grassland - California Sage	142	6	2	0	142	6	2	0
Coyote Brush - Live Oak - California Bay	142	40	2	2	142	40	2	2
Dense Bluegum Eucalyptus	189	100	6	4	143	6	6	3
Dense Bluegum Eucalyptus - Live Oak - California Bay	189	100	4	4	183	6	6	0
Dense Bluegum Eucalyptus - Live Oak - California Bay - Blackberry	189	100	4	4	183	6	6	0
Live Oak - California Bay	182	40	12	4	183	6	6	0
Live Oak - California Bay - Coyote Brush	182	40	2	3	183	36	6	0
Live Oak - California Bay - Dense Bluegum Eucalyptus - Coyote Brush	182	40	2	3	183	36	6	0
Frowning Ridge-PDM								
Annual Grassland - Scattered Bluegum Eucalyptus	189	80	8	1	101	0	0	0
California Bay	182	40	12	4	183	36	12	3
Coyote Brush	142	6	2	0	142	6	2	0
Coyote Brush - California Bay	142	40	2	2	142	40	2	2
Coyote Brush - California Sage	142	6	2	0	142	6	2	0
Coyote Brush - California Sage - Grassland	142	6	2	0	142	6	2	0
Coyote Brush - Dense Bluegum Eucalyptus	145	100	2	2	121	9	6	0
Coyote Brush - Grassland	142	6	2	0	142	6	2	0
Coyote Brush - Grassland - California Sage	142	6	2	0	142	6	2	0

Table M-2. Vegetation Description to Fuel Models Inputs Cross Walk Values

Vegetation Type	Pre- Burgan & Scott Fuel Model	Pre- Tree Height (ft)	Pre- Height To Live Crown (ft)	Pre- Canopy Cover (category)	Post- Burgan & Scott Fuel Model	Post- Tree Height (ft)	Post- Height To Live Crown (ft)	Post- Canopy Cover (category)
Coyote Brush - Live Oak - California Bay	142	40	2	2	142	40	2	2
Dense Bluegum Eucalyptus	189	100	6	4	143	6	6	0
Dense Bluegum Eucalyptus - Coyote Brush	145	100	2	4	121	6	6	0
Dense Bluegum Eucalyptus - Live Oak - California Bay	189	100	4	4	183	6	6	0
Dense Bluegum Eucalyptus - Live Oak - California Bay - Coyote Brush	189	100	4	4	183	6	6	0
Dense Bluegum Eucalyptus - Pine	189	100	4	4	143	6	6	0
Developed	91	0	0	0	91	0	0	0
Grassland - Coyote Brush	101	6	1	0	121	6	6	0
Ground Clover - Coyote Brush - California Bay	101	40	6	1	183	36	6	1
Live Oak - California Bay	182	40	12	4	183	36	12	3
Live Oak - California Bay - Coyote Brush - Pine - Dense Bluegum Eucalyptus	182	100	2	4	183	36	6	3
Live Oak - California Bay - Dense Bluegum Eucalyptus - Coyote Brush	182	100	2	3	183	36	6	3
Mixed Conifer	184	100	6	4	143	6	6	0
Pine	161	80	12	4	143	6	12	0
Pine - Coyote Brush - Dense Bluegum Eucalyptus - Grassland	145	100	2	3	143	6	6	0
Pine - Dense Bluegum Eucalyptus - Coyote Brush	161	100	6	4	143	6	6	0
Pine - Live Oak - California Bay	182	80	12	4	183	6	12	2
Willow	142	30	6	4	182	27	6	3
North Hills-Skyline-PDM								
coastal scrub xeric	142	4	0	0	142	4	0	0
coyote brush scrub	142	4	0	0	142	4	0	0
developed/landscaped disburbed	99	0	0	0	99	0	0	0
eucalyptus forest/plantation	189	100	6	4	182	40	6	4
oak-bay woodland/forest	182	40	2	4	182	40	2	4

Table M-2. Vegetation Description to Fuel Models Inputs Cross Walk Values

Vegetation Type	Pre- Burgan & Scott Fuel Model	Pre- Tree Height (ft)	Pre- Height To Live Crown (ft)	Pre- Canopy Cover (category)	Post- Burgan & Scott Fuel Model	Post- Tree Height (ft)	Post- Height To Live Crown (ft)	Post- Canopy Cover (category)
Strawberry Canyon-PDM								
Annual Grassland - Scattered Bluegum Eucalyptus	189	80	8	1	101	80	8	1
Coyote Brush	142	6	2	0	142	6	2	0
Dense Bluegum Eucalyptus	189	100	6	4	143	6	6	3
Dense Bluegum Eucalyptus - Coyote Brush	145	100	2	4	121	6	6	0
Dense Bluegum Eucalyptus - Pine	189	100	4	4	143	6	6	0
Developed	91	0	0	0	91	0	0	0
Live Oak - California Bay	182	40	12	4	183	36	12	3
Pine	161	80	12	4	143	6	6	0

The crown fire activity output rasters (for both the proposed and connected actions and no action alternative) were also converted to points. All points with either torching or active crown fire values were selected for further analysis. Of these selected points, those occurring in areas with modeled shrub fuels were buffered by 1000 foot and those in areas with modeled timber fuels were buffered by 2000 foot. These buffered points were overlaid on the structure locations and (the number of structures influenced by crown fire activity. This method uses the crown fire activity values of passive crowning (torching) or active crowning as proxies for ember cast.

Finally, the flame length output data for the (proposed and connected actions and no action alternative) were summarized by overlaying the proposed and connected project areas and calculating a mean flame length for each area. While this information is less spatially explicit because the results are aggregated by each proposed or connected project area, the comparison between average flame lengths between alternatives was deemed to be an appropriate metric to describe potential fire behavior in the proposed and connected project areas.

References:

Scott, J.H. and R.E. Burgan. 2005. *Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model.* Gen. Tech. Rep. RMRS-GTR. 153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountains Research Station. Accessed on: March 2011. Available at http://www.fs.fed.us/rm/pubs/rmrs_gtr153.pdf

APPENDIX N STATE HISTORIC PRESERVATION OFFICE CONCURRENCE DOCUMENTATION

This page intentionally left blank.

STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY

EDMUND G. BROWN, JR., *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

April 24, 2013

Reply In Reference To: FEMA110207A

Alessandro Amaglio
Environmental Officer
FEMA - U.S. Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

RE: Four Hazardous Fire Risk Reduction Projects, East Bay Hills, PDM-PJ-09-CA-2005-011, PDM-PJ-09-CA-2006-004, PDM-PJ-09-CA-2005-003, and FEMA-HMGP-1731-16-34

Dear Mr. Amaglio:

Thank you for your March 13, 2013, letter regarding the proposed undertaking in the East Bay Hills as listed above and in compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulation found at 36 CFR Part 800 and the 2005 First Amended Programmatic Agreement between Federal Emergency Management Agency (FEMA), the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation. Along with your letter, you submitted a map showing the Area of Potential Effect (APE) and survey areas, as well as a disc containing the "Cultural Resources Inventory Report for the Hazardous Fire Risk Reduction, Environmental Impact Statement, East Bay Hills, California," dated February 2013. Following receipt of your letter, this office also received a letter from CH2M HILL dated March 18, 2013, and conveying another disc containing the technical report that supports the Cultural Resources Inventory Report.

As previously described, the proposed undertaking, involves a number of projects to reduce hazardous fire risks in the area. These projects include brush removal, the removal or thinning of non-native trees, chipping the downed trees, scattering the chips and semiannual application of herbicides to eradicate new sprouts. In a letter dated April 19, 2011, the SHPO commented that the proposed APE for this undertaking appeared sufficient.

A systematic pedestrian archaeological survey and intensive standing structure survey were conducted in 2012. The survey revealed 13 archaeological sites, seven of which FEMA proposes as eligible for listing in the National Register of Historic Places (NRHP). The survey also recorded 25 architectural resources, including buildings, structures, and districts. FEMA proposes to assume the seven sites and 25 architectural resources are eligible for the purposes of this undertaking. FEMA requests SHPO concurrence that the scope of work will not adversely affect any of these historic properties with the condition that the East Bay Regional Parks District Best Management Practices will be implemented to ensure avoidance of adverse effects.

After reviewing the information submitted with your letter, the SHPO concurs with this finding. If you agree with my Finding of No Adverse Effects with Conditions, please indicate your consent by signing the signature block at the end of this letter and returning it to this office. If

you disagree, please contact Mark Beason of my staff at (916) 445-7047 or mark.beason@parks.ca.gov. Please be advised that under certain circumstances, such as unanticipated discovery or a change in project description, FEMA may have additional future responsibilities for this undertaking under 36 CFR Part 800. Thank you for seeking my comments and considering historic properties as part of your project planning.

Sincerely,

Susan K Stratton for

Carol Roland-Nawi, Ph.D.
State Historic Preservation Officer

AGREED: _____ DATE: 04/24/2013

Alessandro Amaglio
Environmental Officer
FEMA – Region IX
U.S. Department of Homeland Security

U.S. Department of Homeland Security
1111 Broadway. Suite 1200
Oakland. CA 94607-4052

FEMA

March 13, 2013

Dr. Carol Roland-Nawi
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
1725 23rd Street, Suite 100
Sacramento, CA 95816

Attn: Mark Beason and Susan Stratton

RE: No Adverse Effect to Historic Properties Determination.

PDM-PJ09 CA-2005-011: Hazardous Fire Risk Reduction Strawberry Canyon Vegetation Management Project, University of California, Berkeley
PDM-PJ-09-CA -2005-003: Claremont Canyon Vegetation Management Project University of California, Berkeley
PDM-PJ-09 -CA-2006-004: Regional Fuel Management Project, City of Oakland
FEMA-HMGP-1731 -16-34: Brush Fuels Management Project, East Bay Regional Parks District

Dear Dr. Roland-Nawi:

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to provide Federal financial assistance (Undertaking) to the University of California, Berkeley (UCB); the City of Oakland; and the East Bay Regional Parks District (EBRPO), through the California Emergency Management Agency (Cal EMA), to reduce hazardous fire risk in Applicant-identified areas of the East Bay Hills, located in Alameda and Contra Costa counties, California. The proposed projects may be funded through FEMA's Pre-Disaster Mitigation Program (PDM) and Hazard Mitigation Grant Program (HMGP). FEMA is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental impacts as a result of funding these projects.

Project Description

FEMA has received four grant applications for hazardous fire risk reduction projects in the East Bay Hills, as listed above. The proposed projects would affect approximately 1,000 acres of wildland- urban interface in the East Bay Hills, from Lake Chabot to Wildcat Canyon and Sobrante Ridge.

Under the PDM program UCB submitted two grant applications: one for a 56-acre area designated as Strawberry Canyon, and one for a 43-acre area designated as Claremont Canyon. To reduce the amount of fuel available to support wildfires, UCB proposes to remove invasive, non-native, fire- promoting trees from these areas. The downed trees would be chipped or cut into pieces and scattered on the project sites. The native understory would be preserved. Large logs would be placed and retained as a component of erosion and sedimentation control measures. Eucalyptus and acacia stumps would be treated with herbicides to prevent resprouting. Cut trees would receive periodic follow-up treatment of any emerging stump sprouts with herbicides or through mechanical removal of emerging growth. Follow-up treatment of resprouts would be conducted at least semiannually for long-term maintenance. In addition, eucalyptus seedlings would be managed to prevent recolonization of this invasive species.

Also under the PDM program the City of Oakland's application includes six projects in Alameda County near the Contra Costa County border, on property owned by Oakland , U CB, and EBRPD. The projects are the North Hills-Skyline area project , the Caldecott Tunnel area project, UCB's Frowning Ridge area project , and EBRPD's Tilden Regional Park (Tilden-Grizzly) project, Sibley Volcanic Regional Preserve (Sibley Triangle and Island) project, and Claremont Canyon (Claremont Canyon-Stonewall, EBRPD property portion) project. These six project areas total 359 acres.

Nonnative trees (mostly eucalyptus) would be removed and the stumps of eucalyptu s and acacia trees would be mechanically or chemically treated to prevent resprouting. Native trees would be preserved. Felled trees would be chipped or cut into pieces and scattered on the project site. Some logs would be retained for use in erosion and sedimentation control measures. Resprouts would be treated monthly for long-term maintenance. Seedlings would be managed to prevent recolonization of these invasive species.

Under the HMGP program EBRPD proposes reduction of fuel loads on 541 acres in 11 regional parks: Anthony Chabot Regional Park, Claremont Canyon Regional Preserve , Huckleberry Botanic Regional Preserve, Lake Chabot Regional Park, Leona Canyon Regional Open Space Preserve, Miller/Knox Regional Shoreline, Redwood Regional Park, Sibley Volcanic Regional Preserve, Sobrante Ridge Regional Preserve, Tilden Regional Park, and Wildcat Canyon Regional Park. EBRPD would reduce fuel loads through selective thinning of vegetation, brush removal (mechanical and by hand), pile burning to dispose of cut brush, grazing, and herbicide treatment for long-term maintenance. The majority of the proposed activities would focus on removing nonnative species, but native shrubs would also be thinned or decreased in height to reduce fuel loads. All cut brush would receive semiannual follow-up treatment of any emerging resprouts. Felled trees would be removed from the site or chipped and left on site.

FEMA funding any or all of the grants meets the definition of a Federal Undertaking (36 C.F.R. § 800. l 6(y)) and therefore requires the completion of a Section 106 review in accordance with the National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. § 470f) and the 2005 First Amended Programmatic Agreement (Agreement) among FEMA, your office, Cal EMA, and the Advisory Council on Historic Preservation (ACHP).

As part of the determination of whether the Undertaking has the potential to affect historic properties, FEMA has determined the area of potential effect (APE), as defined in 36 C.F.R. § 800.16(d) and pursuant to 36 C.F.R. § 800.4(a)(l) and Stipulation VII.A of the Agreement. The area of potential effects (APE) was determined to comprise the footprint of the proposed and connected actions, which includes all areas of vegetation treatment as well as all areas of temporary disturbance such as staging areas and access routes. FEMA consulted with SHPO regarding the APE determination and requested SHPO's concurrence in a letter dated February 4, 2011. SHPO concurred with FEMA's APE determination on April 19, 2011. This documentation is packaged with CH2M HILL's technical report (Attachment A).

Area of Potential Effect

The APE is located on the Richmond, San Quentin, Briones Valley, Oakland East, Las Trampas Ridge, and Hayward, California 7.5 Minute USGS quadrangles. Specifically , the proposed and connected project areas lie within unsectioned areas of Township 2 North , Range 4 West; Township I South, Range 3 West, Sections 5, 8, 9, 15, 16, 22, 26, 27, 34 and 35; Township 2 South, Range 2 West, Sections 7 and 18; and Township 2 South, Range 3 West, Section I (Figure 1).

The following project areas arc included in this assessment:

- Anthony Chabot Regional Park (portion in EBRPD proposed and connected project areas)
- Claremont Canyon Regional Preserve (portion in EBRPD proposed and connected project areas)
- Claremont Canyon Regional Preserve-PDM (EBRPD project area in Oakland application)
- Huckleberry Botanic Regional Preserve (portion in EBRPD proposed project areas)
- Leona Canyon Regional Open Space Preserve (portion in EBRPD proposed project area)
- Miller/Knox Regional Shoreline (portion in EBRPD proposed project areas)
- Redwood Regional Park (portion in EBRPD proposed and connected project areas)
- Sibley Volcanic Regional Preserve (portion in EBRPD proposed and connected project areas)
- Sibley Volcanic Regional Preserve-PDM (EBRPD project area in Oakland application)
- Sobrante Ridge Regional Preserve (portion in EBRPD proposed project area)
- Tilden Regional Park-PDM (EBRPD project areas in Oakland application)
- Tilden Regional Park (portion in EBRPD proposed and connected project areas)
- Wildcat Canyon Regional Park (portion in EBRPD proposed and connected project areas)
- Caldecott Tunnel-PDM (Oakland)
- North Hills-Skyline-PDM (Oakland)
- Claremont-PDM (UCB)
- Strawberry Canyon-PDM (UCB)
- Frowning Ridge-PDM (UCB project area in Oakland application)

The APE, comprised of mostly open space, woodland and parks, is administered by three different land managers: U CB, Oakland and EBRPD. The East Bay Hills area land use consists of a mix of residential, commercial , parkland and woodlands , most of which is bound by urban development s,

particularly in the foothills and coastal plain. The APE is in existing park or open space areas and the majority of it is adjacent to single-family residential land uses.

CH2M HILL was task by FEMA to perform an archeological and historic properties survey, with the purpose to determine the presence of historic properties within the APE pursuant to Section 106 of the National Historic Preservation Act (NHPA) and 36 CFR Part 800.

Identification and Evaluation

The APE is depicted in the attached Figure 1 and the entire area was subject to a systematic pedestrian archaeological survey and intensive standing structures survey on October 15, 2012, through November 2, 2012. A total of 13 archaeological resources were observed and located partially or completely within the APE during the cultural resource survey; five of these were newly recorded (S-GC-1, S-GC-2, S-GC-3, S-PR-1, and tihs006). A total of 25 architectural resources comprising districts, sites. and features were observed within the APE; four architectural resources were previously recorded and 21 were newly recorded as a result of the survey. Of the 21 newly recorded architectural resources, in accordance with the *Instructions for Recording Historical Resources* issued by the California Department of Historic Preservation (OI IP), four were recorded as districts, Anthony Chabot Regional Park, Tilden Regional Park, Redwood Regional Park, and Sibley Volcanic Regional Preserve, due to their concentration of buildings and structures united historically and functionally by plan and physical development. Three of these are potential historic districts and eligible to the NRHP: Tilden Regional Park, Redwood Regional Park, and Sibley Volcanic Regional Preserve.

Within the APE are large and complex cultural landscapes. One, Alvarado Park, was listed on the NRHP in 1992. In addition to the proposed historic districts, 14 individual structures, including the previously recorded Hunt Field/Redwood Arena, were newly evaluated and recorded on Building, Structure, Object, and Record forms.

Copies or Summaries of Views by Consulting Parties and the Public

After consulting the Native American Heritage Commission (NAHC) in October 2010, FEMA contacted the listed tribes (copy of correspondence included in the attached report); no responses were received indicating an interest on the project or indicating effects to historic properties or of cultural significance to the tribes. Upon completion of the Draft EIS, FEMA will send another round of letters to notify the tribal individuals and groups identified by the NAHC of the opportunity to comment and review. Additionally, tribes, groups, and interested individuals will have opportunity to comment on the undertaking during the public comment period for the Draft EIS.

Assessment of Effects

Based on the aforementioned identification and evaluation of historic properties as defined in 36 CFR 800.16(1)(1) within the APE, FEMA has determined that there are thirteen archaeological sites located within the APE.

Seven sites, P-1-00158, CA-CC0-125, CA-CC0-274, CA-CC0-323, CA-CC0-349, CA-CC0-353, and S-GC-1 are recommended as eligible to the NRHP. At site S-GC-1, the false gun emplacement and observation point, the area is clear of vegetation and no impacts are expected. No impact would occur at site P-1-00158, the Grass Valley Trail. The trail is currently used for recreation and no impacts are expected. No excavation or ground disturbance is expected within the boundaries of prehistoric sites CA-CC0-323, CA-CC0-274, CA-CCO- 349, CA-CC0-353 and CA-CC0- 125 within Alvarado Park, and therefore, no adverse effects to these sites would occur. No ground disturbing activities would occur in mapped locations or in the general area of these sites without the presence of an archeological monitor.

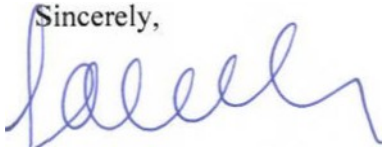
A total of 25 architectural resources including districts, structures and buildings are located within the APE. While vegetation clearing and removal would occur within four parks considered eligible for the NRHP, Alvarado , Redwood Regional, Tilden Regional, and Sibley Volcanic Regional Preserve, impacts are not considered adverse. While the removal or reduction of this vegetation may affect the visual qualities of the parks, the potential adverse impact is offset by the far greater potential negative and destructive impact to each park from threat of fire.

FEMA has determined that the benefit of reducing fire hazards within EBRPD would have a beneficial, long-term, and positive impact on all cultural resources within the APE, mitigating any possible direct or indirect visual impacts to them.

Therefore, FEMA has determined, pursuant to 36 CFR § 800.4(d)(l) and in compliance with Stipulation Vll.C of the Agreement, a finding of **No Adverse Effect to Historic Properties for this Undertaking** and is submitting this determination to your office for your review and comment, and requests your concurrence on its determination within 21 days of receipt of this submittal. Please find the enclosed documentation in accordance with 36 CFR 800.11(d).

I am looking forward to your concurrence with this determination. If you require any additional information please do not hesitate to contact me at (510) 627-7284 or at alessandro.amaglio@fema.dhs.gov.

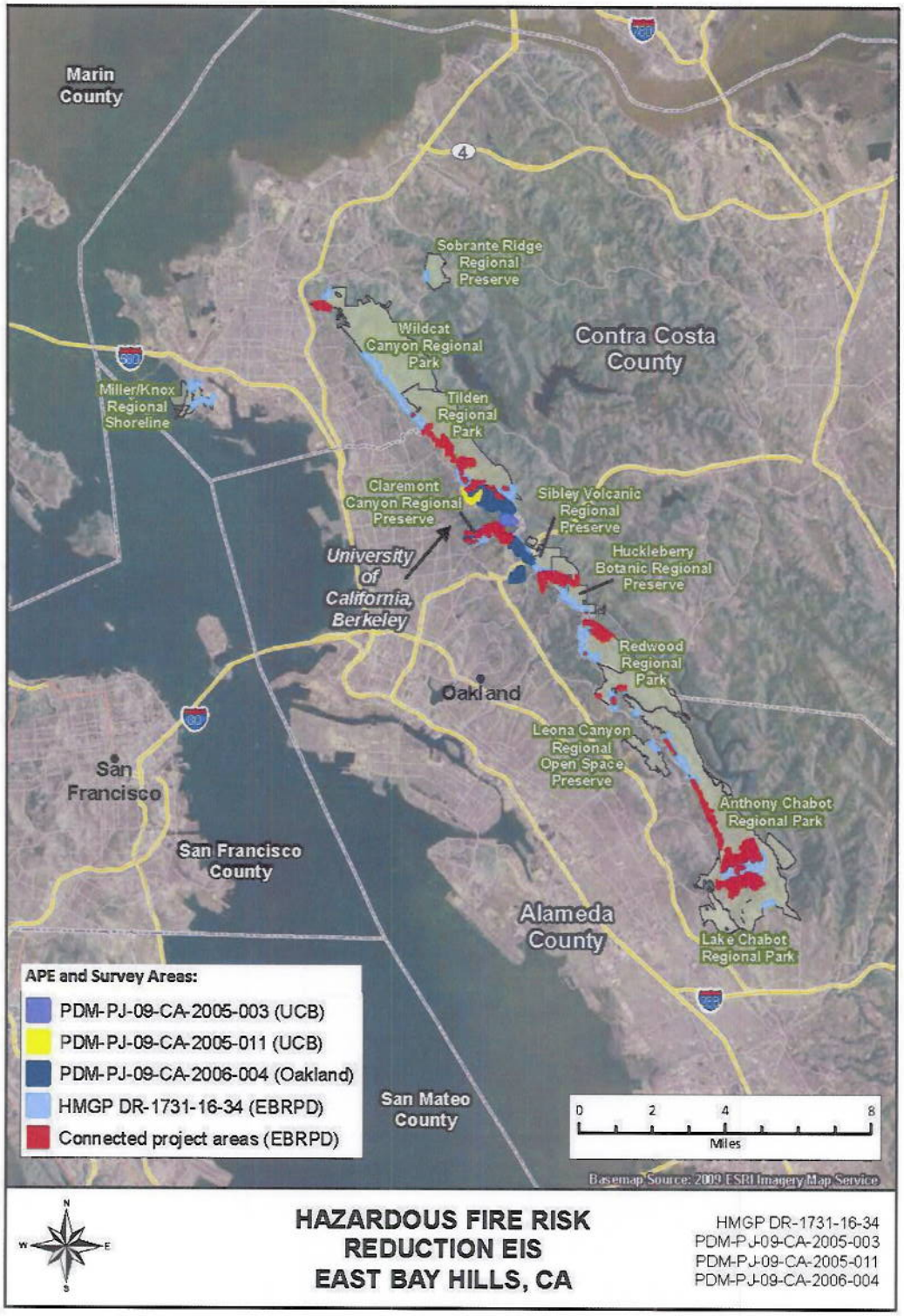
Sincerely,



Alessandro Amaglio
Environmental Officer
FEMA Region IX

Enclosures

Figure 1.
Area of Potential Effects and Archaeological/Architectural Survey Area



STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY

EDMUND G. BROWN, JR., *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

April 19, 2011 Reply In Reference To: FEMA110207A

Alessandro Amaglio
Regional Environmental Officer, FEMA
U.S. Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, CA 94607-4052

RE: Four Hazardous Fire Risk Reduction Projects, East Bay Hills, PDM-PJ-09-CA-2005-011, PDM-PJ-09-CA-2006-004, PDM-PJ-09-CA-2005-003, and FEMA-HMGP-1731-16-34

Dear Mr. Amaglio:

Thank you for your February 4, 2011, letter requesting my review and comment with regard to the proposed undertaking in the East Bay Hills as listed above in compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulation found at 36 CFR Part 800 and the 2005 First Amended Programmatic Agreement among FEMA, SHPO, Cal EMA, and the Advisory Council on Historic Preservation. Along with your letter, you also submitted maps of the Area of Potential Effects (APE).

The proposed undertaking, as I understand it, involves a number of projects to reduce hazardous fire risks in the area. These projects include brush removal, the removal or thinning of non-native trees, chipping the downed trees, scattering the chips and semiannual application of herbicides to eradicate new sprouts.

FEMA has identified the APE as the footprint of the four proposed projects, including all areas of vegetation treatment and temporary disturbance from staging areas and access routes. Minimal ground disturbance is anticipated, so FEMA proposes a vertical APE of six inches below ground surface. Initial research revealed no historic properties adjacent to the footprint of the project areas. FEMA requests SHPO concurrence with the proposed APE. After reviewing the information submitted with your letter, I concur that the APE as proposed is appropriate.

Thank you for seeking my comments and considering historic properties as part of your project planning. I look forward to continuing consultation on this undertaking with FEMA. If you have any questions or concerns, please contact Mark Beason, at (916) 445-7047 or mbeason@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

APPENDIX O USFWS AND NOAA FISHERIES SERVICE CONSULTATION HISTORY

This page intentionally left blank.

Date	Meeting/Correspondence and Description Information
14-Aug-01	Biological Opinion: Formal Consultation on East Bay Regional Park District's Fire Mitigation Projects, FEMA-919-DR-CA, HMGP #919-515-24, Alameda County, California
03-Aug-07	Biological Opinion: Fomal Consultation for the Strawberry Vegetation Management Project, Alameda County, Califomia (PDMC-PJ-09-CA-2005-011).
17-Dec-07	Amendment to the Biological Opinion for the Claremont Canyon Vegetation Management Project in Claremont Canyon, University of California, Alameda County, California (PDMC-PJ-09-CA-2005-003).
11-Jun-10	Letter from FEMA to USFWS: FEMA request to USFWS to participate in EBH EIS as cooperating agency.
15-Oct-10	Letter from FEMA to NMFS: FEMA request to NMFS to participate in EBH EIS as cooperating agency.
26-Oct-10	Letter from NMFS to FEMA: NMFS, Southwest Region Office accepts FEMA's request to serve as a cooperating agency for the EBH EIS.
12-Jan-11	Email from USFWS to FEMA: USFWS Providing list of 64 pesticides prohibited in red-legged frog habitat.
13-Jan-11	Email from FEMA to USFWS and NMFS: FEMA provided USFWS and NMFS detailed vegetation maps.
14-Jan-11	Teleconference between USFWS and FEMA: USFWS provided information on pesticide ban for CA red-legged frog; status of Draft Recovery Plan for AWS due to new genetic findings.
21-Jan-11	Email from USFWS to FEMA: USFWS provided information on May 2010 pesticide injunction for 11 species in the Bay Area.
21-Jan-11	Email from FEMA to USFWS: Provided USFWS EBH figures showing CRLF No Spray Zone.
2-Mar-11	Letter from USFWS to FEMA: Preliminary Comments and Guidance from USFWS on FEMA's Development of an EIS, and BA for the Four Proposed Wildfire Mitigation Grant Application Projects in East Bay Hills, Alameda and Contra Costa Counties, California.
9-Mar-11	Site visit: USFWS site visit to UCB, EBRPD and City of Oakland land parcels.
10-Mar-11	Email from USFWS to FEMA: Request clarification on relation of USFS/BLM's project for EBRPD parcels to FEMA's project for EBRPD.
15-Mar-11	Letter from FEMA to USFWS: Response to USFWS Preliminary Comments and Guidance Letter of March 2, 2011.
24-Mar-11	Email from FEMA to USFWS: Provided EBRPD map with overlap of USFS/BLM parcels in relation to FEMA's project for EBRPD.
18-Apr-11	Email from USFWS to FEMA: USFWS decision not to develop MOU with EBRPD and Intra-Service Section 7 Consultation for the EBRPD vegetation/fuels management activities that are not within the FEMA- and BLM-funded consultations with EBRPD.
20-Apr-11	Email from FEMA to USFWS: Transmittal of FEMA's comments on the Draft USFWS Measures for Pallid Manzanita.
20-Apr-11	Email from USFWS to FEMA: USFWS request to FEMA re: coverage for EBRPD other parcels within scope of EIS.

27-Apr-11	Email from FEMA to USFWS: Provided copy of UCB's plans for herbicide application within Strawberry Canyon and Claremont Canyon.
26-May-1 1	Email from FEMA to USFWS: Provided .kmz map files for EBRPD cumulative actions (parcels not covered by Federal nexus).
3-Jun-11	Email from USFWS to FEMA: Comments of FEMA's Interim Review (EIS) Hazardous Fire Risk Reduction, East Bay Hills, California (June 2011).
23-Jun-11	Email from USFWS to FEMA: USFWS comments on Commonalities Matrix.
28-Jun-11	Email from NMFS to FEMA: NMFS comments on Commonalities Matrix.
19-Jul-11	Email from FEMA to USFWS: FEMA provided updated Commonalities Matrix.
29-Aug-11	Email from USFWS to FEMA: Comments on the August 29, 2011 version of the Commonalities Matrix for FEMA's East Bay Hills Fuels Management Project (by Joseph Terry, USFWS).
6-Sep-11	Email from USFWS to FEMA: USFWS provides definitions for short-term, long-term and permanent effects; also advises use of AWS core habitat as defined in FR.
20-Oct-11	Meeting: USFWS, UCB and FEMA meeting to discuss UCB parcels.
2-Nov-11	Site visit: USFWS, EBRPD, URS and Karen Swaim (AWS expert) site visit to EBRPD parcels.
9-Nov-11	Email from USFWS to FEMA: USFWS provides Tables 1-5 for use in the BA effects analysis including request for EBRPD to characterize low and high quality AWS habitat.
8-Dec-11	Meeting: FEMA, DHS, USFWS, EBRPD and City of Oakland discussion on summary tables for the BA effects analysis and agreement to perform effects analysis based on regional park system.
25-Jan-12	Email: USFWS provided FEMA copies of the Sunol project Long-Term Maintenance and Monitoring Plan as an example of project of vegetation management addressing similar issues including Alameda whipsnake and California Red-legged frog.
28-29-Mar-12	Emails from USFWS (Joseph Terry) providing comments on the "Interim Draft – Maintenance and Performance Metrics" submittals to FEMA from City of Oakland, UCB and EBRPD.
Apr-May-June-12	USFWS participates in weekly project teleconferences reporting on status of BA development.
17-Jul-12	Draft BA sections submitted to USFWS and NMFS for review.
19-Jul-12	Email: NMFS provided preliminary comments on the July 16 2012 version of the Draft BA (focus on herbicide use and application).
23-Jul-12	Email: USFWS provided preliminary comments on the July 16 2012 version of the Draft BA.
24-Jul-12	Project on-board review to perform a review of a draft (baseline) biological assessment (dated 07-16-2012) prepared in the process of complying with Section 7 of the Endangered Species Act as part of the EIS study. (The official meeting agenda accompanies this summary.)
1-Aug-12	Meeting: FEMA, USFWS, NMFS to discuss status of effects analysis and provide clarifications on areas for consideration, including action area and areas of suitable

	habitat for AWS and CRLF.
6-Aug-12	Email: USFWS to FEMA (Joseph Terry) providing a summary of information to be included in the re-vegetation and monitoring plan.
9-Aug-12	Submitted complete first Draft BA without the effects analysis to USFWS and NMFS.
10-Aug-12	Submitted complete section 5 of BA (effects analysis) to USFWS and NMFS.
10-Aug-12	Email: USFWS provided preliminary comments on the Effects Analysis section of the Draft BA.
10-Aug-12	Email: NMFS provided preliminary comments on the Draft BA.
10-Aug-12	Meeting and Conference Call: NMFS, USFWS, FEMA, and DHS to discuss the effects analysis methodology and results.
23-Aug-12	Email: USFWS provides general avoidance and minimization measures to include in BA.
5-Sep-12	Biological Assessment submitted to USFWS and NMFS to initiate consultation.
2-Oct-12	Email from USFWS: Comments on BA
10-Oct-12	Email from NMFS: Comments on BA
17-Oct-12	Email from USFWS: Comments on BA
19-Oct-12	Email from USFWS with attached document summarizing comments on BA.
19-Oct-12	Meeting and Conference call: NMFS, USFWS, FEMA, DHS related to calculations on suitable habitat for CRLF and AWS.
30-Oct-12	Email from USFWS: comments on BA
6-Nov-12	Meeting and Conference call: NMFS, USFWS, FEMA, DHS, CalEMA, UCB, Oakland, EBRPD – discussion on herbicide application BMPs.
13-Nov-12	Email: USFWS provided comments on the MMPs provided by the Sub-applicants as Appendix C in the BA.
16-Nov-12	Meeting and Conference call: USFWS, NMFS, FEMA, DHS, CalEMA, UCB, Oakland, EBRPD – discussion on potential offsetting measures and herbicide use.
10-Dec-12	Revised BA submitted that addressed questions from NMFS and USFWS.
17-Dec-12	Email from USFWS: preliminary comments on revised BA
31-Dec-12	Email from USFWS: comments on BA
9-Jan-13	Email correspondence between FEMA and USFWS on responses to USFWS comments.
15-Jan-13	Meeting and conference call: USFWS, FEMA, DHS, CalEMA, UCB, Oakland, EBRPD to discuss analysis of effects to AWS critical habitat.
16-Jan-13	Meeting and conference call: USFWS, FEMA, CalEMA, UCB, Oakland, EBRPD in regards to the creation of PCE1 and PCE2.
11- Feb-13	Responses to USFWS comments on AWS submitted (Revised BA sections dated 02/12/2013).

4- Mar-13	Email from USFWS: Comments on revised AWS analysis.
5-Mar-13	Email to USFWS: Response to comments in from 4-Mar-13 email.
5-Mar-13	Email and Telephone Communication: NMFS and FEMA discuss location and potential of work in RTAs to affect steelhead habitat.
11-Mar-13	Email from USFWS: comments on proposed offsetting measures; especially regarding North Hills-Skyline area.
25-Mar-13	Response to USFWS: clarification of North Hills-Skyline AWS impact calculations.
26-Mar-13	Email from USFWS: Additional comment on North Hills-Skyline analysis.
1-Apr-13	Email to USFWS: Clarification on North Hills-Skyline AWS analysis.
10-Jun-14	Letter to USFWS: Review of “unified methodology”
18-Jun-14	Email response from USFWS: Acceptance of unified methodology; no additional consultation needed.

Key:
AWS = Alameda whipsnake
BA = biological assessment
BLM = Bureau of Land Management
BMP = best management practice
CA = California
CalEMA = California Emergency Management Agency
CRLF = California red-legged frog
DHS = Department of Homeland Security
EBH = East Bay Hills
EBRPD = East Bay Regional Park District
EIS = environmental impact statement
FEMA = Federal Emergency Management Agency
HMGP = Hazard Mitigation Grant Program
MOU = memorandum of understanding
NMFS = National Marine Fisheries Service
UCB = University of California, Berkeley
USFS = U.S. Forest Service
USFWS = U.S. Fish and Wildlife Service