



**Federal Emergency Management Agency**

**Region IV**

3003 Chamblee Tucker Road  
Atlanta, Georgia 30341-4130  
Telephone: (770) 220-5406  
Fax: (770) 220-5440

July 7, 2000

James J. Slack, Field Supervisor  
U.S. Fish and Wildlife Service  
South Florida Ecological Services Office  
P.O. Box 2676  
Vero Beach, FL 32961-2676

Re: FEMA 1249-DR-FL Unmet Needs - Florida Keys Aqueduct Authority  
Key Largo Wastewater Treatment Plant

Dear Mr. Slack:

Thank you for your letter of June 23 to John Copenhaver. The Florida Keys Aqueduct Authority (Aqueduct Authority) has indeed requested funding from the Federal Emergency Management Agency (FEMA) through the Florida Division of Emergency Management (FDEM) for the referenced project. The project would be funded through Hazard Mitigation Grant Program Unmet Need funds appropriated after Hurricane Georges of 1998. The nature of the proposed project requires us to prepare an Environmental Assessment (EA) pursuant to the National Environmental Policy Act. Scoping for this effort was recently completed. Our agency has been aware of its obligations under Section 7 of the Endangered Species Act and had planned to coordinate with the U.S. Fish and Wildlife Service (FWS) as part of the EA. Circumstances require us to expedite our consultations for this particular project site.

Accordingly, FEMA would like to initiate informal consultation to determine if construction of a wastewater treatment plant at the Mile Marker (MM) 100.5 site in Key Largo has the potential to affect threatened or endangered species or their critical habitat, and to develop various mitigation measures if necessary. Monroe County is working with the Aqueduct Authority on this project and has prepared a Preliminary Environmental Assessment to provide FEMA and the Florida Department of Environmental Protection, who also funding this project, with a preliminary environmental evaluation of this project site. This document addresses points in your June 23rd letter and recommends additional biological evaluation of the site, which has been planned.

James Slack  
July 7, 2000  
Page 2 of 2

We anticipate sending additional information to your office shortly, for formal project affect determination. If you have any questions, please contact Science Kliner at (252) 641-5824 or Brett Bowen at (770) 220-5387. We look forward to our continuing consultation and thank you in advance for your attention to this project.

Sincerely,



William R. Straw  
Regional Environmental Officer

WS:sk

Cc: Miles Anderson, FDEM  
Phillip Worley, FDEM  
George Garrett, Monroe County  
Tim McGarry, Monroe County  
Rowena Garcia, FWCC  
Roger Braun, FKAA

Enclosure (1)



**Federal Emergency Management Agency**

**Region IV**

3003 Chamblee Tucker Road  
Atlanta, Georgia 30341-4130  
Telephone: (770) 220-5406  
Fax: (770) 220-5440

October 30, 2000

James J. Slack, Field Supervisor  
U.S. Fish and Wildlife Service  
South Florida Ecological Services Office  
PO Box 2676  
Vero Beach FL 32961-2676

Re: FEMA 1249-DR-FL Unmet Needs - Florida Keys Aqueduct Authority  
Key Largo Wastewater Treatment Plant

Dear Mr. Slack:

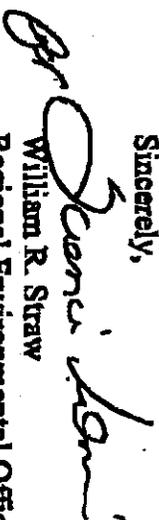
Please find enclosed, for your review and comments, a draft Biological Assessment (BA), part of our informal consultation initiated with your office on July 7 for the proposed Key Largo project. This BA was prepared in accordance with Section 7 of the proposed Key Species Act, as amended (16 U.S.C. 1531 *et seq.*), and guidelines provided by Ms. Jeannette Gallhugh of your office. URS Corporation finalized this BA on our behalf, and Monroe County Department of Marine Resources provided most of the information and completed all fieldwork. The project site was viewed by both FEMA and URS staff on July 10.

When FEMA initiated this informal consultation, the Florida Keys Aqueduct Authority (FKAA) estimated construction of the wastewater treatment facility at the Mile Marker (MM) 100.5 site would impact approximately 7 acres of established tropical hardwood hammock. This estimate has been significantly reduced. A preliminary site design now indicates the facility will only require 2.6 acres for construction. In addition to reducing impact acreage, Monroe County has proposed 20 acres of conservation easement on the unused portion of the parcel, .4 acres of hammock restoration, and construction procedures to limit habitat loss and reduce adverse impacts to plant and animal species, particularly protected species that may use this parcel. Accordingly, our agency has determined that construction of the proposed FKAA Key Largo Wastewater Treatment Plant at MM 100.5 is not likely to adversely affect threatened or endangered species, or their proposed or designated critical habitat.

James Slack  
October 30, 2000  
Page 2 of 2

If you have any questions, please contact Ms. Science Kilner at (770) 220-5422. We appreciate your continuing consultation on this proposed project and look forward to receiving your comments.

Sincerely,

  
William R. Straw  
Regional Environmental Officer

WS:sk

Cc: Miles Anderson, FDEM  
Tim McGarry, Monroe County  
Roger Braun, FKA  
Ken Branton, URS Corp.

Enclosure (1)



**Federal Emergency Management Agency**

**Region IV**

3003 Chamblee Tucker Road  
Atlanta, Georgia 30341-4130  
Telephone: (770) 220-5406  
Fax: (770) 220-5440

December 18, 2000

James J. Slack, Field Supervisor  
U.S. Fish and Wildlife Service  
South Florida Ecological Services Office  
P.O. Box 2676  
Vero Beach, FL 32961-2676

Re: FEMA 1249-DR-FL Unmet Needs - Florida Keys Aqueduct Authority  
Key Largo Wastewater Treatment Plant

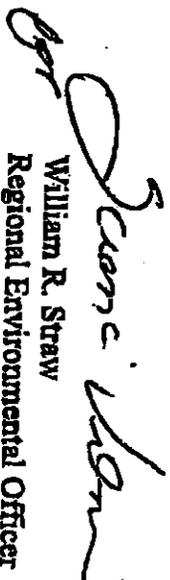
Dear Mr. Slack:

In accordance with Section 7 of the Endangered Species Act (16 U.S.C. 1531 *et seq.*), the Federal Emergency Management Agency would like to elevate the informal consultation initiated on July 7 to a formal consultation. This request is made pursuant to the conclusion in our Biological Assessment that there is potential, albeit very low, for incidental takes of federally threatened or endangered species during construction of the above project. These include Schaus' swallowtail butterfly, the eastern indigo snake, and Stock Island tree snail.

James J. Slack  
December 18, 2000  
Page Two

If you have any questions, please contact Ms. Science Kilner at (770) 220-5422. We look forward to receiving your biological opinion, along with any additional mitigation measures you propose, and thank you for your continued attention to this project.

Sincerely,

  
William R. Straw  
Regional Environmental Officer

WS:slk

Cc: Miles Anderson, FDEM ✓  
Phillip Worley, FDEM ✓  
George Garrett, Monroe County ✓  
Tim McGarry, Monroe County ✓  
Randy Kautz, FWCC ✓  
Roger Braun, FKAA ✓  
Ken Branton, URS Corp. ✓  
Phil Frank, USFWS - Marathon ✓



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
South Florida Ecological Services Office  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960



December 20, 2000

William R. Straw  
Regional Environmental Officer  
Federal Emergency Management Agency  
3003 Chamblee Tucker Road  
Atlanta, Georgia 30341-4130

Log No.: 4-1-00-F-736  
Dated: December 18, 2000  
Applicant: Federal Emergency Management  
Agency  
County: Monroe

Dear Mr. Straw:

This letter acknowledges the Fish and Wildlife Service's (Service) receipt of your December 18, 2000, letter requesting initiation of formal consultation under section 7 of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). The consultation concerns possible effects of the proposed 2.6-acre Key Largo Wastewater Treatment Plant on the endangered Schaus swallowtail butterfly (*Heracles aristodemus ponceanus*), the threatened Stock Island tree snail (*Orthalicus reses reses*), and the threatened eastern indigo snake (*Drymarchon corais couperi*). The proposed project is located adjacent to John Pennkamp Coral Reef State Park in the Florida Keys at Mile Marker 100.5, Key Largo, Monroe County, Florida.

The Service has received all of the information necessary to initiate formal consultation on the proposed action, as required in the regulations governing interagency consultations (50 CFR 402.14). Log number 4-1-00-F-736 has been assigned to the proposed project. Please refer to the log number in future correspondence regarding this consultation.

The Service has up to 90 days to conclude formal consultation with the Federal Emergency Management Agency (FEMA) and an additional 45 days to prepare our biological opinion (unless we mutually agree to an extension). Therefore, we expect to provide FEMA a biological opinion on or before May 4, 2001. The BSA requires that, after initiation of formal consultation, the Federal action agency make no irreversible or irretrievable commitment of resources that limits future options. This ensures that agency actions do not preclude the formulation or implementation of reasonable and prudent alternatives necessary to avoid jeopardizing the

continued existence of threatened or endangered species and to avoid destroying or modifying designated critical habitat.

Thank you for your cooperation in the effort to protect threatened and endangered species and their habitat. If you have any questions regarding this project, please contact Phil Frank in our Florida Keys Suboffice at (305) 872-2753.

Sincerely yours,

*Kalvin D. Birme*

*for* James J. Slack  
Field Supervisor  
South Florida Ecological Services Office

cc:

Service, Ecological Services-Big Pine Key, Florida (Phil Frank)  
FWC, Tallahassee, Florida (Randy Kautz)  
Monroe County Growth Management, Marathon, Florida (Ralph Gouldy)



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
South Florida Ecological Services Office  
1339 20<sup>th</sup> Street

Vero Beach, Florida 32960



June 11, 2001

William R. Straw  
Regional Environmental Officer  
Federal Emergency Management Agency  
3003 Chamblee Tucker Road  
Atlanta, Georgia 30341-4130

Log No.: 4-1-00-F-736

Dated: December 18, 2000

Applicant: Federal Emergency Management  
Agency

County: Monroe

Dear Mr. Straw:

This document transmits the Fish and Wildlife Service's (Service) Biological Opinion based on our review of the Federal Emergency Management Agency's (FEMA) proposal to construct the Key Largo Wastewater Treatment Plant (WTP) and its effects on the endangered Schaus swallowtail butterfly (*Heracles aristodemus ponceanus*), the threatened Stock Island tree snail (*Orthalicus reses*), and the threatened eastern indigo snake (*Drymarchon corais couperi*) in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1631 *et seq.*). Your request for consultation was received on December 18, 2000.

This Biological Opinion is based on information provided in the October 30, 2000, draft Endangered Species Biological Assessment (FEMA 2000), telephone conversations with FEMA and Monroe County representatives, species experts, members of the public, field investigations, and other sources of information. A complete administrative record of this consultation is on file at the Florida Keys Ecological Services Field Office on Big Pine Key, Monroe County, Florida.

### Consultation history

The Biological Opinion presented here is the result of informal coordination and consultation between the Service and FEMA. This consultation history represents coordination letters and documents from this process.

On April 7, 2000, the Service sent a letter to Monroe County informing the County of the presence of several federally-listed threatened and endangered species on Key Largo, and expressing an interest in assisting the County in the selection of wastewater treatment plant facility locations.

On June 23, 2000, the Service sent a letter to FEMA identifying the possible use of Federal funds for the proposed Key Largo WTP. The Service requested that FEMA evaluate the proposed construction for impacts to threatened and endangered species and initiate consultation in accordance with section 7 of the ESA.

On July 7, 2000, FEMA sent a letter to the Service acknowledging that Federal funds through FEMA's Hazard Mitigation Grant Program were being used for the proposed Key Largo WTP, and requested initiation of formal consultation to determine if construction of the proposed project would result in adverse effects to threatened and endangered species. A preliminary environmental assessment prepared by Monroe County describing the location and environmental conditions of the proposed site was included for the Service's review.

On July 14, 2000, the Florida Fish and Wildlife Conservation Commission sent a letter to FEMA expressing a concern that the site selected for the Key Largo WTP at Mile Marker 100.5 on Key Largo was important habitat for both State and federally-listed threatened and endangered species and recommended against FEMA funding for the project at this location.

On July 28, 2000, the Service sent a letter to Carlton Fields, Attorneys at Law, informing them that the Service was consulting with FEMA on the Key Largo WTP; a Biological Opinion would be prepared, if necessary; and preparation of a Habitat Conservation Plan is not required by section 7 of the ESA.

On October 30, 2000, FEMA sent a draft Biological Assessment (BA) to the Service for the Key Largo WTP.

On December 14, 2000, the Service sent an email correspondence to FEMA requesting that FEMA initiate formal consultation for the Key Largo WTP since the BA for the project identified the potential for take of the Schaus swallowtail butterfly, the Stock Island tree snail, and the eastern indigo snake.

On December 18, 2000, FEMA sent a letter to the Service requesting initiation of formal consultation for the Key Largo WTP.

On December 20, 2000, the Service sent a letter to FEMA acknowledging receipt of FEMA's request for formal consultation for the Key Largo WTP. In that letter, the Service concluded that all necessary information for the consultation had been received and established a date of May 4, 2001, for the completion of the Biological Opinion.

## BIOLOGICAL OPINION

### Description of the proposed action

FEMA is proposing to construct the Key Largo WTP on a 23-acre tropical hardwood hammock parcel located at Mile Marker 100.5, Key Largo, Monroe County, Florida (Figure 1). Anticipated impacts of the project include destruction of 2.6 acres of tropical hardwood

### Status of species/critical habitat

The Service has determined that the proposed action may adversely affect the Schaus swallowtail butterfly, the Stock Island tree snail, and the eastern indigo snake. Critical habitat has not been designated for any of these species.

### *Schaus swallowtail butterfly*

#### A. Species description

The Schaus swallowtail is a large blackish-brown butterfly with contrasting markings that are mostly dull yellow (Service 1999). Their antennae are black with a yellow knob that has a black tip. Their forewings have a dull yellow median band from the apex to about midpoint of the inner margin, with a short side branch to costa about 1/3 distance from the apex. Their subterminal and terminal lines consist of lunular yellow spots from apex to anal angle. Their hindwings have a yellow median band continuing that of the forewing, and a submarginal row of large yellow lunular spots; the concavities of a deeply scalloped outer margin have yellow edging. Their blackish tail is straight-edged (not teardrop-shaped), and is bordered with yellow. The tails have a hollow red spot along the anal margin just above the anal angle, with bluish scaling.

The underside of a Schaus swallowtail wing is yellow with black shading mostly in the median and submarginal areas of the forewing, and in the terminal area and tails of the hindwing. A dull brownish red median band extends from costa to inner margin of the hindwing, narrowing before touching these margins. There is extensive bluish scaling along the outer edge of the reddish band of the wing. The wingspan is 2.9 to 4 inches (8.6 to 9.5 cm) (Covell 1985).

The Schaus swallowtail butterfly is most easily confused with the giant swallowtail butterfly (*Heracles cressphontes*) Cramer, which is widespread in eastern North America and also occurs in habitat occupied by the Schaus swallowtail. The two butterflies are easily separated by size and color: the giant swallowtail is larger than the Schaus swallowtail and is more nearly coal-black with brighter yellow lines. The giant swallowtail has a broader median forewing band that is more broken into spots, and is less separated from the submarginal band toward the apex. The giant swallowtail antennae are solid black and its tail is teardrop-shaped, yellow inside bordered with black edging. The reddish markings on the underside of its wings are less brownish and much less extensive than on the Schaus swallowtail (Service 1999).

#### B. Life history

Distribution and habitat: The present distribution of the Schaus swallowtail butterfly is limited to undisturbed tropical hardwood hammocks in insular portions of Miami-Dade and Monroe counties from Elliott Key in Biscayne National Park in the northeast southwest to northern Key Largo (Service 1999 - Figure 1). Individuals have been seen in and adjacent to the Crocodile Lakes National Wildlife Refuge. Captive bred butterflies have been released on six sites in North Key Largo.

height of 10 feet or more during the hot afternoon on bright days, sometimes descending into open spaces to investigate any other *H. c. ponceans* (Rutkowski 1971). Emmel (1985a) also notes that male Schaus swallowtail butterflies are remarkably adapted to flight within hardwood hammocks and are able to pick their way among branches and around spider webs.

The Schaus swallowtail butterfly spends much of its time within hammocks, particularly where sunlight penetrates to give a dappling effect (Emmel 1985a). Courtship has been observed along narrow trails cut through the hammock (Rutkowski 1971). Open areas, such as trails or clearings within or near the dense hammock, are requisite for courtship activity and nectaring. These open areas may be natural or man-made. The Schaus swallowtail butterfly appears to be strictly diurnal.

While no mass migration of the Schaus swallowtail butterfly has ever been reported, an individual was followed as it crossed a half-mile expanse of Biscayne Bay between two islands (Brown 1973). In 1986, a Schaus swallowtail butterfly was seen crossing about 360 meters from Old Rhodes Key to Swan Key (Service 1999). These observations suggest that these butterflies can travel across open water for a considerable distance among the upper Keys and may be able to travel to and from the mainland.

Adult Schaus swallowtail butterflies are active primarily in May and June, with most sightings recorded between mid-April and mid-July (Service 1999). A few August and September records suggest either delayed-emergence during a year or a facultative second brood (Service 1999, Brown 1976).

There is only one generation of Schaus swallowtail butterflies per year and adults are short-lived (Emmel 1985a). There is some evidence from rearing that diapause may extend for at least 2 years (Grimshawe 1940). If this occurs in natural populations, the Schaus swallowtail butterfly could survive extreme droughts in the season following its larval development by delaying emergence, perhaps until July-September or later (Rutkowski 1971). Some adults are active during July-September as well as during the normal flight period of late April through early July (Brown 1973).

Feeding: Young caterpillars use tender, young leaves of plants, such as wild lime, and will avoid tougher, older leaves. However, fifth (final) instar larvae have been observed eating tougher older leaves of torchwood and prickly-ash (Service 1999, Rutkowski 1971). Adults have been observed taking nectar from blossoms of guava, cheese shrub, blue porterweed (*Stachylarpheta jamaicensis*), sea grape, dog's tail (*Heliotropium angiospermum*), lantana (*Lantana involucrata*), salt-and-pepper (*Melanthera nivea*), and wild coffee (Emmel 1986a, Service 1999, Rutkowski 1971).

Reproduction: While mating has not been observed in the wild, oviposition in nature has been described. The Schaus swallowtail butterfly uses torchwood and wild lime to deposit its eggs (Grimshawe 1940, Rutkowski 1971, Brown 1973). These food plants are either at the edge of hammocks along trails impartially sheltered by the canopy or they are in the hammocks proper, at the edge of a clearing or where a fairly large opening in the canopy exists. Females deposit

#### D. Analysis of the species likely to be affected

The current range of the Schaus swallowtail butterfly includes hardwood hammock on the upper Florida Keys from Lower Matecumbe Key north to Elliot Key. Habitat loss from development, pesticide use, and over-collecting are the primary causes for this subspecies decline. Hammock fragments such as the action area are increasingly rare in the upper Keys as a result of development activities and acquisition of the remaining patches for conservation is a high priority. The proposed project would adversely affect the Schaus' swallowtail butterfly through the loss and degradation of the remaining habitat on-site from secondary effects including microhabitat alteration, increased edge effects, and exotic species such as fire ants.

#### *Stock Island tree snail*

##### A. Species description

The Stock Island tree snail was first described by Say in 1830 based on a snail that was probably collected from Key West. That specimen was lost and the species was later described by Pilsbry around 1946 using a snail from Stock Island. The Stock Island tree snail is a subspecies in the genus *Orthalicus*. Pilsbry wrote that he believed *Orthalicus* migrated through tropical America on floating trees that were later blown ashore.

Pilsbry (1946) described the Stock Island tree snail as having a shell that is rather thin and light, less solid than [other] races of [*Orthalicus*]. White to warm buff, this tint deepening near the lip or behind the later varices; stripes... purplish brown, running with the growth-lines, the stripes and the streaks often interrupted between the bands, and mostly not extending below the lower one; growth-rest varices usually 2 to 4 on the last whorl; three spiral banks, the upper and lower interrupted, are indicated, but weaken with age. Apex white. Aperture showing the varices, bands and streaks vividly inside; columella white, straightened above; parietal callus white, or dilute chestnut in old shells. The characteristics that most distinguish this species from *O. reses nesodyas* are the white apex and white columella and parietal callus. These characteristics are chestnut-brown or darker in *O. reses nesodyas*.

##### B. Life history

Distribution and habitat: Historically, Stock Island tree snails were found only on Stock Island and Key West. Today, snails are only found in small numbers on Key West and in a few hardwood hammocks in the upper Keys. They feed on epiphytic growth on hardwood tree trunks, branches, and leaves. The Stock Island tree snail survives best in higher-elevation hammocks (minimum elevations of 5-11 feet) that support relatively large amounts of lichens and algae.

Larger trees support more Stock Island tree snails than smaller trees because they provide the snails with an increased surface area for foraging (Deisler 1987). There is no evidence that Stock Island tree snails prefer certain tree types or species (Deisler 1987), although they seem to prefer trees with smooth bark over trees with rough bark.

The primary threats to the survival and recovery of the Stock Island tree snail include loss of habitat from development, application of pesticides, fragmentation of habitat, and predation by black rats (*Rattus rattus*) and fire ants (*Solenopsis invicta*). Increased urbanization in the Keys over the last 30 years has led to the destruction, fragmentation, and reduction in quality of habitat throughout its historic and present range. Pesticide use near known sites of the Stock Island tree snail has impacted populations either by poisoning animals directly or altering reproduction. Trash and debris piles have also served as a food source and provided home sites for black rats which prey on the snail. Illegal collecting of Stock Island tree snail has reduced snail populations and contributed to the extirpation of the snail from Stock Island (Service 1999). The population on Key Largo is at-risk due to extensive habitat loss and fragmentation, making preservation of the remaining large contiguous forest fragments essential (Forys *et al.* 1996).

#### D. Analysis of the species likely to be affected

The current range of the Stock Island tree snail includes only hardwood hammock fragments where the species has been relocated by collectors and conservationists. The subspecies is believed to be extirpated from its historic range, and the long-term survival of the taxon is doubtful. Hammock fragments, such as the action area, are increasingly rare in the upper Keys as a result of development activities, and acquisition of the remaining patches for conservation is a high priority. The proposed project would adversely impact the Stock Island tree snail through a direct loss of individuals and also through the degradation of the remaining habitat on-site from secondary effects including microhabitat alteration, increased edge effects, and exotic species such as fire ants.

### *Eastern indigo snake*

#### A. Species description

The eastern indigo snake ranges from the southeastern United States to northern Argentina (Service 1999). This species has eight recognized subspecies, two of which occur in the United States: the eastern indigo and the Texas indigo (*D. c. erbeemus*) (Service 1999). At one time, the eastern indigo snake occurred in the coastal plain of the southeastern United States, from South Carolina to Florida and west to Louisiana.

The eastern indigo snake is the largest non-venomous snake in North America, obtaining lengths of up to 104 inches (Service 1999). Its color is uniformly lustrous-black, dorsally and ventrally, except for a red or cream-colored suffusion of the chin, throat, and sometimes the cheeks. Its scales are large and smooth (the central 3-5 scale rows are lightly keeled in adult males) in 17 scale rows at midbody. Its anal plate is undivided.

In the Keys, adult eastern indigo snakes seem to have less red on their faces or throats compared to most mainland specimens (Service 1999). Several researchers have informally suggested that lower Keys eastern indigo snakes may differ from mainland snakes in ways other than color.

Reproduction: Eastern indigo snakes breed between November and April, with females depositing 4-12 eggs during May or June (Service 1999). Young hatch in approximately 3 months from late May through August with peak hatching activity occurring between August and September, while yearling activity peaks in April and May (Service 1999). There is no evidence of parental care although the snakes take 3 to 4 years to reach sexual maturity (Service 1999).

Female eastern indigo snakes can store sperm and delay fertilization of eggs; there is a single record of a captive snake laying five eggs (at least one of which was fertile) after being isolated for more than 4 years (Service 1999). There is no information on eastern indigo snake lifespan in the wild, but in captivity an eastern indigo snake lived 25 years, 11 months (Service 1999).

### C. Status and trends

The eastern indigo snake was listed as a threatened species on January 31, 1978 (43 FR 4028). This snake was listed because of dramatic population declines caused by habitat loss, over-collecting for the domestic and international pet trade, and mortalities caused by rattlesnake collectors who gas gopher tortoise burrows to collect snakes (Service 1999). When the eastern indigo snake was listed, the main cause of its population decline was over-collecting for the pet trade.

The eastern indigo snake was listed based on habitat loss, over-collecting for the pet trade, and mortality from gassing gopher tortoise burrows to collect rattlesnakes. At the time of listing, the main factor in the decline of the eastern indigo snake was attributed to exploitation for the pet trade. Law enforcement has reduced pressure from the pet trade, but loss of habitat remains a major threat to the long-term survival of the species. The primary threats to the survival and recovery of the eastern indigo snake on the Keys are habitat loss due to development. The already greatly reduced population on Key Largo is at-risk due to extensive habitat loss and fragmentation, making preservation of the remaining large contiguous forest fragments essential.

The status of the eastern indigo snake is not well documented in the Keys, but it is believed to be nearly extirpated. Based on anecdotal information, the Keys population has declined over the last two decades. Currently, the eastern indigo snake probably only occurs on North Key Largo in the upper Keys, and on the larger keys from Big Pine Key through Lower Sugarloaf Key in the Lower Keys. Habitat loss, collecting, and road kills are likely causes for the observed decline, a trend further amplified by the small size of these islands relative to mainland habitat conditions.

The eastern indigo snake utilizes a majority of the habitat types available in the Keys, but tends to prefer open, undeveloped areas (Service 1999). Because of its relatively large home range, this snake is especially vulnerable to habitat loss, degradation, and fragmentation (Service 1999) on these small islands. Low density residential housing is also a threat to this species, increasing the likelihood of snakes being killed by property owners and domestic pets. Extensive tracts of wild land are the most important refuge for large numbers of eastern indigo snakes (Service 1999).

forests than mangrove forests. Residential housing projects have severely deforested the hammocks on Plantation Key (which has suffered a 70 percent loss of its seasonal forests) and Lower Matecumbe Keys.

#### *Schaus swallowtail butterfly*

Although population numbers of the Schaus swallowtail butterfly fluctuate year to year, between 1924-1981 there has been a general decline in range and numbers. The Schaus swallowtail butterfly has been considered rare on Key Largo since the mid-1970s. This species was listed as threatened on April 28, 1976, because of population declines caused by the destruction of its tropical hardwood hammock habitat, mosquito control practices, and over-harvesting by collectors (41 FR 17740). The Schaus swallowtail butterfly was reclassified to an endangered species on August 31, 1984, because its numbers and range had declined dramatically since its first listing (49 FR 34504).

Tropical hardwood hammock suitable for Schaus swallowtail butterfly has been reduced by an estimated 57 percent in Biscayne National Park and 83 percent for Key Largo. The decline has been attributed primarily to habitat destruction. North Key Largo contains a large, relatively contiguous expanse of tropical hardwood hammock habitat, but habitat on Key Largo south of C.R. 905 is highly fragmented and greatly reduced from historic levels, placing greater importance on the preservation of the larger tracts of hardwood hammock habitat remaining on Key Largo.

The majority of the Schaus swallowtail butterfly population is found on Adams, Elliott, Old Rhodes, Swan, and Totten Keys within Biscayne National Park. Between 1985 and 1990, the Elliott Key population fluctuated between 600 to 1,000 adults annually, with smaller populations of at least 50 to 100 individuals on each of the other Keys. Hurricane Andrew temporarily reduced the Biscayne National Park's population in 1992 to 58 identified individuals; however, in 1994 the population rebounded to over 600 and is presumed stable (Emmel 1995a).

Within the major keys of Biscayne National Park (Elliott, Old Rhodes, Totten, and Adams Keys) and on northern Key Largo, the two food plants of the Schaus swallowtail butterfly seem adequate to support a healthy population. High numbers of individuals sighted in 1985 indicate that the Schaus swallowtail butterfly population is still capable of periodic peaks. Following 3 years of reintroductions, results of a 1997 season census indicate that the total annual population in the wild has increased to at least 1,200 butterflies (Emmel 1995b).

Prior to human influences, populations of this butterfly were probably subject to naturally occurring population depressions caused by hurricane damage, drought, and rare freezes (Covell 1976). The influence of the Labor Day Hurricane of 1935 on the Lower Matecumbe Key population was documented by Grimshawe (1940), though the claim that the species became extinct was incorrect (it was found there and on Key Largo in succeeding years) (Henderson 1945). The results of Grimshawe's careful searching were negative; however, the before and after surveys demonstrated that the hurricane had a detrimental effect on the biota of the Keys southwest of Key Largo.

the project site, and (4) the loss of 23 acres of habitat targeted for acquisition and management by Florida's Conservation and Recreational Lands (CARL) program which serves to aid in the recovery and survival of these species.

#### B. Analysis for effects of the action

The primary effect of the proposed action is the loss of 2.3 acres of tropical hardwood hammock habitat important for the long-term survival and recovery of Schaus swallowtail butterfly and Stock Island tree snail. In addition to the direct loss of habitat, the proposed action will also result in the additional degradation and fragmentation of the remaining 23 acres of habitat that comprise the action area.

#### C. Species response to a proposed action

Habitat loss resulting from the proposed action will affect Schaus swallowtail butterfly and Stock Island tree snail populations in the Keys by reducing the carrying capacity of the habitats to sustain viable populations of these species. Habitat loss has been cited as the principle threat to these species, altering their ability to feed, reproduce, disrupting movement routes, and altering habitat composition through the introduction of exotic plant species. Protection of habitat is considered essential for preventing the extinction of these three species.

In addition to a reduction in total carrying capacity, the proposed action will also contribute to the general reduction in the ranges of these species by further fragmenting suitable habitat. Habitat fragmentation is a severe threat to the ability of tropical hardwood hammock to sustain viable populations of Schaus swallowtail butterfly and Stock Island tree snail. Habitat fragmentation can result in secondary impacts that degrade habitat quality for these species including increased light penetration, reduced humidity, altered plant species composition, and introduction of exotic species (*e.g.*, imported red fire ants, exotic invasive plants).

Another effect of the action has been to prevent this 23-acre parcel of habitat from being acquired by the CARL program with subsequent management as a protected area. The South Florida Multi-Species Recovery Plan (Service 1999) for these species identifies habitat acquisition and management as a primary recovery objective for the Schaus swallowtail butterfly and Stock Island tree snail. The action area was targeted by the CARL program for acquisition and has been surveyed and appraised in anticipation of a purchase agreement. Actions by the Monroe County Board of County Commissioners and FEMA to construct the proposed action have prevented this pending purchase and placed the long-term conservation prospects for this property into doubt.

#### Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this Biological Opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

take should be minimized by implementation of the following reasonable and prudent measures. The incidental take is expected to be in the form of harm and harassment.

#### **Amount or extent of take anticipated**

The Service anticipates incidental take of Schaus swallowtail butterfly and Stock Island tree snail associated with the direct loss of 2.6 acres of habitat. Incidental take should be minimized by implementation of the following reasonable and prudent measures. The incidental take is expected to be in the form of harm and harassment. The Service determined that this level of take is not likely to result in jeopardy to these species.

#### **Reasonable and prudent measures**

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of Schaus swallowtail butterflies and Stock Island tree snails associated with the proposed action.

1. Restore an area of hardwood hammock habitat equal to the area lost (2.6 acres) as a result of the proposed action in order to replace the habitat functions essential to the long-term conservation of the species in the action area.
2. Preserve the 23 acres of the action area not required for construction of the proposed action to prevent any further adverse impacts and to ensure proper long-term management of the habitat.

#### **Terms and conditions**

In order to be exempt from the prohibitions of section 9 of the ESA, FEMA must comply with the following terms and conditions, which implement the reasonable and prudent measure described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. FEMA shall locate a site or sites totaling 2.6 acres for hardwood hammock habitat restoration on the island of Key Largo. The site should consist of habitat conditions currently unsuitable for the Schaus swallowtail butterfly and Stock Island tree snail, but through restoration actions could be reasonably expected to support these species. The selected site must be approved by the Service.
2. FEMA shall coordinate with the CARL program or another suitable environmental lands management program to receive title to the 23 acres of hardwood hammock in the action area not proposed for development. Coordination with the Florida Department of Community Affairs and Monroe County Growth Management should be initiated to address issues related to the Monroe County Comprehensive Plan open space requirements.

Thank you for your cooperation in the effort to protect threatened and endangered species and their habitats. If you have any questions regarding this project, please contact Tom Grahl at (561) 562-3909, extension 236.

Sincerely yours,



*By* James J. Slack  
Field Supervisor  
South Florida Ecological Services Office

cc:  
FWS, Big Pine Key, FL  
FWS, ARD-ES, Atlanta, GA  
Florida Keys Aqueduct Authority, Key West, FL (Jack Teague)  
Monroe County Growth Management, Marathon, FL (Tim McGarry)  
EPA, Marathon, FL (Bill Kruczinsky)



January 23, 2001

Mr. Randy Kautz  
Florida Fish and Wildlife Conservation Commission  
620 South Meridian Street  
Tallahassee, FL 32399-1600

Re: **Biological Assessment for Wastewater Treatment Plant Site – Mile Marker 100.5,  
Key Largo, Florida**

Dear Mr. Kautz:

Per request of Ms. Science Kilner with the Federal Emergency Management Agency, Region IV, I've enclosed a copy of the Biological Assessment (BA) that URS completed in conjunction with Monroe County Department of Marine Resources.

This BA addresses the potential effects of constructing a proposed regional wastewater treatment system in Key Largo, Florida, with an emphasis on the specific site for a regional wastewater treatment plant selected by the Board of County Commissioners on May 18, 2000. This BA is based on existing documents and information, as well as site-specific information, for the treatment plant site that was developed by staff of the Monroe County Department of Marine Resources.

This document constitutes a Biological Assessment in accordance with the rules requiring federal agency consultation under the Endangered Species Act.

We welcome your comments on this document, if you so choose. Please send your comments to the address below. If you have any questions, please feel free to call me at (678) 356-8223.

Sincerely,

URS

Kenneth W. Branton  
Senior Project Engineer

KWB/kwb  
Enclosure

cc: Ms. Science Kilner (w/o Atch)

URS Corporation  
5900 Windward Parkway, Suite 400  
Alpharetta, GA 30005  
Tel: 678.356.8300  
Fax: 678.356.0055



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
South Florida Ecological Services Office  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960



December 20, 2000

William R. Straw  
Regional Environmental Officer  
Federal Emergency Management Agency  
3003 Chamblee Tucker Road  
Atlanta, Georgia 30341-4130

Log No.: 4-1-00-F-736  
Dated: December 18, 2000  
Applicant: Federal Emergency Management  
Agency  
County: Monroe

Dear Mr. Straw:

This letter acknowledges the Fish and Wildlife Service's (Service) receipt of your December 18, 2000, letter requesting initiation of formal consultation under section 7 of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). The consultation concerns possible effects of the proposed 2.6-acre Key Largo Wastewater Treatment Plant on the endangered Schaus swallowtail butterfly (*Heracles aristodemus ponceanus*), the threatened Stock Island tree snail (*Orthalicus reser reser*), and the threatened eastern indigo snake (*Drymarchon corais couper*). The proposed project is located adjacent to John Pennekamp Coral Reef State Park in the Florida Keys at Mile Marker 100.5, Key Largo, Monroe County, Florida.

The Service has received all of the information necessary to initiate formal consultation on the proposed action, as required in the regulations governing interagency consultations (50 CFR 402.14). Log number 4-1-00-F-736 has been assigned to the proposed project. Please refer to the log number in future correspondence regarding this consultation.

The Service has up to 90 days to conclude formal consultation with the Federal Emergency Management Agency (FEMA) and an additional 45 days to prepare our biological opinion (unless we mutually agree to an extension). Therefore, we expect to provide FEMA a biological opinion on or before May 4, 2001. The ESA requires that, after initiation of formal consultation, the Federal action agency make no irreversible or irretrievable commitment of resources that limits future options. This ensures that agency actions do not preclude the formulation or implementation of reasonable and prudent alternatives necessary to avoid jeopardizing the

continued existence of threatened or endangered species and to avoid destroying or modifying designated critical habitat.

Thank you for your cooperation in the effort to protect threatened and endangered species and their habitat. If you have any questions regarding this project, please contact Phil Frank in our Florida Keys Suboffice at (305) 872-2753.

Sincerely yours,

*Kalvin D. Lima*

*for* James J. Slack  
Field Supervisor  
South Florida Ecological Services Office

cc:  
Service, Ecological Services-Big Pine Key, Florida (Phil Frank)  
FWC, Tallahassee, Florida (Randy Kautz)  
Monroe County Growth Management, Marathon, Florida (Ralph Gouldy)



Federal Emergency Management Agency

Region IV

3003 Chamblee Tucker Road  
Atlanta, Georgia 30341-4130  
Telephone: (770) 220-5406  
Fax: (770) 220-5440

December 18, 2000

James J. Slack, Field Supervisor  
U.S. Fish and Wildlife Service  
South Florida Ecological Services Office  
P. O. Box 2676  
Vero Beach, FL 32961-2676

Re: FEMA 1249-DR-FL Unmet Needs - Florida Keys Aqueduct Authority  
Key Largo Wastewater Treatment Plant

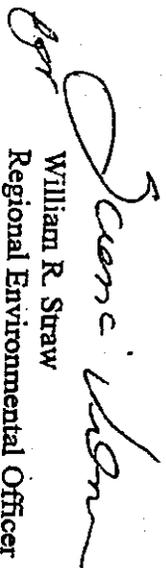
Dear Mr. Slack:

In accordance with Section 7 of the Endangered Species Act (16 U.S.C. 1531 *et seq.*), the Federal Emergency Management Agency would like to elevate the informal consultation initiated on July 7 to a formal consultation. This request is made pursuant to the conclusion in our Biological Assessment that there is potential, albeit very low, for incidental takes of federally threatened or endangered species during construction of the above project. These include Schaus' swallowtail butterfly, the eastern indigo snake, and Stock Island tree snail.

James J. Slack  
December 18, 2000  
Page Two

If you have any questions, please contact Ms. Science Kilner at (770) 220-5422. We look forward to receiving your biological opinion, along with any additional mitigation measures you propose, and thank you for your continued attention to this project.

Sincerely,



William R. Straw  
Regional Environmental Officer

WS:sk

Cc: Miles Anderson, FDEM  
Phillip Worley, FDEM  
George Garrett, Monroe County  
Tim McGarry, Monroe County  
Randy Kautz, FWCC  
Roger Braun, FKAA  
Ken Branton, URS Corp.  
Phil Frank, USFWS - Marathon



Federal Emergency Management Agency

Region IV

3003 Chamblee Tucker Road  
Atlanta, Georgia 30341-4130  
Telephone: (770) 220-5406  
Fax: (770) 220-5440

October 30, 2000

James J. Slack, Field Supervisor  
U.S. Fish and Wildlife Service  
South Florida Ecological Services Office  
PO Box 2676  
Vero Beach FL 32961-2676

Re: FEMA 1249-DR-FL Unmet Needs - Florida Keys Aqueduct Authority  
Key Largo Wastewater Treatment Plant

Dear Mr. Slack:

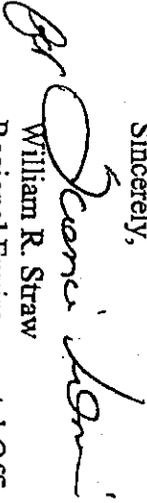
Please find enclosed, for your review and comments, a draft Biological Assessment (BA), part of our informal consultation initiated with your office on July 7 for the proposed Key Largo project. This BA was prepared in accordance with Section 7 of the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*), and guidelines provided by Ms. Jeannette Gallinugh of your office. URS Corporation finalized this BA on our behalf, and Monroe County Department of Marine Resources provided most of the information and completed all fieldwork. The project site was viewed by both FEMA and URS staff on July 10.

When FEMA initiated this informal consultation, the Florida Keys Aqueduct Authority (FKAA) estimated construction of the wastewater treatment facility at the Mile Marker (MM) 100.5 site would impact approximately 7 acres of established tropical hardwood hammock. This estimate has been significantly reduced. A preliminary site design now indicates the facility will only require 2.6 acres for construction. In addition to reducing impact acreage, Monroe County has proposed 20 acres of conservation easement on the unused portion of the parcel. 4 acres of hammock restoration, and construction procedures to limit habitat loss and reduce adverse impacts to plant and animal species, particularly protected species that may use this parcel. Accordingly, our agency has determined that construction of the proposed FKAA Key Largo Wastewater Treatment Plant at MM 100.5 is not likely to adversely affect threatened or endangered species, or their proposed or designated critical habitat. →

James Slack  
October 30, 2000  
Page 2 of 2

If you have any questions, please contact Ms. Science Kilher at (770) 220-5422. We appreciate your continuing consultation on this proposed project and look forward to receiving your comments.

Sincerely,

  
William R. Straw  
Regional Environmental Officer

WS:sk

Cc: Miles Anderson, FDEM  
Tim McGarry, Monroe County  
Roger Braun, FKAA  
Ken Branton, URS Corp.

Enclosure (1)

# FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION



JAMES L. "JAMIE" ADAMS, JR. Bushnell	BARBARA C. BARSH Jacksonville	QUINTON L. HEDGEPEETH, DDS Miami	H.A. "HERKY" HUFFMAN Deltona
DAVID K. MEEHAN St. Petersburg	JULIE K. MORRIS Sarasota	TONY MOSS Miami	EDWIN P. ROBERTS, DC Pensacola
			JOHN D. ROOD Jacksonville

ALLAN L. EGBERT, Ph.D., Executive Director  
VICTOR J. HELLER, Assistant Executive Director

OFFICE OF ENVIRONMENTAL SERVICES  
BRADLEY J. HARTMAN, DIRECTOR  
(850)488-6661 TDD (850)488-9542  
FAX (850)922-5679

July 14, 2000

Mr. John B. Copenhaven, Regional Director  
Federal Emergency Management Agency  
3003 Chambles Tucker Road  
Atlanta, GA 30341-4130

Re: Preliminary Environmental Assessment  
Proposed Wastewater Treatment Plant Site  
Key Largo, Florida

Dear Mr. Copenhaven:

The Office of Environmental Services of the Florida Fish and Wildlife Conservation Commission would like to submit to you our comments concerning the referenced document. Our office has participated in several previous meetings pertaining to the siting of a sewage treatment plant, to be partially funded by FEMA, on Key Largo. Our staff was present at a recent interagency conference call hosted by the Florida Governor's office, and we participated in the interagency field inspection of the proposed site on July 10, 2000. We have also been following correspondence between your agency and the U. S. Fish and Wildlife Service (USFWS) pertaining to the potential need to prepare an Environmental Assessment for this project pursuant to the National Environmental Policy Act (NEPA) and to consult with USFWS under Section 7 of the U. S. Endangered Species Act. It appears that the referenced document may factor into FEMA's efforts to prepare an Environmental Assessment of the proposed site, and it also appears that present circumstances are compelling FEMA to expedite the process. Given these circumstances, we are providing you the following comments concerning the Preliminary Environmental Assessment prepared by Monroe County staff.

## Listed Species

The Preliminary Environmental Assessment identifies a set of species listed by either State or federal agencies as endangered, threatened, or species of special concern as occurring, or potentially occurring, on the site. The list is not complete. First, the site contains potential habitat for the rim rock crowned snake (*Tamilla oolitica*), a species listed as threatened by the State of Florida due to the rapid rate of loss of its habitat. The rim rock crowned snake is endemic to a small area of southeast Florida, including the upper Keys. It is a secretive burrower

Mr. John B. Copenhagen

July 14, 2000

Page 2

that occupies a variety of habitats including tropical hardwood hammocks. Second, the environmental assessment did not include a number of State-listed plants likely to occur on site. The proposed site for the Key Largo sewage treatment plant is a 22-acre parcel of land that has been targeted for acquisition by the State of Florida under the Conservation and Recreation Lands (CARL) program. The parcel is included within the larger 191-acre Newport Hammocks tract, a part of the Florida Keys Ecosystem CARL project. The Florida Keys Ecosystem CARL project ranks number two out of 32 priority projects identified for acquisition under the CARL program. The Newport Hammocks tract has been surveyed for the presence or rare and imperiled species by various biologists. The Florida Natural Areas Inventory element occurrence database indicates that the following listed plants occur on the Newport Hammocks tract: wild cinnamon (*Canella winteriana*, endangered), yellowwood (*Schaefferia frutescens*, endangered), Simpson's prickly apple (*Harrisia simpsonii*, endangered), whitish passionflower (*Passiflora multiflora*, endangered), milkbark (*Drypetes diversifolia*, endangered), banded wild-pine (*Tillandsia flexuosa*, endangered), wild cotton (*Gossypium hirsutum*, endangered), Florida thatch palm (*Thrinax radiata*, endangered), joewood (*Jacquinia keyensis*, threatened), wild dilly (*Manilkara bahamensis*, threatened), and golden leather fern (*Acrostichum aureum*, threatened). While these plants are known from the Newport Hammocks CARL site, they are not necessarily present on the proposed wastewater treatment plant site. Nevertheless, their potential presence should be discussed in the environmental assessment, and any surveys planned for the site should include these species as potential candidates.

The Preliminary Environmental Assessment provides a brief discussion of the potential presence of Schaus' swallowtail butterfly (*Heracles aristodemus ponceanus*) on the site. This butterfly is listed by State and federal agencies as an endangered species. This endangered species has been reintroduced to John Pennecamp Coral Reef State Park within two miles of the proposed site. This reintroduction effort has been successful thus far. White Schaus' swallowtail butterfly may or may not be present on the site at the present time, the potential exists for it to colonize this part of its historic range some time in the relatively near future. Similarly, the assessment contains a brief discussion of the potential presence of Stock Island tree snail (*Orthalicus reses reses*), a species listed as endangered by both State and federal agencies. While not known with certainty to be present at this site, the Stock Island tree snail is known to be present within one mile of the proposed sewage treatment site. If not present, the potential also exists for this species to colonize this site at some future date.

The Preliminary Environmental Assessment included a number of species of animals as potentially occurring on site that are very unlikely to be present. The following species probably do not occur on the site and should be withdrawn from further consideration: American alligator (*Alligator mississippiensis*), American crocodile (*Crocodylus acutus*), Florida brown snake (*Storeria dekayi victa*), southeastern kestrel (*Falco sparverius paulus*), Arctic peregrine falcon (*Falco peregrinus tundrius*), southern bald eagle (*Haliaeetus leucocephalus*), least tern (*Sterna antillarum*), and roseate tern (*Sterna dougalli*). The Key Largo woodrat (*Neotoma floridana smalli*) and Key Largo cotton mouse (*Peromyscus gossypinus allapaticola*) are both listed as endangered by State and federal agencies, and the project site is within the historic range of these small mammals. However, at this point in time, these species are known to occur only in North

Mr. John B. Copenhagen  
July 14, 2000  
Page 3

Key Largo. While this site probably should be surveyed for these endangered mammals, it is unlikely that they will be found.

#### Strategic Habitat Conservation Area

The Preliminary Environmental Assessment did not include a discussion of the ecological importance of this site as identified in our 1994 report entitled, "Closing the Gaps in Florida's Wildlife Habitat Conservation System." The purpose of this report was to assess the habitat conservation needs of rare and imperiled animals, plants, and natural communities in Florida. The report used a set of indicator species and communities to assess current levels of biodiversity protection and to identify lands in need of protection. Lands identified for protection were referred to as strategic habitat conservation areas, which were defined as privately owned lands that, taken in conjunction with existing publicly owned lands, have the best chances of meeting the long-term habitat needs of most components of Florida's biological diversity. The intent was that, if strategic habitats could be protected, future extinctions of plant and animal species in Florida could be averted.

The Closing the Gaps report identified the proposed sewage treatment plant site as a strategic habitat conservation area for white-crowned pigeon (*Columba leucocephala*, threatened), black-whiskered vireo (*Vireo altiloquus*, unlisted), and tropical hardwood hammock natural community. In our opinion, the importance of this site to the long-term conservation needs of biodiversity in Florida is clearly indicated by the presence of three of our indicator species and communities.

#### Current Status of the Tropical Hardwood Hammock Community

In our opinion, the Preliminary Environmental Assessment overlooks the significance of the proposed site within the context of the bigger picture of conservation of tropical hardwood hammocks as a rare natural community type. Tropical hardwood hammocks are the successional climax community of the rockland habitats of extreme south Florida. This community type supports a high diversity of plants and animals found nowhere else in the United States. A minimum of 30-40 years are needed for a hammock community to begin to mature following disturbance. Thus, the presence of a high quality tropical hardwood hammock on the proposed site attests to the time since last disturbance as well as the time frame over which the ecological conditions necessary to support associated rare and imperiled plants and animals have been developing.

The best remaining examples of tropical hardwood hammocks in the United States are found in the Florida Keys, and most of these are on Key Largo. While we have never seen an estimate of the original area of Florida covered by tropical hardwood hammocks, our inventories of vegetation types statewide indicated that there were no more than 15,345 acres remaining in Florida in the late 1980s, and almost all of it was found in the Keys. As of December 1999, only 8,137 acres of tropical hardwood hammock were protected by public ownership despite much of the remainder having been targeted for public acquisition for over 10 years. When compared with the status of other natural communities in Florida, these are alarmingly small numbers. The

Mr. John B. Copenhagen

July 14, 2000

Page 4

only secure future for the rare tropical hammock community type hinges on land management practices on existing public lands and on land use decisions made for the development of private lands. The variety of rare and imperiled plants and animals found in tropical hardwood hammocks and the very limited amount of land available to support these species dramatically increases the ecological significance of remaining tracts such as the one on the proposed site.

Over years of human development, the tropical hardwood hammock community has become highly fragmented. That is, due to habitat loss, remaining patches have become smaller in size and isolated from one another. A consequence of converting large contiguous patches of habitat into small isolated fragments is that wide-ranging species with large area requirements (e.g., eastern indigo snake) are eliminated from smaller patches. As an example, the white-crowned pigeon typically does not forage in forest patches smaller than 12 acres. Past developments that have resulted in fragmentation effects at the project site include US 1 along the west boundary, the Florida Keys Aqueduct Authority facility to the southwest of the site, the road along the east boundary, and a small private development to the southeast of the site. Nevertheless, the tropical hardwood hammock on site is contiguous with a much larger patch of tropical hardwood hammock that extends to the northeast. A portion of the adjacent hammock is already in State ownership and is managed as part of John Pennkamp Coral Reef State Park. Thus, despite past disturbances surrounding the site, the proposed site is part of a much larger patch of tropical hardwood hammock, portions of which are in public ownership. This contiguity increases the likelihood that this site is used by species such as the indigo snake, and it enhances the overall ecological importance of the site for a variety of rare and imperiled species.

#### Potential for Residential Development

The Preliminary Environmental Assessment asserts that a minimum of eleven single-family homes could be permitted on the proposed site, and that the number could increase to as many as 22 single-family homes through the use of Transferable Development Rights (TDR). The assessment further states that, despite habitat constraints contained within the Monroe County Land Development Regulations (LDR), it is not practical to assume that the County could constrain the ultimate configuration of residential lots. The purpose for this statement is to suggest that the impacts to ecological resources associated with clearing 3.6 acres of tropical hardwood hammock in a rectangular patch would be less than those associated with conversion of the site to evenly distributed residential use. While these points are technically accurate, such a development scenario is highly unlikely to occur under the current regulatory environment existing in Monroe County.

Until such time as concerns over hurricane evacuation times are resolved, the Monroe County Rate of Growth Ordinance (ROGO) limits the number of building permits than can be issued throughout the Keys to 225 per year. The number that can be issued in the Upper Keys (excluding Islamorada) is 52 per year, and these are further limited to no more than 13 per quarter. Because the demand for building permits is greater than the supply, the ROGO provides for a point system to score individual permit applications based on site-specific conditions. Proposed developments having higher scores are more likely to receive one of the 13 building permits available quarterly. In general, positive points are assigned to projects that are in a

Mr. John B. Copenhagen

July 14, 2000

Page 5

platted subdivision, have infrastructure available, that aggregate vacant lots, that employ TDRs, that incorporate water and energy conservation features, and have high integrity of construction. On the other hand, negative points are assigned to sites with high quality habitats (high quality hammock such as that on the proposed site has the highest rank), with threatened or endangered species or their habitats, that are on the State's CARL list, and that are in coastal high hazard areas.

A recent phone call to Monroe County staff verified that, during the last quarter, applicants allocated building permits in the Upper Keys had projects scoring a minimum of 18 ROGO points. Our staff applied the ROGO scoring system to a hypothetical building permit application for a single-family dwelling on the proposed site, and concluded that such an application would probably have a score of around -14 ROGO points. A few points could be added through density reduction, land dedication, TDRs, and perseverance, but these additional points probably would not even get the project into the plus column for ROGO points. In other words, the most well-designed single-family residence proposed for this site would likely fall far short of the number of ROGO points needed to obtain a building permit in today's competitive market. In fact, for the amount of money one would have to spend to obtain the maximum number of ROGO points at this site, a person could more than likely purchase an existing developable canal-front lot, and maybe even an ocean-front lot. Moreover, upon designing a project with the maximum possible ROGO points, the project would still likely fall short of the 18 points needed to obtain a building permit allocation for the last quarter.

For these reasons, we conclude that it is highly unlikely that the site proposed for the sewage treatment plant could actually accommodate the suggested 22 single-family dwelling units in today's regulatory environment. In fact, it is more likely that no one would even seek a building permit at this location because of the disincentives built into the system. However, even if we assume building permits could be obtained for at least a few single-family dwelling units, the amount of clearing on the site would still be limited to 4.4 acres by the 80% open space requirement in the Monroe County LDR. Section 9.5-345(a)(3) of the Monroe County LDR requires that developments on a site containing one ecologically sensitive habitat type shall be clustered in the least ecologically valuable area of habitat on the site. This means that single-family residences probably would have to be clustered in the southwest corner of the site near the Florida Keys Aqueduct Authority facilities, the portion of the site adjacent to the greatest amount of disturbance. We conclude from this language that, in the highly unlikely event that building permits could be obtained, the County has the regulatory authority to limit the footprint of the development to one similar to that of the proposed sewage treatment plant. Therefore, impacts from residential versus sewage treatment plant development may not be dissimilar.

### Conclusion

The Preliminary Environmental Assessment prepared by Monroe County staff underrates the ecological importance of the 22-acre site proposed for a sewage treatment plant. The site is completely covered by mature tropical hardwood hammock, a very rare natural community type found almost exclusively in the Florida Keys. Fewer than 15,000 acres of tropical hardwood hammocks remain in the United States, and only 8,000 acres are currently in public ownership.

Mr. John B. Copenhagen

July 14, 2000

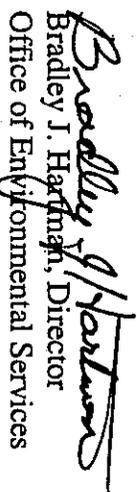
Page 6

This site is included within parcels targeted for acquisition as part of the CARL program's Florida Keys Ecosystem project, the number two ranked priority project for public land acquisition in Florida. The high ranking of this CARL project site is due largely to its recognized ecological values. The site is adjacent to and contiguous with lands owned by the State of Florida and managed by John Pennkamp Coral Reef State Park. The site is occupied by, or provides potential habitat for, numerous animals and plants listed by State or federal agencies as endangered, threatened, or species of special concern. Our own work has identified this site as a strategic habitat conservation area for three indicators of biodiversity, the white-crowned pigeon, black-whiskered vireo, and tropical hardwood hammock natural community. The suggestion that siting a sewage treatment plant on this site will save the ecological resources from the impacts of dispersed residential development appears to be unfounded.

We urge you to consider these factors as you prepare your Environmental Assessment for the NEPA process. Moreover, we recommend against FEMA funding for land acquisition and construction of a sewage treatment plant at this site because of its high ecological values. Monroe County staff recommended two other candidate sites for this use, neither of which has the significant ecological values found on the 22-acre site.

If you need additional information or would like to discuss our concerns further, you may contact me at 850-488-6661.

Sincerely,

  
Bradley J. Hartman, Director  
Office of Environmental Services

BJH/RK

cc: William Straw, FEMA  
Science Kilner, FEMA  
James Slack, FWS  
Tom Grahl, FWS  
Jeanette Gallhugh, FWS  
Tom Beck, DCA  
Eva Armstrong, DEP  
Fran Mainella, DEP  
Mimi Drew, DEP  
Teresa Tinker, Governor's Office  
Ralph Gouldy, Monroe County



Federal Emergency Management Agency

Region IV

3003 Chamblee Tucker Road  
Atlanta, Georgia 30341-4130

Telephone: (770) 220-5406

Fax: (770) 220-5440

July 7, 2000

James J. Slack, Field Supervisor  
U.S. Fish and Wildlife Service  
South Florida Ecological Services Office  
P.O. Box 2676  
Vero Beach, FL 32961-2676

Re: FEMA 1249-DR-FL Umnet Needs - Florida Keys Aqueduct Authority  
Key Largo Wastewater Treatment Plant

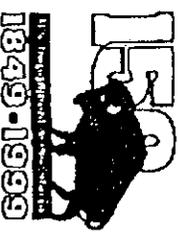
Dear Mr. Slack:

Thank you for your letter of June 23 to John Copenhagen. The Florida Keys Aqueduct Authority (Aqueduct Authority) has indeed requested funding from the Federal Emergency Management Agency (FEMA) through the Florida Division of Emergency Management (FDEM) for the referenced project. The project would be funded through Hazard Mitigation Grant Program Umnet Need funds appropriated after Hurricane Georges of 1998. The nature of the proposed project requires us to prepare an Environmental Assessment (EA) pursuant to the National Environmental Policy Act. Scoping for this effort was recently completed. Our agency has been aware of its obligations under Section 7 of the Endangered Species Act and had planned to coordinate with the U.S. Fish and Wildlife Service (FWS) as part of the EA. Circumstances require us to expedite our consultations for this particular project site.

Accordingly, FEMA would like to initiate informal consultation to determine if construction of a wastewater treatment plant at the Mile Marker (MM) 100.5 site in Key Largo has the potential to affect threatened or endangered species or their critical habitat, and to develop various mitigation measures if necessary. Monroe County is working with the Aqueduct Authority on this project and has prepared a Preliminary Environmental Assessment to provide FEMA and the Florida Department of Environmental Protection, who also<sup>s</sup> funding this project, with a preliminary environmental evaluation of this project site. This document addresses points in your June 23rd letter and recommends additional biological evaluation of the site, which has been planned.



## United States Department of the Interior



### FISH AND WILDLIFE SERVICE

South Florida Biological Services Office

P.O. Box 2676

Vero Beach, Florida 32961-2676

June 23, 2000

John B. Copenhagen, Regional Director  
Federal Emergency Management Agency  
Region IV  
3003 Chamblee-Tucker Road  
Atlanta, GA 30341

Dear Mr. Copenhagen:

The Fish and Wildlife Service (Service) has received correspondence from Monroe County, Department of Marine Resources, regarding a proposed wastewater treatment plant in Key Largo, Florida. The County has indicated that Federal monies from FEMA will be utilized for construction of this project. The County requested our review of the proposal for potential impacts to threatened and endangered species.

The project site, which has been approved by the Board of County Commissioners, is located at approximately mile marker 100.5, on Highway U.S. 1, Ocean side, in Key Largo. The County owns, or will acquire, approximately 35 acres in the project area for construction of the plant. The sewage treatment plant itself will require approximately seven acres of buildable land. Additional acreage is needed to meet open space requirements. The properties at the project site are established with tropical hardwood hammock communities. The parcels which will need to be purchased are already targeted for acquisition by the state of Florida's CARL program (Conservation and Recreational Lands). Tropical hardwood hammocks are composed of many West Indian plant species at the northernmost portions of their ranges and provide important habitat for many species of wildlife. Several state and federally listed threatened and endangered species are known to occur in tropical hardwood hammocks. In the project area, listed species include the endangered Schaus swallowtail butterfly [*Heracles (=Papilio) aristodemus ponceanus*], the threatened Stock Island tree snail [*Orthalicus reses* (not including *nesodytes*)], and the threatened eastern indigo snake (*Drymarchon corais couperi*).

Pursuant to section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (ESA), Federal agencies must ensure that all activities or programs they authorize, fund or carry out, in whole or in part, do not jeopardize the continued existence of threatened or endangered species. This section also sets forth the consultation process for Federal actions. The Service recommends that FEMA evaluate the proposed Key Largo treatment plant project for impacts to threatened and endangered species and request initiation of section 7 consultation with