

APPENDIX C: Section 3: University of Iowa Rare Plants Report



Graham Environmental Services, Inc.

GES

*University of Iowa Rare Plants Report
Art School Site*



Iowa City, Iowa

**Prepared for: Seneca
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GES Project No. 2011.024



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University of Iowa Rare Plants Report

Graham Environmental Services

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Introduction

Project Purpose and Objectives

This report summarizes the results of an inventory and analysis of the rare plant species for a site on the University of Iowa campus in Iowa City, Iowa. The rare plant survey was conducted on September 8th of 2011. This project was undertaken by Graham Environmental Services in partnership with Seneca to provide baseline ecological information for a University of Iowa construction project. This report accompanies other reports on wetland resources and biological resources for three separate project sites.

The primary objectives of project are:

- To identify common plant species found within the project site
- To identify natural plant communities in the project site
- To identify rare plant species within the project site.



Description of the Study Area

Surrounding Landscape



The area of study for this project is located on the University of Iowa campus in Iowa City. Historically, this landscape was dominated by open prairies and savannas, and woodlands bordering rivers and streams. Mesic prairie dominated most of the landscape but it also included dry prairie species from the plains to the east and tree and shrub species found in the deciduous forest to the east. Fire that was started by Native Americans or lightening was the primary factor keeping the prairie landscape open and un-forested. In many cases, Native Americans started fires to maintain ideal habitat for Bison, elk and deer. Other species that relied on the prairie habitat included badger, prairie chickens, a wide variety of songbirds and even wolves.

Following European settlement, farmsteads started establishing across the landscape, and the rich prairie soils were plowed for crop production. Wetlands were also drained and trees cut down for building, heating and to expand fields. This process of landscape conversion from natural habitats occurred over several decades. Today around 60% of the landscape is in annual crops. The populations of many wildlife species decreased due to a combination of over hunting and habitat loss.

Scattered woodlots, wetlands and conservations plantings are also part of the rural landscape around Iowa City. The planting of native vegetation along roadsides has been a focus in Iowa and these areas add to the biological diversity of the rural landscape. Through restoration and conservation efforts many wildlife species such as turkey, deer, bobcat, peregrine falcons and trumpeter swans are re-establishing in the state.

The current landscape of Iowa City is a combination of commercial, residential and industrial development. North and south of the city the Iowa River winds through the agricultural landscape

creating an important corridor of wildlife habitat. As the river winds through the city the corridor shrinks in size but widens where there are parks, steep slopes, or ravines leading down to the river.

Much of the city is dominated with mature street trees including many oaks. A wide variety of plant species have been planted on the University of Iowa campus and in private residences in the area, including both native plants and horticultural varieties.

Special Status Species

Lists of State and Federal Threatened, Endangered and Special Concern species have been developed for Iowa are available through the Iowa Natural Areas Inventory (INAI) Interactive Website. The information in the database is from a variety of sources, including surveys to locate rare plants and animals in their natural habitats, collection of information from museums, herbariums, and scientific literature, and observations from naturalists around the state. Over 8000 records are contained in the database, ranging from historical observations made in the 1800s to present day sightings. Records in the complete INAI Database are protected as "ecologically sensitive sites" within the Open Records Law (Iowa Code 22.7(21)) and are used by professional natural resource managers to identify opportunities for conservation, to improve natural resource management, and to conduct environmental reviews to avoid conflicts between development and listed species. (Iowa DNR)

The following are definitions for Endangered Species, Threatened Species and Special Concern Species from the Iowa Department of Natural Resources:

Endangered Species means any species of fish, plant life, or wildlife which is in danger of extinction throughout all or a significant part of its range. Protected by law.

Threatened Species means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Protected by law.

Special Concern means any species about which problems of status or distribution are suspected, but not documented. Not protected by the Iowa Threatened and Endangered Species law, but many animal species listed as Special Concern are protected under other state and federal laws addressing hunting, fishing, collecting, and harvesting.

The follow table is a summary of listed species for Johnson County Iowa where Iowa City and the project area is located. Appendix A of this report includes a complete list of endangered, threatened and special concern species for the entire state of Iowa.



JOHNSON County, IA

Summary by Species Report

Total Unique Listed Species In This County: 61

County	Common Name	Scientific Name	Class	State Status	Federal Status
JOHNSON	Bald Eagle	<i>Haliaeetus leucocephalus</i>	BIRDS	S	
JOHNSON	Barn Owl	<i>Tyto alba</i>	BIRDS	E	
JOHNSON	Northern Harrier	<i>Circus cyaneus</i>	BIRDS	E	
JOHNSON	Freckled Madtom	<i>Noturus nocturnus</i>	FISH	E	
JOHNSON	Orangethroat Darter	<i>Etheostoma spectabile</i>	FISH	T	
JOHNSON	Creeper	<i>Strophitus undulatus</i>	FRESHWATER MUSSELS	T	
JOHNSON	Fat Pocketbook	<i>Potamilus capax</i>	FRESHWATER MUSSELS		E
JOHNSON	Pistolgrip	<i>Tritogonia verrucosa</i>	FRESHWATER MUSSELS	E	
JOHNSON	Purple Wartyback	<i>Cyclonaias tuberculata</i>	FRESHWATER MUSSELS	T	
JOHNSON	Round Pigtoe	<i>Pleurobema sintoxia</i>	FRESHWATER MUSSELS	E	
JOHNSON	Sheepnose	<i>Plethobasus cyphus</i>	FRESHWATER MUSSELS	E	C
JOHNSON	Yellow Sandshell	<i>Lampsilis teres</i>	FRESHWATER MUSSELS	E	
JOHNSON	Byssus Skipper	<i>Problema byssus</i>	INSECTS	T	
JOHNSON	Purplish Copper	<i>Lycaena helloides</i>	INSECTS	S	
JOHNSON	Spotted Skunk	<i>Spilogale putorius</i>	MAMMALS	E	
JOHNSON	Cleft Phlox	<i>Phlox bifida</i>	PLANTS (DICOTS)	S	
JOHNSON	Cream Violet	<i>Viola striata</i>	PLANTS (DICOTS)	S	
JOHNSON	Earleaf Foxglove	<i>Tomanthera auriculata</i>	PLANTS (DICOTS)	S	
JOHNSON	Fineberry Hawthorn	<i>Crataegus chrysoarpa</i>	PLANTS (DICOTS)	S	
JOHNSON	Frost Grape	<i>Vitis vulpina</i>	PLANTS (DICOTS)	S	
JOHNSON	Hedge Nettle	<i>Stachys aspera</i>	PLANTS (DICOTS)	S	
JOHNSON	Hill's Thistle	<i>Cirsium hillii</i>	PLANTS (DICOTS)	S	
JOHNSON	Hortulan Plum	<i>Prunus hortulana</i>	PLANTS (DICOTS)	S	
JOHNSON	Humped Bladderwort	<i>Utricularia gibba</i>	PLANTS (DICOTS)	S	
JOHNSON	Lance-leaved Violet	<i>Viola lanceolata</i>	PLANTS (DICOTS)	S	
JOHNSON	Limestone Rockcross	<i>Arabis divaricarpa</i>	PLANTS (DICOTS)	S	
JOHNSON	Muskroot	<i>Adoxa moschatellina</i>	PLANTS (DICOTS)	S	
JOHNSON	Pearly Everlasting	<i>Anaphalis margaritacea</i>	PLANTS (DICOTS)	S	
JOHNSON	Pinesap	<i>Monotropa hypopithys</i>	PLANTS (DICOTS)	T	
JOHNSON	Pink Milkwort	<i>Polygala incarnata</i>	PLANTS (DICOTS)	T	
JOHNSON	Sage Willow	<i>Salix candida</i>	PLANTS (DICOTS)	S	

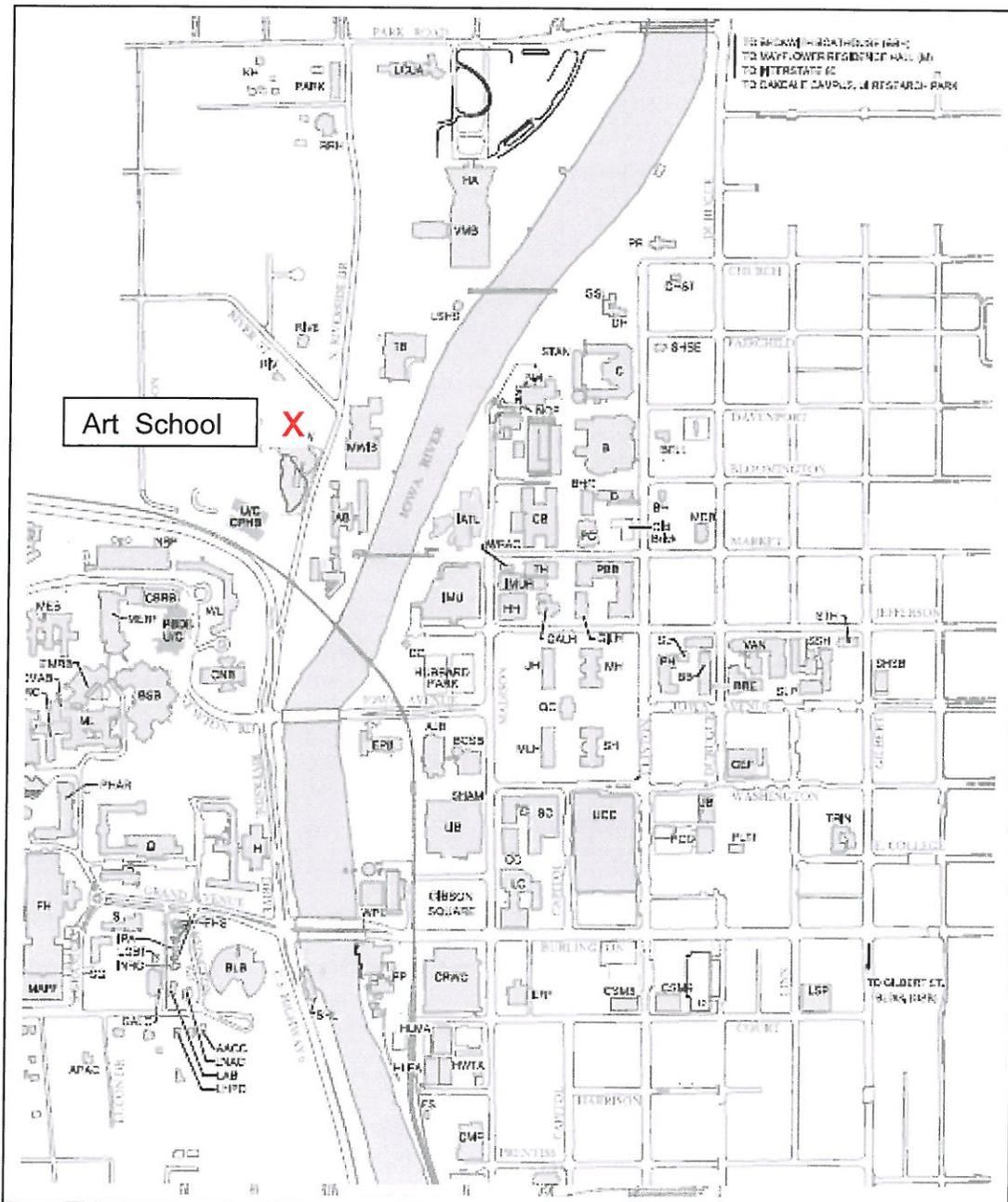
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JOHNSON	Saskatoon Service-berry	<i>Amelanchier alnifolia</i>	PLANTS (DICOTS)	S	
JOHNSON	Spring Avens	<i>Geum vernum</i>	PLANTS (DICOTS)	S	
JOHNSON	Toothcup	<i>Rotala ramosior</i>	PLANTS (DICOTS)	S	
JOHNSON	Water Shield	<i>Brasenia schreberi</i>	PLANTS (DICOTS)	S	
JOHNSON	Water Starwort	<i>Callitriche heterophylla</i>	PLANTS (DICOTS)	S	
JOHNSON	Woolly Milkweed	<i>Asclepias lanuginosa</i>	PLANTS (DICOTS)	T	
JOHNSON	Bur-reed	<i>Sparganium androcladum</i>	PLANTS (MONOCOTS)	S	
JOHNSON	Capitate Spikerush	<i>Eleocharis olivacea</i>	PLANTS (MONOCOTS)	S	
JOHNSON	Chapman Bluegrass	<i>Poa chapmaniana</i>	PLANTS (MONOCOTS)	S	
JOHNSON	Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	PLANTS (MONOCOTS)	E	T
JOHNSON	Glomerate Sedge	<i>Carex aggregata</i>	PLANTS (MONOCOTS)	S	
JOHNSON	Green Adder's Mouth	<i>Malaxis unifolia</i>	PLANTS (MONOCOTS)	S	
JOHNSON	Oval Ladies'-tresses	<i>Spiranthes ovalis</i>	PLANTS (MONOCOTS)	T	
JOHNSON	Pale Green Orchid	<i>Platanthera flava</i>	PLANTS (MONOCOTS)	E	
JOHNSON	Showy Lady's Slipper	<i>Cypripedium reginae</i>	PLANTS (MONOCOTS)	T	
JOHNSON	Slender Fimbr	<i>Fimbristylis autumnalis</i>	PLANTS (MONOCOTS)	S	
JOHNSON	Slender Ladies'-tresses	<i>Spiranthes lacera</i>	PLANTS (MONOCOTS)	T	
JOHNSON	Slim-leaved Panic Grass	<i>Dichanthelium linearifolium</i>	PLANTS (MONOCOTS)	T	
JOHNSON	Tall Cotton Grass	<i>Eriophorum angustifolium</i>	PLANTS (MONOCOTS)	S	
JOHNSON	Wolf Spike-rush	<i>Eleocharis wolfii</i>	PLANTS (MONOCOTS)	S	
JOHNSON	Crowfoot Clubmoss	<i>Lycopodium digitatum</i>	PLANTS (PTERIDOPHYTES)	S	
JOHNSON	Ground Pine	<i>Lycopodium clavatum</i>	PLANTS (PTERIDOPHYTES)	E	
JOHNSON	Limestone Oak Fern	<i>Gymnocarpium robertianum</i>	PLANTS (PTERIDOPHYTES)	S	
JOHNSON	Northern Adder's-tongue	<i>Ophioglossum pusillum</i>	PLANTS (PTERIDOPHYTES)	S	
JOHNSON	Oak Fern	<i>Gymnocarpium dryopteris</i>	PLANTS (PTERIDOPHYTES)	T	
JOHNSON	Blanding's Turtle	<i>Emydoidea blandingii</i>	REPTILES	T	
JOHNSON	Common Musk Turtle	<i>Sternotherus odoratus</i>	REPTILES	T	
JOHNSON	Massasauga Rattlesnake	<i>Sistrurus catenatus</i>	REPTILES	E	
JOHNSON	Ornate Box Turtle	<i>Terrapene ornata</i>	REPTILES	T	
JOHNSON	Smooth Green Snake	<i>Liochlorophis vernalis</i>	REPTILES	S	

Key: Threatened (T), Endangered (E), Special Concern (S), Candidate for Listing (C)

Study Locations

The Map below shows the location of the study areas as well as the site's proximity to the Iowa River.



Art School Site

The Art School is outlined in red in the diagram to the right. The solid red line shows the proposed construction area, and the red dashed line shows the proposed construction staging areas.

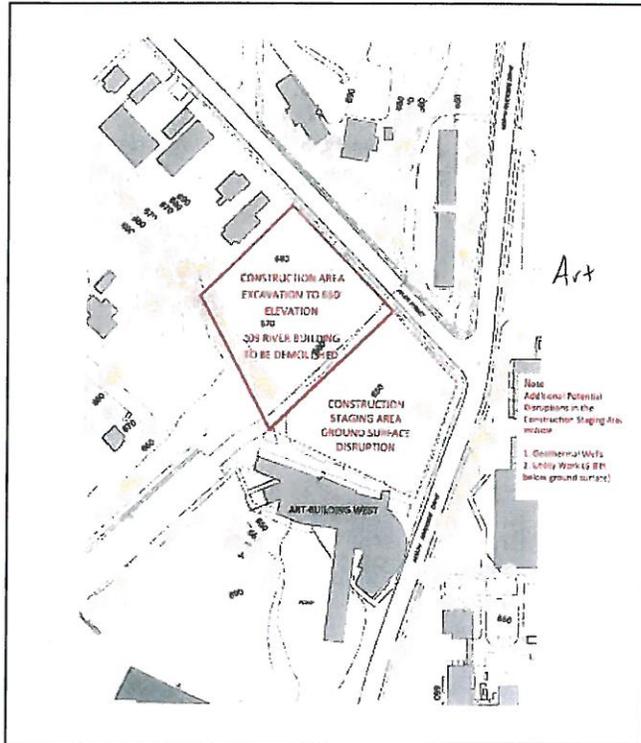
The Art School site consists of an area in lawn and a wooded area that is bordered by apartments and private residences. A swale that originates in a residential area two blocks further west ends in the small wooded area. A small wetland dominated with species such as jewel weed, boxelder and wood nettle is found at the base of the ravine where water collects after large storm events. Several invasive species are also found in or around the wetland.

The lawn area consisted of a combination of typical lawn grasses such as Kentucky bluegrass, and common lawn weeds such as common plantain, dandelion and crab grass.

The small wooded area consisted of relatively high diversity with 49 species. A higher percentage of species present are native species, but several invasive species such as Tartarian honeysuckle, garlic mustard and giant knotweed were also present. Giant knotweed was the most dominant invasive species, covering a large area on the edge of the woods and spreading into the wetland.

Several tree species were present in the wooded area including Red elm, Hackberry, White Oak, Boxelder, Green ash and Black Cherry.

No state or Federally listed species were found in the Art School Site.



The art School site is located south of the intersection of North Riverside Dr. and River St.



Lawn area at the Art School site

Overview of Methods

Planning and Pre-Survey Data Collection

Prior to the survey aerial images were studied to determine locations of plant communities, and where listed species would most likely be found at each site. Information was also collected about historical land use, as well as information about rare and declining species in the project area. This included species that have been documented in the County as well as species that are State or Federally listed statewide. Information was also collected about key taxonomical differences between rare plant species that could be found at the project site, and more common species within similar genus. Examples are the *Poa* and *Vitis* genus that include both state listed species and species that are common in the landscape.

Field Survey

Upon visiting the site an analysis of the site boundaries and dominant plant communities was conducted, as well as an analysis of likely areas of listed species. This was followed by a detailed meander search of the site to develop a complete list of species found, and to search for any species that were State or Federally listed. A complete list of all species found was developed to ensure that listed species in the same genus as common species (not listed species) could be differentiated. Any species that could not be positively identified in the field were photographed. Leaf samples were collected for trees, shrubs and vines, and for herbaceous species if large populations were present.

Summary of Results

Plant Species Present

The following list summarize species found at the Art School study areas. The percent dominance of each species represents the percent aerial coverage of vegetated areas not including impervious surfaces). The USDA Plants website and GRIN (Germplasm Resources Information Network) were used for species naming.

Art Building Site Species List		
Scientific Name	Common Name	Percent Cover
<i>Acer negundo</i>	Boxelder	1-5
<i>Acer platanoides</i>	Norway maple	<1
<i>Ageratina altissima</i>	White snakeroot	<1
<i>Alliaria petiolata</i>	Garlic mustard	<1
<i>Arctium minus</i>	Lesser burdock	<1
<i>Arisaema triphyllum</i>	Jack in the pulpit	<1
<i>Berberis thunbergii</i>	Japanese barberry	<1
<i>Celtis occidentalis</i>	Common hackberry	1-5
<i>Chenopodium album</i>	Lambsquarters	<1
<i>Cyperus esculentus</i>	Yellow nut sedge	<1
<i>Digitaria ischaemum</i>	Smooth crabgrass	1-5
<i>Digitaria sanguinalis</i>	Hairy crabgrass	<1
<i>Euonymus alatus</i>	Burning bush	<1
<i>Eupatoriadelphus maculatus</i>	Spotted Joe pye weed	<1
<i>Fraxinus pennsylvanica</i>	Green ash	1-5
<i>Glechoma hederaceae</i>	Creeping Charlie	<1
<i>Gleditsia triacanthos</i>	Honeylocust	1-5
<i>Hackelia virginiana</i>	Beggarslice	<1
<i>Hemerocallis</i> sp.	Daylily cultivar	<1
<i>Hesperis matronalis</i>	Dames Rocket	<1
<i>Impatiens pallid</i>	Pale touch-me-not	1-5
<i>Juglans nigra</i>	Black walnut	1-5
<i>Lactuca Canadensis</i>	Canada lettuce	<1
<i>Laportea Canadensis</i>	Canadian wood nettle	1-5
<i>Leersia virginica</i>	Whitegrass	<1
<i>Lolium perenne</i> ssp. Multiflorum	Italian ryegrass	<1
<i>Lonicera mackii</i>	Amur honeysuckle	<1
<i>Lonicera tatarica</i>	Tartarian honeysuckle	<1
<i>Osmorhiza claytoni</i>	Clayton's sweetroot	<1
<i>Oxalis stricta</i>	Common yellow oxalis	<1

<i>Parthenocissus quinquefolia</i>	Virginia creeper	<1
<i>Phytolacca americana</i>	American pokeweed	<1
<i>Pilea pumila</i>	Canadian clearweed	<1
<i>Pinus nigra</i>	Austrian pine	<1
<i>Plantago major</i>	Common plantain	<1
<i>Poa pratensis</i>	Kentucky bluegrass	75-100
<i>Polygonatum biflorum</i>	Smooth Solomon's seal	<1
<i>Polygonum cuspidatum</i>	Giant knotweed	1-5
<i>Portulaca oleracea</i>	Little hogweed	<1
<i>Prunus serotina</i>	Black cherry	<1
<i>Quercus alba</i>	White oak	1-5
<i>Quercus macrocarpa</i>	Bur oak	1-5
<i>Ribes missouriensis</i>	Missouri gooseberry	<1
<i>Rumex crispus</i>	Curly dock	<1
<i>Setaria pumila</i>	Yellow foxtail	<1
<i>Smilax rotundifolia</i>	Roundleaf greenbriar	<1
<i>Solidago Canadensis</i>	Canada goldenrod	<1
<i>Sonchus arvensis</i>	Field sowthistle	<1
<i>Symphotrichum pilosum</i>	Hairy white oldfield aster	<1
<i>Syringa vulgaris</i>	Common lilac	<1
<i>Taraxacum officinale</i>	Common dandelion	<1
<i>Toxicodendron radicans</i>	Poison ivy	<1
<i>Ulmus rubra</i>	Red Elm	<1
<i>Viburnum opulus</i>	European cranberrybush	<1
<i>Vinca minor</i>	Common periwinkle	<1
<i>Viola sororia</i>	Common blue violet	<1
<i>Vitis Riparia</i>	Riverbank grape	<1

Considerations

Key Issues for Consideration

Rare Species –No State or Federally listed plant species were found at the Art School site.

Species Diversity - The Art School site consisted of a large lawn areas but contained a small wooded area (under one acre) with 49 plant species. Although there were a large number of species found at the site 22 species were not native to the United States, consisting of invasive species, common weeds, or commonly planted horticultural species. The horticultural species included; (Common periwinkle (vinca), Common lilac, Austrian pine, Daylily, Burning bush, Norway Maple and Japanese Maple).

Invasive Species – Seven species at the Art school site are considered invasive in Iowa (Garlic mustard, Dames Rocket, Amur honeysuckle, Tartarian honeysuckle, and Giant Knotweed). The commonly planted horticultural species, Norway Maple and Japanese Maple can also be invasive in Iowa.

Removal of the invasive species at the Art School site would aid the spread of native species and prevent invasive species from spreading to other nearby wooded areas.

Plant Communities – Two natural plant communities were found at the Art School Site, a mixed Deciduous Forest and a small Lowland Hardwood Forest that included the wetland.. The Mixed Deciduous Forest was part of a larger wooded area that ran up the ravine for several city block. The dominant tree species consisted of White and Bur Oak but also contained species such as Elm, Hackberry and Boxelder. The upper edges of the ravine were likely savanna historically as many large, open grown oaks are present. The small Lowland hardwood forest was dominated by tree species that prefer high moisture levels such as Hackberry, Boxelder and Elm.

Ecological Opportunities – The proximity of the study areas to the Iowa River allows for several ecological opportunities. The shoreline of the river is degraded and its restoration to native vegetation would help improve water quality, improve wildlife habitat, and provide an educational resource for University of Iowa students. Undeveloped areas further away from the river including at the Art School site provide opportunities for stormwater treatment, and connections to the natural plant communities that remain on campus such as the wooded area at the Art School site.

Glossary of Terms Used in This Report

Diversity - The spectrum of life forms and the ecological processes that support and sustain them. Biological diversity is a complex of four interacting levels: genetic, species, community, and ecosystem. ((Matthiae et al., 1993)

Inventory site - The geographic location at which a biological survey has been conducted.

Plant Community - an assemblage of plants and animals, in a particular place at a particular time, interacting with one another and the abiotic environment around them, and subject to primarily natural disturbance regimes. Those assemblages that are repeated across a landscape in an observable pattern constitute a community “type.” No two assemblages, however, are exactly alike.

References

Iowa Natural Areas Inventory (INAI) Interactive Website

<http://www.iowadnr.gov/Environment/ThreatenedEndangered/NaturalAreasInventory.aspx>

Iowa’s Fragile Flora

<http://www.cgrer.uiowa.edu/herbarium/FragFloraIntro.htm>

USDA, NRCS. 2011. The PLANTS Database (<http://plants.usda.gov>, 11 September 2011). National Plant Data Team, Greensboro, NC 27401-4901 USA.

Appendix A

Endangered, Threatened, and Special Concern Plants and Animals and Native Natural Communities in Iowa County

State Status: THR - Threatened, END - Endangered, SC - Special Concern, SC/P - Fully protected, SC/N - No protection, SC/H - Take regulated by open/closed seasons, SC/FL - Federally protected as endangered or threatened, SC/M - Protected by Migratory Bird Act.
Federal Status (in Wisconsin): LE - Listed as Endangered, LT - Listed as Threatened, C - Candidate for listing.
Groupname: A - indicates an aquatic/wetland element

Animals

Scientific Name	Common Name	State Status	Federal Status	Groupname
<i>Acipenser fulvescens</i>	Lake Sturgeon	SC/H		Fish-
<i>Acris crepitans</i>	Northern Cricket Frog	END		Frog-
<i>Aeropedellus clavatus</i>	Club-horned Grasshopper	SC/N		Grasshopper
<i>Aflexia rubranura</i>	Red-tailed Prairie Leafhopper	END		Leafhopper
<i>Alasmidonta marginata</i>	Elktoe	SC/P		Mussel-
<i>Ammocrypta clara</i>	Western Sand Darter	SC/N		Fish-
<i>Ammodramus henslowii</i>	Henslow's Sparrow	THR		Bird
<i>Amplicephalus kansiensis</i>	A Leafhopper	SC/N		Leafhopper
<i>Anguilla rostrata</i>	American Eel	SC/N		Fish-
<i>Anodonta suborbiculata</i>	Flat Floater	SC/P		Mussel-
<i>Apalone mutica</i>	Smooth Softshell	SC/H		Turtle-
<i>Aphredoderus sayanus</i>	Pirate Perch	SC/N		Fish-
<i>Arcidens confragosus</i>	Rock Pocketbook	THR		Mussel-
<i>Attenuipyga vanduzeei</i>	A Leafhopper	SC/N		Leafhopper
<i>Bartramia longicauda</i>	Upland Sandpiper	SC/M		Bird
<i>Bat Hibernaculum</i>	Bat Hibernaculum	SC		Other
<i>Bird Rookery</i>	Bird Rookery	SC		Other-
<i>Buteo lineatus</i>	Red-shouldered Hawk	THR		Bird-
<i>Caenis hilaris</i>	A Small Square-gilled Mayfly	SC/N		Mayfly-
<i>Cercobrachys fox</i>	Fox Small Square-gilled Mayfly	SC/N		Mayfly-
<i>Chlosyne gorgone</i>	Gorgone Checker Spot	SC/N		Butterfly
<i>Chondestes grammacus</i>	Lark Sparrow	SC/M		Bird
<i>Cicindela lepida</i>	Little White Tiger Beetle	SC/N		Beetle
<i>Crotalus horridus</i>	Timber Rattlesnake	SC/P		Snake
<i>Crystallaria asprella</i>	Crystal Darter	END		Fish-
<i>Cycleptus elongatus</i>	Blue Sucker	THR		Fish-
<i>Dendroica cerulea</i>	Cerulean Warbler	THR		Bird
<i>Dendroica dominica</i>	Yellow-throated Warbler	END		Bird
<i>Ellipsaria lineolata</i>	Butterfly	END		Mussel-
<i>Empidonax virescens</i>	Acadian Flycatcher	THR		Bird
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR		Turtle-
<i>Epiaeschna heros</i>	Swamp Darner	SC/N		Dragonfly-
<i>Erimyzon sucetta</i>	Lake Chubsucker	SC/N		Fish-
<i>Etheostoma asprigene</i>	Mud Darter	SC/N		Fish-
<i>Etheostoma microperca</i>	Least Darter	SC/N		Fish-
<i>Fundulus dispar</i>	Starhead Topminnow	END		Fish-
<i>Fusconaia ebena</i>	Ebony Shell	END		Mussel-
<i>Glyptemys insculpta</i>	Wood Turtle	THR		Turtle-
<i>Graptemys pseudogeographica</i>	False Map Turtle	SC/H		Turtle-
<i>Haliaeetus leucocephalus</i>	Bald Eagle	SC/P		Bird-
<i>Hendersonia occulta</i>	Cherrystone Drop	THR		Snail
<i>Herp Hibernaculum</i>	Herp Hibernaculum	SC		Other
<i>Hiodon alosoides</i>	Goldeye	END		Fish-
<i>Ictiobus niger</i>	Black Buffalo	THR		Fish-
<i>Ixbrychus exilis</i>	Least Bittern	SC/M		Bird-
<i>Laccobius reflexipennis</i>	A Predaceous Diving Beetle	SC/N		Beetle-
<i>Lampsilis higginsii</i>	Higgins' Eye	END	LE	Mussel-
<i>Lampsilis teres</i>	Yellow & Slough Sandshells	END		Mussel-

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Lanius ludovicianus	Loggerhead Shrike	END		Bird
Lioporeus triangularis	A Predaceous Diving Beetle	SC/N		Beetle-
Lithobates palustris	Pickerel Frog	SC/H		Frog-
Macrhybopsis aestivalis	Shoal Chub	THR		Fish-
Macrhybopsis storeriana	Silver Chub	SC/N		Fish-
Microtus ochrogaster	Prairie Vole	SC/N		Mammal
Migratory Bird Concentration	Site Migratory Bird Concentration Site	SC		Other
Moxostoma valenciennesi	Greater Redhorse	THR		Fish-
Mussel Bed Mussel	Bed	SC		Other-
Myotis septentrionalis	Northern Long-eared Bat	THR		Mammal
Notropis nubilus	Ozark Minnow	THR		Fish-
Notropis texanus	Weed Shiner	SC/N		Fish-
Noturus exilis	Slender Madtom	END		Fish-
Oporornis formosus	Kentucky Warbler	THR		Bird
Opsopoeodus emiliae	Pugnose Minnow	SC/N		Fish-
Pantherophis spiloides	Gray Ratsnake	SC/P		Snake
Pentagenia vittigera	A Common Burrower Mayfly	SC/N		Mayfly-
Perimyotis subflavus	Eastern Pipistrelle	THR		Mammal
Pituophis catenifer	Gophersnake	SC/P		Snake
Plethobasus cyphus	Bullhead	END	C	Mussel-
Polyamia dilata	Prairie Leafhopper	THR		Leafhopper
Polyodon spathula Paddlefish	THR Fish-			
Protonotaria citrea	Prothonotary Warbler	SC/M		Bird-
Quadrula metanevra	Monkeyface	THR		Mussel-
Quadrula quadrula	Mapleleaf	SC/P		Mussel-
Reithrodontomys megalotis	Western Harvest Mouse	SC/N		Mammal
Simpsonaias ambigua	Salamander Mussel	THR		Mussel-
Somatochlora hineana	Hine's Emerald	END	LE	Dragonfly-
Sparbarus nasutus	A Small Square-gilled Mayfly	SC/N		Mayfly-
Speyeria idalia	Regal Fritillary	END		Butterfly
Spinadis simplex	Wallace's Deepwater Mayfly	END		Mayfly-
Stenelmis douglasensis	Douglas Stenelmis Riffle Beetle	SC/N		Beetle-
Stenelmis knobeli Knobel's	Riffle Beetle	END		Beetle-
Sturnella neglecta	Western Meadowlark	SC/M		Bird
Terrapene ornata	Ornate Box Turtle	END		Turtle
Tritogonia verrucosa	Buckhorn	THR		Mussel-
Truncilla donaciformis	Fawnsfoot	SC/P		Mussel-
Tyto alba	Barn Owl	END		Bird
Vireo bellii	Bell's Vireo	THR		Bird
Wilsonia citrina	Hooded Warbler	THR		Bird

Plants

Scientific Name Common Name State Status Federal Status Groupname

Agalinis gattereri	Roundstem Foxglove	THR		Plant
Agalinis skinneriana	Pale False Foxglove	END		Plant
Arabis shortii Short's	Rock-cress	SC		Plant
Asclepias lanuginosa	Woolly Milkweed	THR		Plant
Asclepias purpurascens	Purple Milkweed	END		Plant
Asplenium pinnatifidum	Lobed Spleenwort	THR		Plant
Botrychium campestre	Prairie Dunewort	END		Plant
Cacalia tuberosa Prairie	Indian-Plantain	THR		Plant
Calamagrostis stricta	Slim-stem Small Reed Grass	SC		Plant-
Callirhoe triangulata	Clustered Poppy-mallow	SC		Plant
Calylophus serrulatus	Yellow Evening Primrose	SC		Plant
Camassia scilloides	Wild Hyacinth	END		Plant
Carex laevivaginata	Smooth-sheath Sedge	END		Plant-
Carex schweinitzii	Schweinitz's Sedge	END		Plant-
Cirsium hillii	Hill's Thistle	THR		Plant
Cyripedium candidum	Small White Lady's-slipper	THR		Plant-
Diarrhena obovata	Beak Grass	END		Plant
Dichanthelium wilcoxianum	Wilcox's Panic Grass	SC		Plant
Diodia teres var. teres	Buttonweed	SC		Plant
Eleocharis engelmannii	Engelmann's Spike-rush	SC		Plant-
Festuca paradoxa	Cluster Fescue	SC		Plant
Gentiana alba	Yellow Gentian	THR		Plant
Jeffersonia diphylla	Twingleaf	SC		Plant

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Juncus marginatus	Grassleaf Rush	SC		Plant-
Lespedeza leptostachya	Prairie Bush-clover	END	LT	Plant
Lespedeza violacea	Violet Bush-clover	SC		Plant
Melica nitens	Three-flowered Melic Grass	SC		Plant
Myosotis laxa	Small Forget-me-not	SC		Plant-
Nothocalais cuspidata	Prairie False-dandelion	SC		Plant
Orobanche fasciculata	Clustered Broomrape	THR		Plant
Orobanche uniflora	One-flowered Broomrape	SC		Plant
Parthenium integrifolium	American Fever-few	THR		Plant
Pediomelum esculentum	Prairie Turnip	SC		Plant
Phemeranthus rugospermus	Prairie Fame-flower	SC		Plant
Platanthera flava var. herbiola	Pale Green Orchid	THR		Plant
Platanthera hookeri	Hooker's Orchid	SC		Plant
Platanus occidentalis	Sycamore	SC		Plant-
Poa sylvestris	Woodland Bluegrass	SC		Plant
Polygala incarnata	Pink Milkwort	END		Plant-
Polytaenia nuttallii	Prairie Parsley	THR		Plant
Prenanthes crepidinea	Nodding Rattlesnake-root	END		Plant
Rhexia virginica	Virginia Meadow-beauty	SC		Plant-
Scleria triglomerata Whip	Nutrush	SC		Plant-
Scutellaria ovata ssp. ovata	Heart-leaved Skullcap	SC		Plant
Senecio plattensis	Prairie Ragwort	SC		Plant
Senna marilandica	Maryland Senna	SC		Plant
Silene nivea	Snowy Campion	THR		Plant
Silene virginica	Fire Pink	END		Plant
Strophostyles leiosperma	Small-flowered Woolly Bean	SC		Plant
Triphora trianthophora	Nodding Pogonia	SC		Plant

Communities

- Dry cliff Community
- Dry prairie Community
- Dry-mesic prairie Community
- Emergent marsh Community-
- Ephemeral pond Community-
- Floodplain forest Community-
- Hemlock relict Community
- Mesic prairie Community
- Moist cliff Community
- Oak barrens Community
- Oak opening Community
- Pine barrens Community
- Pine relict Community
- Riverine Lake/Pond Community-
- Sand barrens Community
- Sand prairie Community
- Shrub-carr Community-
- Southern dry-mesic forest Community
- Southern mesic forest Community
- Southern sedge meadow Community-
- Stream--fast, hard, cold Community-
- Wet-mesic prairie Community-