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Floristic Inventory
Of the
Amana Lily Lake Emergent and Lakeside Vegetation
Amana, Iowa

Prepared for:

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Floristic Inventory Of The Emergent and Lakeside Vegetation

For

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Prepared for:

Iowa County Soil and Water Conservation District
Lily Lake Watershed Development Project

Prepared by:

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Iowa Valley Resource Conservation and Development
Land Stewardship Program

Introduction

Project Location
Lily Lake is located in the NW 1/4 of section 27 and NE edge of section 28, Tier 81 N, Range 9 W, of Lenox Township in Iowa County, Iowa situated between Middle and Main Amana along 220th Trail. The Lake is located in the flood plain valley just north of the Iowa River, and encompasses approximately 200 acres in area. Amana Lily Lake is surrounded by a bike trail and is borded by a pasture to the east that has been recently seeded to native vegetation, by the Millrace to the south, by residential homes to the west, and 220th Trail to the north. Five small intermittent tributary creeks feed into the Amana Lake and the Millrace. The project area consists of Amana Lily Lake and the perimeter surrounding the Lake, an area on the average approximately 25 feet wide and 1 mile in length.

Statement of Purpose
The Lily Lake Development Project is a collaborative effort to promote innovative urban soil and water conservation initiatives. The first logical step toward this goal is to acquire baseline data from a number of venues for the purpose of assessing the present status of the Lily Lake water body and to forge an action plan to promote the long-term health, quality, and conservation of the water resource within the context of the watershed. The floristic data, herein, is one of the several baseline data components critical in the analysis of the present status of the Amana Lily Lake and in devising a sustainable future vision for the lake in the context of the watershed.

Methods

Several documents were reviewed for initial site orientation and to familiarize us with the general character of the project area. These documents include; the U.S. Geological Survey (USGS) topographic map and the National Wetlands Inventory map of the region, the US Department of Agriculture (USDA) Soil Survey of Iowa County, the General Land Office Survey, Field Notes, and Plat Maps, the 1875 Andreas township Atlas, and aerial photographs taken in 1990.

In addition, six other sources were referenced regarding the vegetation of Iowa County. These include *The Flora of Iowa County* (Easterly, 1951), *Endangered and Threatened Plants and Animal Species* (Iowa Administrative Code 1994), *Maps of Iowa 1832-1859 Vegetation* (Anderson, 1996), *Landforms of Iowa* (Prior, 1991), *Vegetation Plot Locations and Cover, Iowa River Corridor Project* (Christiansen, 1996) and *The Vascular Plants of Iowa* (Eilers and Roosa, 1994).

Field Observations
Four field visits to the site were conducted in order to collect information on the existing conditions across the project area. The method used to traverse the project area was simply to meander across the landscape and Lakeside edge so as to record the species encountered.

Floristic Quality Assessment

The overall floristic quality of the project area was determined through an analysis of the conservatism of the species appearing in the inventory (Drobney *at el*, 2000). Conservatism is defined by the confidence one has about how restricted a species is to high-quality, remnant habitats (i.e., those natural areas with intact presettlement structure, composition, and processes), (Wilhelm and Masters, 1999). Native plants of a defined geographic region exhibit an observable range of conservatism and, therefore, each may be assigned a "coefficient of conservatism" (c value) from 0 to 10, "weedy" to "conservative".

The overall floristic quality of an area is determined through an analysis of the species appearing in an inventory, with the mean *C*, or average coefficient of conservatism, determined arithmetically from the species inventory. The floristic quality index *(FQI)* is a statistic derived by multiplying the mean C by the square root of the number of native species recorded. If a site has a large proportion of conservative plants, the mean *C* and *FQI* values will be higher. On the contrary, if a site has a large proportion of adventive and non-conservative native species, these values will be lower and imply that the area is degraded.

Results and Discussion

Historical Context

In 1843, a survey team lead by J. Whitcher conducted the first survey and subdivision into Sections, Township 81 North, Range 9 West, of the 5th Meridian, in what was then the Iowa Territory. The surveyor described the land through which he walked in relation to the kinds of trees and its suitability for agriculture. At he end of each mile he would define the corner either by 'witness trees' if suitable trees were present, or by the placement of a post or monument of rocks or charcoal. Then, he would summarize the vegetation over the whole of the line with a comment such as: ' Land first rate prairie'. J. Whitcher described the Amana Lily lake area in 1843 as:

Section 27 & 28
First rate bottom
Section 26 & 27
1st rate bottom, a little timber along the stream
Enter Prairie E and W North of River
1st rate bottom
Section 27 & 34
1st rate bottom
Section 28 & 33
First rate prairie bottom

His township summary of Lenox township:

This is a very good Township, there is a good proportion of timber. There are some settlements on the River. The soil is very good, it is susceptible of a large population.

Amana Lily Lake was created during the 1880's, some time after the millrace was constructed and the levy broke and flooded what had been a marshland area as displayed in early General Land Surveyor maps. Previous to the formation of the present day Lily lake the area was known by early settlers as the "swamp or marshland" and utilized extensively in 1870's for harvesting grasses (Haldey, pers. comm.).

In geological context, Amana Lily lake is located between the Iowa River floodplain to the south and wooded uplands to the north, which are characterized by remnant alluvial terraces, underlain by water deposited materials occurring above the modern Lily lake area. The lake has a rounded shape reminiscent of an ancient oxbow of the Iowa River. The drainage of the small five intermittent tributaries in combination of the occasional flood waters of the Iowa River, may have been historically important sources of upland sediments and seed.

Perhaps a prehistoric meander loop in the Iowa River existed near the location of the present-day Lily Lake. In more recent time, the Amana Lily Lake seems to have been intermittently occupied by Iowa River during high flood events which in effect, would have scoured out the existing topographic shape surrounding the pond.

Floristic Inventory
Information on the vegetation was gathered during four field visits conducted June 4th, June 11th, June 14th, September 9, 2001. A list of the plants recorded across the project area is included on page 7. Also included with the species list is a summary of the floristic quality data. A total of 224 species were recorded, 167 of which are native (75%) with a mean C of 2.8 and FQI of 36. The floristic quality assessment data was based upon assigned values for Iowa. The results indicate that a significant proportion of the Lake area represent quality, remnant plant communities. Some areas are highly modified from their presettlement conditions and are dominated by non-native plants. Although based upon visits to the site during just the

summer of one growing season, it is likely that this inventory represents no less than three-quarters of the vegetation within the study area.

The floristic quality assessment data indicate that a significant portion of the Amana Lily Lake area represent high-quality, remnant plant communities. Large yellow fox sedge, *(Carex annectans)* and Riverbank sedge, (*Carex emoryi),* are listed as infrequent or rare according to *Eilers and Roosa, 1994*. Some of the areas particularly rich in remnant vegetation rim the perimeter of the lake from the western wooded area to along 220th trail curving east. Presently, many of these high quality areas undergo frequent mowing and much of the remnant vegetation is dwarfed and stunted as a result. The practice of mowing also creates an easily accessible area for waterfowl, such as Canadian geese, which further add to the non-point source pollution of the lake and intern inhibit the native remnant vegetation. Unfortunately, some of the areas within the site are also highly modified from their presettlement conditions and are dominated by non-native plants. These areas are mainly in the immediate vicinity where the intermittened creeks drain into the Lake and characterized by reed canary grass *(Phalaris arundinacea*), indicative of inundation of nutrients and sediment from the ambient uplands.

With all of the contributing factors of point-source and non-point source pollution, the project area still comprises a significant portion of the project site in terms of remnant, natural character of the presettlement marshland vegetation. In general, the vegetation can be characterized as vegetated wetlands and include historic ox-bows and marsh vegetation. These areas support sedge meadows dominated by glue joint grass (*Calamagrostis canadensis*) and various sedges (especially *Carex emoryi*), as well as forested wetland habitat dominated by rough-leaved dogwood (*Cornus drummondii*), and various willows (*Salix* spp.). Plants representative of a sedge-meadow community and found across the project area along the Lake perimeter include the following: Panicled Aster, (*Aster lanceolatus)*, Indigo Bush, (*Amorpha fruticosa),* Swamp Milkweed, *(Asclepias incarnata),* Blue-joint Grass, (*Calamagrostis canadensis)*, Riverbank sedge, (*Carex emoryi)*, Blue flag iris *(Iris shrevei),* Long-toothed Lake sedge, *(Carex Leaviconica)*, Buttonbush (*Cephalanthus occidentalis),* Bunch-flower, *(Melantheium virginicum),* Monkey Flower, (*Mimulus ringens),* and Heart-leaved Willow, (*Salix eriocephala)*, please review the composite plant list on page 4.

Plant species representative of the emergent lake vegetation include the following: Duckweed, (*Lemna minor),* American lotus, (*Nelumbo lutea),* American pondweed, (*Potamogeton nodosus),* and Common arrowhead, (*Sagittaria latifolia*), and Water meal (*Wolffia columbiana*), please review the plant list of emergent community species on page 5.

Summary

Many ecological features contribute to the unique nature of assemblages of flora native to Amana Lily lake. Even though clearly portions of the perimeter vegetation are indicative of the remnant marshland plant communities present before the formation of Lily Lake, unfortunately, most of the portions of the remnant marshland are severely degraded. This is in part due to:
significant sediments and nutrients incurred from the ambient uplands via tributary creeks,
transient water fowl,
fire suppression,
mowing and,
grass clippings.
all of which have contributed to considerably degrade the native plant communities in the project area.

Most of the vegetation surrounding Amana Lily Lake has been dwarfed by mowing. A buffer zone surrounding the lake no less than 20' wide should be allowed to grow, followed by an annual burn regime conducted either in the fall or spring of the year, and supplemented by interseeding locally collected native plant species. This corrective management scheme, with the appropriate design, would have a number of positive effects:
Increase the native plant biodiversity

Reduce competition from non-native plants

Reduce the impact of migratory water fowl

Impede lawn clippings from being dumped along the Lakeside edge.

In 1843 it is evident that nearly or quite all of the present day Amana Lily lake was inhabited by wetland marsh species. Since then, the formation of the lake, agriculture, and urbanization of the area, have significantly changed the resulting plant community in and around Amana Lily lake. Yet, relicts of the marshland vegetation the Amana settlers once harvested remain. It is probable that with restoration and further surveys, another 50 species or so would be discovered, and that the FQI would rise to 40 or more. In any event, the integration of restoration of the Amana Lily lake area to presettlement condition represents a unique opportunity to regain some of the remnant biodiversity, improve water quality, and reclaim a component of the rich cultural heritage of the Amana Colonies.

As supported by field observations and data analysis, Amana Lily lake includes within it remnant vegetation of significant importance to the regions biodiversity. The Amana Lily lake contains within it a variety of natural amenities, which include uncommon plants, a diversity of species, and is the default refugium for much of the remnant biodiversity that is the native legacy of the Amana Colonies. Indeed, its species richness places it among the more notable areas in Iowa.

We should make certain that current plans do not purloin from the next generation of Iowa's natural assets that are currently present, but not fully recognized for their full potential and value. There is every good reason to believe that these amenities can be nourished, stewarded, an integrated into an overall Amana Long-range Plan of Operations.

References

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The following inventory details the plants noted for the area in and surrounding Amana Lily Lake in Amana, Iowa. Each species is preceded by its database acronym and coefficients of conservatism (C= 0 to 10, weedy to conservative), and followed by its wetness coefficient W= -5 to +5, wet to dry), corresponding National Wetland Category (OBL = obligate wetland species, FAC = facultative species, UPL= upland species), and physiognomy (A = annual, B= biennial, P = perennial, W= woody, H = herbaceous), as presented by Drobney, *et al,* 2000. Native taxa are those species believed to have been present in Johnson County prior to Euro-American settlement. Adventives, shown in ALL CAPS, include those species that have entered the region since settlement and therefore are not integral to any presettlement community.

The first table corner is an analysis of the quality of the site. It shows the total number of species present, the mean coefficient of conservatism, the floristic quality index (FQI), and mean wetness. These are calculated separately for natives and then including the adventive species (W/Adventives). The mean C indicates the average coefficient of conservatism. The FQI is derived by multiplying the mean C by the square root of the number of species.

Site: Amana Lily Lake
Locale: Amana Iowa
Date: September 9, 2001 3 hours
June 11, 2001 2 hours
June 4, 2001 2 hours
June 14, 2001 4 hours

FLORISTIC QUALITY DATA	Native	167	74.6%	Adventive	57	25.4%
167 NATIVE SPECIES	Tree	17	7.6%	Tree	5	2.2%
224 Total Species	Shrub	17	7.6%	Shrub	2	0.9%
2.8 NATIVE MEAN C	W-Vine	6	2.7%	W-Vine	0	0.0%
2.1 W/Adventives	H-Vine	2	0.9%	H-Vine	0	0.0%
36.4 NATIVE FQI	P-Forb	60	26.8%	P-Forb	16	7.1%
31.5 W/Adventives	B-Forb	4	1.8%	B-Forb	8	3.6%
-0.8 NATIVE MEAN W	A-Forb	31	13.8%	A-Forb	12	5.4%
0.1 W/Adventives	P-Grass	8	3.6%	P-Grass	8	3.6%
AVG: Faculative (+)	A-Grass	2	0.9%	A-Grass	6	2.7%
	P-Sedge	18	8.0%	P-Sedge	0	0.0%
	A-Sedge	1	0.4%	A-Sedge	0	0.0%
	Fern	1	0.4%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACARHO	6	Acalypha rhomboidea	3	FACU	Nt A-Forb	Three-seeded mercury
ACENEG	0	Acer negundo	-2	FACW-	Nt Tree	Box elder
ACESAI	1	Acer saccharinum	-3	FACW	Nt Tree	Silver maple
AGRRER	0	AGROPYRON REPENS	3	FACU	Ad P-Grass	Quack grass
AMATUB	0	Amaranthus tuberculatus	-5	OBL	Nt A-Forb	Water hemp
AMBART	0	Ambrosia artemisiifolia	3	FACU	Nt A-Forb	Common ragweed
AMBTRI	0	Ambrosia trifida	-1	FAC+	Nt A-Forb	Giant ragweed
AMOFRF	5	Amorpha fruticosa	-4	FACW+	Nt Shrub	Indigo bush
ANECAN	2	Anemone canadensis	-3	FACW	Nt P-Forb	Canada anemone
APIAME	4	Apios americana	-3	FACW	Nt H-Vine	Ground nut
APOSIB	1	Apocynum sibiricum	-1	FAC+	Nt P-Forb	Indian hemp
ARCMIN	0	ARCTIUM MINUS	5	UPL	Ad B-Forb	Common burdock
ASCINC	4	Asclepias incarnata	-5	OBL	Nt P-Forb	Swamp milkweed
ASCSYR	0	Asclepias syriaca	5	UPL	Nt P-Forb	Common milkweed
ASCVER	0	Asclepias verticillata	5	UPL	Nt P-Forb	Whorled milkweed
ASPOFF	0	ASPARAGUS OFFICINALIS	3	FACU	Ad P-Forb	Garden asparagus
ASTLAN	4	Aster lanceolatus	-5	OBL	Nt P-Forb	Panicled aster
ASTNOV	3	Aster novae-angliae	-3	FACW	Nt P-Forb	New England aster
ASTONT	3	Aster ontarionis	0	FAC	Nt P-Forb	Ontario aster
ASTPIL	0	Aster pilosus	4	FACU-	Nt P-Forb	Hairy aster
ATRPAT	0	Atriplex patula	-2	FACW-	Nt A-Forb	Common orach
BIDARI	3	Bidens aristosa	-3	FACW	Nt A-Forb	Swamp marigold
BIDCER	2	Bidens cernua	-5	OBL	Nt A-Forb	Nodding bur marigold
BIDFRO	3	Bidens frondosa	-3	FACW	Nt A-Forb	Beggar ticks
BIDPOL	3	Bidens polylepis	-3	FACW	Nt A-Forb	Bur marigold
BOECYC	5	Boehmeria cylindrica	-5	OBL	Nt P-Forb	Rough false nettle
BRAKAB	0	Brassica kaber	5	UPL	Nt A-Forb	Charlock
BROINE	0	BROMUS INERMIS	5	UPL	Ad P-Grass	Smooth brome
BROJAP	0	BROMUS JAPONICUS	3	FACU	Ad A-Grass	Japanese chess
BROTEC	0	BROMUS TECTORUM	5	UPL	Ad A-Grass	Downy chess
CALCAN	5	Calamagrostis canadensis	-5	OBL	Nt P-Grass	Blue joint grass
CALSEP	0	Calystegia sepium	0	FAC	Nt P-Forb	Hedge bindweed
CAPBUR	0	CAPSELLA BURSA-PASTORIS	1	FAC-	Ad A-Forb	Shepherd's purse
CARNUT	0	CARDUUS NUTANS	5	UPL	Ad B-Forb	Musk thistle
CXANNX	6	Carex annectens var. xanthocarpa	-3	FACW	Nt P-Sedge	Large yellow fox sedge
CXBLAN	2	Carex blanda	0	FAC	Nt P-Sedge	Common wood sedge
CXBREV	4	Carex brevior	0	FAC	Nt P-Sedge	Plains oval sedge
CXCONJ	7	Carex conjuncta	-3	FACW	Nt P-Sedge	Green-headed fox sedge
CXCRIS	5	Carex cristatella	-4	FACW+	Nt P-Sedge	Crested oval sedge
CXDAVI	4	Carex davisii	-1	FAC+	Nt P-Sedge	Awned graceful sedge
CXEMOR	6	Carex emoryi	-5	OBL	Nt P-Sedge	Riverbank sedge
CXFEST	8	Carex festucacea	0	FAC	Nt P-Sedge	Fescue oval sedge
CXGRVG	1	Carex gravida	5	UPL	Nt P-Sedge	Long-awned bracted sedge
CXGRIS	4	Carex grisea	5	UPL	Nt P-Sedge	Gray sedge
CXLAEC	6	Carex laeviconica	-5	OBL	Nt P-Sedge	Long-toothed lake sedge
CXMOLE	2	Carex molesta	0	FAC	Nt P-Sedge	Field oval sedge
CXRADI	6	Carex radiata	5	UPL	Nt P-Sedge	Straight-styled wood sedge
CXSCOP	5	Carex scoparia	-3	FACW	Nt P-Sedge	Lance-fruited oval sedge
CXVULP	3	Carex vulpinoidea	-5	OBL	Nt P-Sedge	Brown fox sedge
CELSCA	1	Celastrus scandens	3	FACU	Nt W-Vine	Bittersweet
CELOCC	2	Celtis occidentalis	1	FAC-	Nt Tree	Hackberry
CEPOCC	6	Cephalanthus occidentalis	-5	OBL	Nt Shrub	Buttonbush
CERVUL	0	CERASTIUM VULGATUM	3	FACU	Ad P-Forb	Mouse-ear chickweed
CERDEM	0	Ceratophyllum demersum	-5	OBL	Nt P-Forb	Coontail
CHEALB	0	CHENOPODIUM ALBUM	1	FAC-	Ad A-Forb	Lamb's quarters
CICMAC	7	Cicuta maculata	-5	OBL	Nt B-Forb	Water hemlock
CINARU	4	Cinna arundinacea	-3	FACW	Nt P-Grass	Wood reed
CIRARV	0	CIRSIUM ARVENSE	3	FACU	Ad P-Forb	Field thistle
CIRDIS	1	Cirsium discolor	5	UPL	Nt B-Forb	Pasture thistle
CIRVUL	0	CIRSIUM VULGARE	4	FACU-	Ad B-Forb	Bull thistle
CORDRU	4	Cornus drummondii	0	FAC	Nt Shrub	Rough-leaved dogwood
COROBL	6	Cornus obliqua	-4	FACW+	Nt Shrub	Silky dogwood
CORRAC	1	Cornus racemosa	-2	FACW-	Nt Shrub	Gray dogwood
CORSTS	7	Cornus stolonifera	-3	FACW	Nt Shrub	Red-osier dogwood
CORVAR	0	CORONILLA VARIA	5	UPL	Ad P-Forb	Crown vetch
CRAMOL	3	Crataegus mollis	-2	FACW-	Nt Tree	Downy hawthorn
CYPODO	2	Cyperus odoratus	-3	FACW	Nt A-Sedge	Rusty nut sedge
CYPSTR	2	Cyperus strigosus	-3	FACW	Nt P-Sedge	Long-scaled nut sedge
DACGLO	0	DACTYLIS GLOMERATA	3	FACU	Ad P-Grass	Orchard grass
DESSOP	0	DESCURAINIA SOPHIA	5	UPL	Ad A-Forb	Flixweed
DIGISC	0	DIGITARIA ISCHAEMUM	3	FACU	Ad A-Grass	Smooth crab grass
ECHCRU	0	ECHINOCHLOA CRUSGALLI	-3	FACW	Ad A-Grass	Barnyard grass
ELYVIL	5	Elymus villosus	3	FACU	Nt P-Grass	Slender wild rye
EPICIL	3	Epilobium ciliatum	3	FACU	Nt P-Forb	Northern willow herb
EQUARV	0	Equisetum arvense	0	FAC	Nt Fern	Common horsetail
EREHIE	0	Erechtites hieracifolia	3	FACU	Nt A-Forb	Fireweed
ERIANN	0	Erigeron annuus	1	FAC-	Nt B-Forb	Annual fleabane
EUPPER	6	Eupatorium perfoliatum	-4	FACW+	Nt P-Forb	Common boneset
EUPDEN	0	Euphorbia dentata	5	UPL	Nt A-Forb	Toothed spurge
EUPMAA	0	Euphorbia maculata	4	FACU-	Nt A-Forb	Carpet spurge
FESPRA	0	FESTUCA PRATENSIS	4	FACU-	Ad P-Grass	Meadow fescue
FRAPEL	1	Fraxinus pennsylvanica var. lanceolata	-3	FACW	Nt Tree	Green ash
GALAPA	1	Galium aparine	3	FACU	Nt A-Forb	Cleavers
GALTRO	7	Galium triflorum	2	FACU+	Nt P-Forb	Sweet-scented bedstraw
GERMAC	6	Geranium maculatum	3	FACU	Nt P-Forb	Wild geranium
GEUCAN	2	Geum canadense	0	FAC	Nt P-Forb	White avens
GEULAC	4	Geum laciniatum	-3	FACW	Nt P-Forb	Rough avens
GLEHED	0	GLECHOMA HEDERACEA	4	FACU-	Ad P-Forb	Creeping Charlie
GLETRI	0	Gleditsia triacanthos	0	FAC	Nt Tree	Honey locust
HELAUT	4	Helenium autumnale	-4	FACW+	Nt P-Forb	Sneezeweed
HELGRO	4	Helianthus grosseserratus	-2	FACW-	Nt P-Forb	Saw-tooth sunflower
HELTUB	0	Helianthus tuberosus	0	FAC	Nt P-Forb	Jerusalem artichoke
HEMFUL	0	HEMEROCALLIS FULVA	5	UPL	Ad P-Forb	Day lily
HORJUB	0	Hordeum jubatum	-1	FAC+	Nt P-Grass	Squirrel-tail barley
IMPCAP	3	Impatiens capensis	-3	FACW	Nt A-Forb	Spotted touch-me-not
IRISHR	6	Iris shrevei	-5	OBL	Nt P-Forb	Blue flag
JUGNIG	4	Juglans nigra	3	FACU	Nt Tree	Black walnut
JUNDUD	2	Juncus dudleyi	0	FAC	Nt P-Forb	Dudley's rush
JUNTEN	0	Juncus tenuis	0	FAC	Nt P-Forb	Path rush
LACSER	0	LACTUCA SERRIOLA	0	FAC	Ad B-Forb	Prickly lettuce
LAPCAN	3	Laportea canadensis	-3	FACW	Nt P-Forb	Wood nettle
LEEORY	2	Leersia oryzoides	-5	OBL	Nt P-Grass	Rice cut grass
LEMMIR	3	Lemna minor	-5	OBL	Nt A-Forb	Duckweed
LEOCAR	0	LEONURUS CARDIACA	5	UPL	Ad P-Forb	Motherwort
LEPCAM	0	LEPIDIUM CAMPESTRE	5	UPL	Ad B-Forb	Field cress
LEPDEN	0	Lepidium densiflorum	0	FAC	Nt A-Forb	Pepper cress
LEPVIR	0	Lepidium virginicum	4	FACU-	Nt A-Forb	Poor-man's pepper
LONBEL	0	LONICERA X BELLA	5	UPL	Ad Shrub	Showy fly honeysuckle
LOTCOR	0	LOTUS CORNICULATUS	1	FAC-	Ad P-Forb	Bird's foot trefoil
LYCAME	4	Lycopus americanus	-5	OBL	Nt P-Forb	Common water horehound
MACPOM	0	MACLURA POMIFERA	3	FACU	Ad Tree	Osage orange
MALIOE	4	Malus ioensis	5	UPL	Nt Tree	Iowa crab
MATMAT	0	MATRICARIA MATRICARIOIDES	3	FACU	Ad A-Forb	Pineapple weed

MEDLUP	0	MEDICAGO LUPULINA	1	FAC-	Ad A-Forb	Black medick
MEDSAT	0	MEDICAGO SATIVA	5	UPL	Ad P-Forb	Alfalfa
MELVIR	8	Melanthium virginicum	-4	FACW+	Nt P-Forb	Bunch-flower
MELOFC	0	MELILOTUS OFFICINALIS	3	FACU	Ad B-Forb	Yellow sweet clover
MENARV	4	Mentha arvensis var. villosa	-3	FACW	Nt P-Forb	Wild mint
MIMRIN	3	Mimulus ringens	-5	OBL	Nt P-Forb	Monkey flower
MORALB	0	MORUS ALBA	0	FAC	Ad Tree	White mulberry
NELLUT	5	Nelumbo lutea	-5	OBL	Nt P-Forb	American lotus
NEPCAT	0	NEPETA CATARIA	1	FAC-	Ad P-Forb	Catnip
OENBIE	0	Oenothera biennis	3	FACU	Nt B-Forb	Common evening primrose
OSMCLI	3	Osmorhiza claytonii	4	FACU-	Nt P-Forb	Hairy sweet cicely
OXADIL	0	Oxalis dillenii	5	UPL	Nt P-Forb	Common wood sorrel
OXASTR	0	Oxalis stricta	3	FACU	Nt P-Forb	Tall wood sorrel
PANCAP	0	Panicum capillare	0	FAC	Nt A-Grass	Old witch grass
PANVIR	5	Panicum virgatum	-1	FAC+	Nt A-Grass	Switch grass
PARPEN	3	Parietaria pensylvanica	3	FACU	Nt A-Forb	Pellitory
PARQUI	2	Parthenocissus quinquefolia	1	FAC-	Nt W-Vine	Virginia creeper
PARVIT	1	Parthenocissus vitacea	3	FACU	Nt W-Vine	Thicket creeper
PASSAT	0	PASTINACA SATIVA	5	UPL	Ad B-Forb	Wild parsnip
PHAARU	0	PHALARIS ARUNDINACEA	-4	FACW+	Ad P-Grass	Reed canary grass
PHLPRA	0	PHLEUM PRATENSE	3	FACU	Ad P-Grass	Timothy
PHYLAN	3	Phyla lanceolata	-5	OBL	Nt P-Forb	Fog fruit
PILPUM	3	Pilea pumila	-3	FACW	Nt A-Forb	Common clearweed
PLARUG	0	Plantago rugelii	0	FAC	Nt A-Forb	Red-stalked plantain
POACOM	0	POA COMPRESSA	2	FACU+	Ad P-Grass	Canadian blue grass
POAPRA	0	POA PRATENSIS	1	FAC-	Ad P-Grass	Kentucky blue grass
POLBIF	4	Polygonatum biflorum	3	FACU	Nt P-Forb	Solomon's seal
POLACH	0	Polygonum achoreum	0	FAC	Nt A-Forb	Beak-seeded knotweed
POLAVI	0	POLYGONUM AVICULARE	1	FAC-	Ad A-Forb	Common knotweed
POLCON	0	POLYGONUM CONVOLVULUS	1	FAC-	Ad A-Forb	Black bindweed
POLLAP	0	Polygonum lapathifolium	-4	FACW+	Nt A-Forb	Heartsease
POLPEN	0	Polygonum pensylvanicum	-4	FACW+	Nt A-Forb	Pinkweed
POLPER	0	POLYGONUM PERSICARIA	-3	FACW	Ad A-Forb	Lady's thumb
POLPUN	4	Polygonum punctatum	-5	OBL	Nt A-Forb	Water smartweed
POLSCN	2	Polygonum scandens	0	FAC	Nt H-Vine	Climbing false buckwheat
POLVIG	5	Polygonum virginianum	0	FAC	Nt P-Forb	Jumpseed
POLCAN	5	Polymnia canadensis	5	UPL	Nt P-Forb	Leafcup
POPDEL	1	Populus deltoides	-1	FAC+	Nt Tree	Cottonwood
POPNIG	0	POPULUS NIGRA 'ITALICA'	5	UPL	Ad Tree	Lombardy poplar
POPTRE	2	Populus tremuloides	0	FAC	Nt Tree	Quaking aspen
POTFOL	7	Potamogeton foliosus	-5	OBL	Nt P-Forb	Leafy pondweed
POTNOD	7	Potamogeton nodosus	-5	OBL	Nt P-Forb	American pondweed
POTNOR	2	Potentilla norvegica	0	FAC	Nt A-Forb	Norway cinquefoil
PRUAMA	2	Prunus americana	5	UPL	Nt Tree	Smooth wild plum
PRUSER	3	Prunus serotina	3	FACU	Nt Tree	Wild black cherry
PRUVIR	2	Prunus virginiana	1	FAC-	Nt Shrub	Choke cherry
QUEMAC	4	Quercus macrocarpa	1	FAC-	Nt Tree	Bur oak
RANABO	0	Ranunculus abortivus	-4	FACW+	Nt A-Forb	Small-flowered crowfoot
RANSES	6	Ranunculus septentrionalis	-4	FACW+	Nt P-Forb	Swamp buttercup
RHUGLA	0	Rhus glabra	5	UPL	Nt Shrub	Smooth sumac
RIBAME	6	Ribes americanum	-3	FACW	Nt Shrub	Wild black currant
RIBMIS	3	Ribes missouriense	5	UPL	Nt Shrub	Wild gooseberry
RORPAL	7	Rorippa palustris	-5	OBL	Nt A-Forb	Marsh cress
ROSBLA	4	Rosa blanda	3	FACU	Nt Shrub	Meadow rose
ROSMUL	0	ROSA MULTIFLORA	3	FACU	Ad Shrub	Multiflora rose
RUBALL	2	Rubus allegheniensis	2	FACU+	Nt Shrub	Common blackberry
RUBOCC	1	Rubus occidentalis	5	UPL	Nt Shrub	Black raspberry
RUMALT	0	Rumex altissimus	4	FACU-	Nt P-Forb	Pale dock
RUMCRI	0	RUMEX CRISPUS	-1	FAC+	Ad P-Forb	Curly dock
SAGLAT	4	Sagittaria latifolia	-5	OBL	Nt P-Forb	Common arrowhead
SALERI	3	Salix eriocephala	-4	FACW+	Nt Shrub	Heart-leaved willow
SALEXI	0	Salix exigua ssp. Interior	-5	OBL	Nt Shrub	Sandbar willow

SALFRA	0	SALIX FRAGILIS	-1	FAC+	Ad Tree	Crack willow
SALNIG	3	Salix nigra	-5	OBL	Nt Tree	Black willow
SAMCAN	1	Sambucus canadensis	4	FACU-	Nt Shrub	Elderberry
SANCAN	7	Sanguinaria canadensis	4	FACU-	Nt P-Forb	Bloodroot
SANGRE	5	Sanicula gregaria	-1	FAC+	Nt P-Forb	Common snakeroot
SCHSCO	5	Schizachyrium scoparium	4	FACU-	Nt P-Grass	Little bluestem
SCIFLU	5	Scirpus fluviatilis	-5	OBL	Nt P-Sedge	River bulrush
SCIVAC	3	Scirpus validus var. creber	-5	OBL	Nt P-Sedge	Soft-stemmed bulrush
SENPLA	3	Senecio plattensis	4	FACU-	Nt P-Forb	Prairie ragwort
SETFAB	0	SETARIA FABERII	2	FACU+	Ad A-Grass	Giant foxtail
SETGLA	0	SETARIA GLAUCA	0	FAC	Ad A-Grass	Yellow foxtail
SILPRA	0	SILENE PRATENSIS	5	UPL	Ad P-Forb	White campion
SILPER	1	Silphium perfoliatum	-2	FACW-	Nt P-Forb	Cup plant
SMIHIS	4	Smilax hispida	0	FAC	Nt W-Vine	Greenbrier
SOLAME	0	Solanum americanum	4	FACU-	Nt A-Forb	Black nightshade
SOLALT	0	Solidago altissima	3	FACU	Nt P-Forb	Tall goldenrod
SOLCAN	0	Solidago canadensis	3	FACU	Nt P-Forb	Tall goldenrod
SOLGIG	3	Solidago gigantea	-3	FACW	Nt P-Forb	Smooth goldenrod
SONASP	0	SONCHUS ASPER	0	FAC	Ad A-Forb	Spiny-leaved sow thistle
SONOLE	0	SONCHUS OLERACEUS	3	FACU	Ad A-Forb	Store-front sow thistle
SORNUT	4	Sorghastrum nutans	2	FACU+	Nt P-Grass	Indian grass
SPAEUR	6	Sparganium eurycarpum	-5	OBL	Nt P-Forb	Common bur reed
SPAPEC	4	Spartina pectinata	-4	FACW+	Nt P-Grass	Prairie cord grass
SPIPOL	6	Spirodela polyrhiza	-5	OBL	Nt A-Forb	Greater duckweed
STAPAL	4	Stachys palustris	-5	OBL	Nt P-Forb	Woundwort
STATEN	5	Stachys tenuifolia	-5	OBL	Nt P-Forb	Smooth hedge nettle
SYMORB	0	Symphoricarpos orbiculatus	3	FACU	Nt Shrub	Coralberry
TAROFF	0	TARAXACUM OFFICINALE	3	FACU	Ad P-Forb	Common dandelion
TEUCAN	4	Teucrium canadense	-2	FACW-	Nt P-Forb	Germander
THADAD	4	Thalictrum dasycarpum	-2	FACW-	Nt P-Forb	Purple meadow rue
THLARV	0	THLASPI ARVENSE	5	UPL	Ad A-Forb	Penny cress
TILAME	5	Tilia americana	3	FACU	Nt Tree	Basswood
TOXRAD	0	Toxicodendron radicans	-1	FAC+	Nt W-Vine	Poison ivy
TRAOHI	4	Tradescantia ohiensis	2	FACU+	Nt P-Forb	Common spiderwort
TRIHYB	0	TRIFOLIUM HYBRIDUM	1	FAC-	Ad P-Forb	Alsike clover
TRIPRA	0	TRIFOLIUM PRATENSE	2	FACU+	Ad P-Forb	Red clover
TRIREP	0	TRIFOLIUM REPENS	2	FACU+	Ad P-Forb	White clover
TYPLAT	1	Typha latifolia	-5	OBL	Nt P-Forb	Broad-leaved cattail
ULMAME	2	Ulmus americana	-2	FACW-	Nt Tree	American elm
ULMPUM	0	ULMUS PUMILA	5	UPL	Ad Tree	Siberian elm
ULMRUB	2	Ulmus rubra	0	FAC	Nt Tree	Slippery elm
URTDIO	0	Urtica dioica	-1	FAC+	Nt P-Forb	Stinging nettle
VERTHA	0	VERBASCUM THAPSUS	5	UPL	Ad B-Forb	Common mullein
VERHAS	3	Verbena hastata	-4	FACW+	Nt P-Forb	Blue vervain
VERURT	2	Verbena urticifolia	-1	FAC+	Nt P-Forb	White vervain
VERARV	0	VERONICA ARVENSIS	5	UPL	Ad A-Forb	Corn speedwell
VIOSOR	1	Viola sororia	1	FAC-	Nt P-Forb	Hairy blue violet
VITRIP	1	Vitis riparia	-2	FACW-	Nt W-Vine	Riverbank grape
WOLCOL	4	Wolffia columbiana	-5	OBL	Nt A-Forb	Water meal

File: Emergent Wetland Plants

FLORISTIC QUALITY DATA	Native	34	100.0%	Adventive	0	0.0%
34 NATIVE SPECIES	Tree	1	2.9%	Tree	0	0.0%
34 Total Species	Shrub	2	5.9%	Shrub	0	0.0%
4.1 NATIVE MEAN C	W-Vine	0	0.0%	W-Vine	0	0.0%
4.1 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
24.0 NATIVE FQI	P-Forb	16	47.1%	P-Forb	0	0.0%
24.0 W/Adventives	B-Forb	1	2.9%	B-Forb	0	0.0%
-5.0 NATIVE MEAN W	A-Forb	7	20.6%	A-Forb	0	0.0%
-5.0 W/Adventives	P-Grass	2	5.9%	P-Grass	0	0.0%
AVG: Obl. Wetland	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	5	14.7%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	0	0.0%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
AMATUB	0	Amaranthus tuberculatus	-5	OBL	Nt A-Forb	Water hemp
ASCINC	4	Asclepias incarnata	-5	OBL	Nt P-Forb	Swamp milkweed
ASTLAN	4	Aster lanceolatus	-5	OBL	Nt P-Forb	Panicled aster
BIDCER	2	Bidens cernua	-5	OBL	Nt A-Forb	Nodding bur marigold
BOECYC	5	Boehmeria cylindrica	-5	OBL	Nt P-Forb	Rough false nettle
CALCAN	5	Calamagrostis canadensis	-5	OBL	Nt P-Grass	Blue joint grass
CXEMOR	6	Carex emoryi	-5	OBL	Nt P-Sedge	Riverbank sedge
CXLAEC	6	Carex laeviconica	-5	OBL	Nt P-Sedge	Long-toothed lake sedge
CXVULP	3	Carex vulpinoidea	-5	OBL	Nt P-Sedge	Brown fox sedge
CEPOCC	6	Cephalanthus occidentalis	-5	OBL	Nt Shrub	Buttonbush
CERDEM	0	Ceratophyllum demersum	-5	OBL	Nt P-Forb	Coontail
CICMAC	7	Cicuta maculata	-5	OBL	Nt B-Forb	Water hemlock
IRISHR	6	Iris shrevei	-5	OBL	Nt P-Forb	Blue flag
LEEORY	2	Leersia oryzoides	-5	OBL	Nt P-Grass	Rice cut grass
LEMMIR	3	Lemna minor	-5	OBL	Nt A-Forb	Duckweed
LYCAME	4	Lycopus americanus	-5	OBL	Nt P-Forb	Common water horehound
MIMRIN	3	Mimulus ringens	-5	OBL	Nt P-Forb	Monkey flower
NELLUT	5	Nelumbo lutea	-5	OBL	Nt P-Forb	American lotus
PHYLAN	3	Phyla lanceolata	-5	OBL	Nt P-Forb	Fog fruit
POLPUN	4	Polygonum punctatum	-5	OBL	Nt A-Forb	Water smartweed
POTFOL	7	Potamogeton foliosus	-5	OBL	Nt P-Forb	Leafy pondweed
POTNOD	7	Potamogeton nodosus	-5	OBL	Nt P-Forb	American pondweed
RORPAL	7	Rorippa palustris	-5	OBL	Nt A-Forb	Marsh cress
SAGLAT	4	Sagittaria latifolia	-5	OBL	Nt P-Forb	Common arrowhead
SALEXI	0	Salix exigua ssp. Interior	-5	OBL	Nt Shrub	Sandbar willow
SALNIG	3	Salix nigra	-5	OBL	Nt Tree	Black willow
SCIFLU	5	Scirpus fluviatilis	-5	OBL	Nt P-Sedge	River bulrush
SCIVAC	3	Scirpus validus var. creber	-5	OBL	Nt P-Sedge	Soft-stemmed bulrush
SPAEUR	6	Sparganium eurycarpum	-5	OBL	Nt P-Forb	Common bur reed
SPIPOL	6	Spirodela polyrhiza	-5	OBL	Nt A-Forb	Greater duckweed
STAPAL	4	Stachys palustris	-5	OBL	Nt P-Forb	Woundwort
STATEN	5	Stachys tenuifolia	-5	OBL	Nt P-Forb	Smooth hedge nettle
TYPLAT	1	Typha latifolia	-5	OBL	Nt P-Forb	Broad-leaved cattail
WOLCOL	4	Wolffia columbiana	-5	OBL	Nt A-Forb	Water meal