

22 May 2006

TO: Mr. Michael Hine, Bureau Chief  
Attn: Mr. Tom Brooks  
Bureau of Design and Environment  
Illinois Department of Transportation  
2300 South Dirksen Parkway  
Springfield, Illinois 62764

RECEIVED  
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ENVIRONMENT  
SECTION

FROM: Dr. John B. Taft  
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RE: North Chicago Wetland Mitigation Site  
US 41/ IL 137  
Lake County

## INTRODUCTION

A request was received on 2 May 2006 from the Illinois Department of Transportation (IDOT) for a botanical survey of the North Chicago Wetland Mitigation Site. The specified goal of this study was to update the previously completed floristic survey (Taft 1996) and submit a report by 22 May 2006. It was too early in the season and too brief a period to provide a comprehensive account of the flora in this study area. Consequently, the focus for this review was to conduct a rapid assessment of the resources and estimate the level of changes that have taken place. Other prior work in this mitigation site includes vegetation mapping and a wetland survey (Olson et al. 1991; Plocher et al. 1996).

## METHODS

The study area is an approximately 65 ha (160 acres) rectangular unit that can be subdivided into four equal-sized quarter units, approximately 16 ha (40 acres) in size, along a north-to-south axis (Figure 1). These quarter units (north-quarter, second-quarter, third-quarter, and south-quarter) will be referred to accordingly in the text. The study area was examined by walking throughout each of the quarter units and using the check list of species composition from previous work (Taft 1996) attempt to account for as many species as possible. The areas perceived to be high quality, mostly in the southern half of the study area, were visited and their condition evaluated. The habitats for three threatened and endangered species reported previously within the study area also were examined. Field work for this assessment was conducted on 10-11 May 2006. Botanical nomenclature follows Mohlenbrock (1986). Community classification follows White and Madany (1978).

## RESULTS AND DISCUSSION

The pattern observed previously (Taft 1996) of increasing habitat and plant community integrity from north to south in the wetland mitigation study area still is apparent. In general, the northern half of the study area appears to have had the greatest past disturbance resulting in degradation of most of the original vegetation, particularly in the north quarter where a single small area of sedge meadow and wet prairie is the lone exception (Figure 1). There are some additional areas with restoration potential in the second quarter. In the past site history, there probably was an effort to cultivate and drain the habitats in the northern half of the study area. In contrast, the southern half still retains extensive noteworthy examples of marsh, sedge meadow, and prairie and the locations for the threatened and endangered species appear to be intact and relatively unchanged since the 1995-1996 survey period. About 11.5 ha (28.3 acres) were mapped in the study area as relatively high quality (17.6% of the total), mostly a mosaic of marsh, sedge meadow, and prairie, and most of this is in the southern half of the mitigation site (Figure 1). The opportunity for restoration and recovery is particularly good in this southern half of the study area. Off-road vehicle use seems to have increased in the intervening years since the last assessment, particularly in the northern half of the study area, and some trails are deeply rutted.

A comparison of aerial photography from that used during 1995-1996 field work (dated from an unknown prior year) to aerials taken in 1998 and 2005 suggests that the shrub cover, a prominent feature of the site, has increased. Some of this apparent change may be due to seasonal differences between the original dormant-season image compared with the recent growing season images. Some areas of previously heterogeneous cover of shrubs appear to have closed in. The stature of some of the shrub cover has increased and this seems to allow sunlight to filter to the ground layer. There remain some prairie species throughout many of the shrub thickets, persisting in a sterile, diminutive vegetative state (e.g., *Anemone cylindrica*, *Dodecatheon meadia*, *Veronicastrum virginicum*, and *Viola pedatifida*).

Each quarter unit will be discussed in greater detail below. The species observed during the recent survey that previously were observed in the study area are indicated in Table 1 along with newly observed species.

**North Quarter Unit** - This remains the most degraded of the four quarter units. As previously reported (Taft 1996), it can be characterized as old field, shrubland, and degraded marsh. One local area of sedge meadow with some wet prairie species occurs in the southwestern corner of the unit, joining with the Second Quarter Unit (Figure 1). No significant species occurrences have been noted in this unit previously or during the recent survey.

**Second Quarter Unit** - While dominated by shrubs, this unit can be characterized as a mix of prairie and old field species (Figure 1); also present are a few areas of degraded marsh and two open-water wetlands with tree cover and a few emergent wetland species (e.g., *Sium suave*, *Mentha arvensis*). Prairie species include *Andropogon gerardii*, *Comandra umbellata*, *Euphorbia corollata*, *Fragaria virginica*, *Helianthus grosseserratus*, *Hypoxis hirsutus*, *Ratibida pinnata*, *Sisyrinchium albidum*, *Solidago rigida*, and *Zizia aurea*. The prairie species typically occur intermixed with old field species including *Solidago canadensis*, *Solidago juncea*,

*Equisetum arvense*, and *Senecio pauperculus* and several shrub species.

Marsh habitat in this quarter unit is dominated by *Cirsium arvense*\*, *Equisetum arvense*, *Lycopus americanus*, *Lythrum salicaria*\*, *Mentha arvensis*, *Phalaris arundinacea*\*, *Typha angustifolia*, *Typha latifolia*. The cat-tails, reed canary grass, and purple loosestrife (*Typha* spp., *P. arundinacea*, and *L. salicaria*) are by far the most dominant species. The shrub cover includes several species: *Cornus racemosa*, *Cornus stolonifera*, *Lonicera morrowii*\*, *Malus ioensis*, *Prunus virginiana*, *Rhamnus cathartica*\*, *Rhamnus frangula*\*, *Viburnum lentago*, *Viburnum opulus*\*, and *Viburnum recognitum*\*. The latter taxon, while native to Illinois, is considered adventive in the Chicago region (Swink and Wilhelm 1994).

The state threatened *Oenothera perennis* was observed during the 1995-1996 surveys in the south-central portion of this unit (Figure 1). However, the recent botanical survey was too early to detect this species. Plants seen previously in the study area were observed in flower on 14 June 1995 (Taft 1996).

**Third Quarter Unit** - A swale branches through this unit that includes a vegetation gradient from marsh in the lowest depressions to prairie along the drier margins adjacent to shrub thickets; sedge meadow occurs in intermediate locations between marsh and prairie (Figure 1). This mosaic occurs within a predominant matrix of shrubland and based on comparison of aerial photographs predating the baseline sample (1995) and current conditions, the wetland-to-prairie mosaic appears to be resistant to invasion by many shrub species, presumably due to seasonally wet conditions. The shrub thicket is similar in composition to that described for the northern two quarter units. Native wetland shrubs, including *Spiraea alba* and *Cornus stolonifera*, occur primarily in the sedge meadow zone. Prairie species extend into shrub thickets and local openings are present within the shrubland where an assemblage of prairie species can be found.

Dominant and common species in the marsh include *Typha latifolia*, *Aster puniceus*, *Calamagrostis canadensis*, *Helianthus grosseserratus*, *Iris shrevei*, *Pycnanthemum virginicum*, *Pycnanthemum pilosum*, *Sium suave*, *Stachys palustris*, *Thalictrum dasycarpum*, and *Verbena hastata*. The invasive exotic *Lythrum salicaria* is present but not dominant in most areas but seems to have increased since 1995-1996. The sedge meadow is dominated by *Carex stricta*; other sedges include *C. buxbaumii*, *C. haydenii*, and *C. sartwellii*. Several other sedges are reported from the site (Table 1); however, the sedges mostly were sterile or in early stages of flowering; more mature material is needed for positive identification. The distinction between marsh and sedge meadow (or wet prairie) often is not sharp and many species occur in multiple community types including *Calamagrostis canadensis*, *Cicuta maculata*, *Eupatorium maculatum*, *Lysimachia quadriflora*, *L. thrysiflora*, *Mentha arvensis* var. *villosa*, *Oxypolis rigidior*, *Pycnanthemum pilosum*, *P. virginicum*, *Salix petiolaris*, and *Verbena hastata*. Consequently, instead of delineating discrete community boundaries, broad areas of quality habitat encompassing the marsh-sedge meadow-prairie mosaic are indicated (Figure 1). Sedge meadow habitat appears to meet the INAI criteria as Grade B quality (White 1978).

Prairie species that are common to occasional include *Andropogon gerardii*, *Anemone cylindrica*, *Aster azureus*, *Aster ericoides*, *Cacalia tuberosa*, *Comandra umbellata*, *Dodecatheon meadia*, *Eryngium yuccifolium*, *Helianthus rigidus*, *Hypoxis hirsuta*, *Liatris* sp., *Monarda fistulosa*, *Parthenium integrifolium*, *Ratibida pinnata*, *Schizachyrium scoparium*, *Silphium*

*integrifolium*, *Sisyrinchium albidum*, *Smilacina stellata*, *Solidago juncea*, *Tradescantia ohiensis*, *Viola pedatifida*, and *Zizia aurea*. *Zizia aptera*, a relatively uncommon species limited to the northern counties in Illinois, also is present.

An individual of *Veronica scutellata* was seen in a marsh during the 1995-1996 surveys (Figure 1); it was too early to detect it during the present survey although the habitat remains similar to when it was found.

**Southern Quarter Unit** - This unit is similar to the third quarter unit and that description also applies to the southern unit. Unique species in this unit are found mostly in the prairie community and include *Castilleja coccinea*, *Sporobolus heterolepis*, *Elymus trachycaulus* (formerly known as *Agropyron subsecundum* var. *trichocalyx*), *Luzula multiflora*, *Dodecatheon meadia*, and *Hierochloa odorata*. There is a slightly greater proportion of higher-quality habitats in the southern quarter unit compared to the third-quarter unit including marsh, sedge meadow, and prairie. With a program of fire management and brush removal, the prairie remnants have potential to meet INAI Grade B quality. Currently, the sedge meadow, as in the third quarter unit, appears to be Grade B quality.

Two species listed as threatened by the Illinois Endangered Species Protection Board (2005), *Elymus trachycaulus* and *Oenothera perennis*, previously were found in this unit (Figure 1). Habitat is present that is similar to habitat supporting other rare species including the orchids *Cypripedium candidum* and *Platanthera leucophaea*. The latter species, listed as endangered in Illinois and threatened by the U.S. Fish and Wildlife Service, is known from nearby locations west and north of this study area. Intensive searches during 1995-1996 did not find either species in the study area. Greater success with reproduction has been found with hand pollination of *P. leucophaea* and some of the early efforts in Illinois occurred on a property north of this study area. There remains the possibility that the species could become established on site since there is an abundance of habitat similar to other locations for this species in Lake County.

## SUMMARY

There remains good quality habitat in the southern half of the wetland mitigation site (Third Quarter and Southern Quarter units), comprising about 11.5 ha (17.6%) of the entire study area. Some of the sedge meadow areas currently appear to be Grade B quality following the grading criteria of the Illinois Natural Areas Inventory (White 1978). Many prairie areas have substantial woody encroachment, particularly by *Cornus racemosa*, and some of the marsh habitat has local abundances of *Phalaris arundinacea*, *Typha latifolia*, and *Lythrum salicaria*. Nevertheless, there is very good potential for restoration of the marsh/sedge meadow/prairie mosaic throughout this area. A vigilant program of ecological restoration including cutting of the shrub thickets (using mechanized means such as a brushhog) and reintroduction of fire has the potential to restore the approximately 80 acres in the southern half of the study area to a rich mosaic of wetland and prairie habitats. Similar efforts in the Second Quarter Unit could result in significant habitat rehabilitation, but restoration to conditions prior to habitat degradation would require intensive management and species introductions.

Of the species previously documented, 56% were recorded as present during the recent

rapid assessment including 62% of the prairie/old field species. However, only 51% of the previously documented wetland species were documented during this survey. Developmentally, the wetland species, compared to the drier prairie habitats, appeared to be delayed and proportionately fewer were identified to species. A later survey in mid-to-late June would result in a more comprehensive survey of the wetland habitats. Taxonomic groups that were poorly represented during this recent survey include milkweeds, late-blooming composites, legumes, sedges, and grasses (*Asclepias* species, Asteraceae, Fabaceae, Cyperaceae, and Poaceae), all groups that include species more easily recognized and identified with surveys conducted later during the growing season (e.g., mid-June). The three species known from the site that are listed as threatened by the IESPB (*Oenothera perennis*, *Elymus trachycaulus*, and *Veronica scutellata*) would not be identifiable during an early May survey. While there were several species not recorded during this early survey, an additional 18 species were observed that previously were not recorded (Table 1) suggesting new discoveries still can be made at the site.

#### REFERENCES

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Plant species list - Lake County Wetland Mitigation Site

Table 1. Composition of vascular plants in the U.S. Route 41/IL Route 137, Illinois Department of Transportation Wetland Mitigation Site, Lake County. Threatened and endangered species are shown in bold. Adventive species are indicated with asterisks (\*). An "X" indicates the species was seen during the respective survey times.

Cover Class	Latin Species Name	1995-1996 Surveys		May 2006 Survey	
		Marsh-Pond/ Sedge Meadow	Prairie/ Old Field	Marsh-Pond/ Sedge Meadow	Prairie/ Old Field
3	<i>Achillea millefolia</i> *		X		X
1	<i>Agrimonia gryposepala</i>		X		X
2	<b><i>Agropyron trachycaulon</i> var. <i>unilaterale</i></b>	X	X		
2	<i>Agrostis alba</i> *		X		
2	<i>Agrostis alba</i> var. <i>palustris</i>	X			
2	<i>Alisma plantago-aquatica</i> var. <i>parviflorum</i>	X		X	
2	<i>Allium canadense</i>		X		X
2	<i>Allium cernuum</i>		X		X
3 to 4	<i>Ambrosia artemisiifolia</i>		X		
2 to 3	<i>Andropogon gerardii</i>		X		X
1 to 2	<i>Anemone cylindracea</i>		X		X
1 to 2	<i>Anemone virginica</i>		X		X
2	<i>Antennaria neglecta</i>		X		X
2	<i>Apocynum sibiricum</i>	X	X		
2	<i>Asclepias incarnata</i>	X			
2	<i>Asclepias purpurescens</i>		X		
2	<i>Asclepias sullivantii</i>		X		
1 to 2	<i>Asclepias syriaca</i>		X		X
2	<i>Asclepias tuberosa</i>		X		
3	<i>Aster azureus</i>		X		X
3	<i>Aster ericoides</i>		X		X
2	<i>Aster novae-angliae</i>	X	X		X
2	<i>Aster pilosus</i>	X		X	
2	<i>Aster praealtus</i>	X	X		
2	<i>Aster puniceus</i> var. <i>firmus</i>	X		X	
2	<i>Aster simplex</i>	X		X	
1	<i>Baptisia lactea</i>		X		
1	<i>Baptisia leucophaea</i>		X		
2	<i>Bidens cernua</i>	X			
2	<i>Bidens frondosa</i>	X			
2	<i>Bromus kalmii</i>		X		
2	<i>Cacalia plantaginea</i>		X		X
3	<i>Calamagrostis canadensis</i>	X		X	
2	<i>Caltha palustris</i>	X			
2	<i>Calystegia sepium</i>		X		
2	<i>Carex annectans</i>	X			
2	<i>Carex annectans</i> var. <i>xanthocarpa</i>	X			
1	<i>Carex atherodes</i>	X			
2	<i>Carex buxbaumii</i>	X		X	
2	<i>Carex comosa</i>	X			
2	<i>Carex cristatella</i>	X			
3	<i>Carex granularis</i>		X	X	X
2	<i>Carex haydenii</i>	X		X	
2	<i>Carex hirsutella</i>		X		

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Cover Class	Latin Species Name	1995-1996 Surveys		May 2006 Survey	
		Marsh-Pond/ Sedge Meadow	Prairie/ Old Field	Marsh-Pond/ Sedge Meadow	Prairie/ Old Field
2	<i>Carex lacustris</i>	X			
3	<i>Carex lanuginosa</i>	X			
1	<i>Carex lasiocarpa</i>	X			
2	<i>Carex sartwellii</i>	X		X	
3 to 4	<i>Carex stricta</i>	X		X	
2	<i>Carex tenera</i>	X			
1 to 2	<i>Carex tetanica</i>	X			X
2	<i>Castilleja coccinea</i>		X		X
2	<i>Ceratophyllum demersum</i>	X			
2	<i>Cichorium intybus*</i>		X		
2	<i>Cicuta maculata</i>	X		X	
2	<i>Cinna arundinacea</i>	X		X	
1	<i>Circaea lutetiana</i>		X		X
2	<i>Cirsium arvense*</i>	X			X
1 to 2	<i>Cirsium discolor</i>	X	X		X
1	<i>Cirsium vulgare*</i>	X		X	
1	<i>Comandra umbellata</i>		X		X
1	<i>Coreopsis palmata</i>		X		
1	<i>Cornus obliqua</i>		X	X	
3 to 4	<i>Cornus racemosa</i>	X	X	X	X
1 to 2	<i>Cornus stolonifera</i>	X		X	
2	<i>Corylus americanus</i>		X		
2	<i>Crataegus flabellata</i>		X		X
1	<i>Crataegus mollis</i>		X		
2	<i>Dactylis glomerata*</i>		X		
3	<i>Daucus carota*</i>		X		X
2	<i>Desmodium sp.</i>		X		
2	<i>Dichantheium acuminatum var. fasciculatum</i>		X		
1 to 2	<i>Dichantheium sphaerocarpum</i>		X		
1	<i>Dipsacus laciniatus*</i>		X		X
1 to 2	<i>Dodecatheon meadia</i>		X		X
2	<i>Echinacea pallida</i>		X		
1	<i>Eleagnus angustifolia*</i>		X		
2	<i>Eleocharis acicularis</i>	X			
3 to 4	<i>Eleocharis smallii</i>	X	X	X	
2	<i>Epilobium coloratum</i>	X			
1	<i>Epilobium leptophyllum</i>	X			
3 to 4	<i>Equisetum arvense</i>	X	X	X	X
2	<i>Equisetum x ferrissii</i>	X			
1	<i>Erechtites hieracifolia</i>	X			
2	<i>Erigeron philadelphicus</i>	X		X	X
2	<i>Eryngium yuccifolium</i>		X		X
3	<i>Eupatorium altissimum</i>		X		
3	<i>Eupatorium maculatum</i>	X		X	
2	<i>Eupatorium perfoliatum</i>	X			
1 to 2	<i>Euphorbia corollata</i>		X		X
2	<i>Euthamia graminifolia</i>	X	X		
3	<i>Festuca pratense*</i>		X		X

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Cover Class	Latin Species Name	1995-1996 Surveys		May 2006 Survey	
		Marsh-Pond/ Sedge Meadow	Prairie/ Old Field	Marsh-Pond/ Sedge Meadow	Prairie/ Old Field
3-Apr	<i>Fragaria virginiana</i>		X		X
2	<i>Fraxinus pensylvanicus</i>	X			X
2	<i>Galium obtusum</i>	X		X	X
1 to 2	<i>Gentiana andrewsii</i>	X	X		X
2	<i>Geranium maculatum</i>		X		
2	<i>Geum allepicum</i>	X			
2	<i>Geum laciniatum</i>	X		X	
1	<i>Glyceria septentrionalis</i>	X		X	
3	<i>Glyceria striata</i>	X			
2	<i>Helenium autumnale</i>	X			
3 to 4	<i>Helianthus grosseserratus</i>	X	X	X	X
2	<i>Helianthus rigidus</i>		X		
1	<i>Helianthus strumosus</i>	X			
2	<i>Heuchera richardsonii</i>		X		X
1	<i>Hieracium aurantiacum*</i>		X		
3	<i>Hieracium caespitosum*</i>		X		X
1	<i>Hieracium scabrum</i>		X		
1 to 2	<i>Hierachloe odorata</i>	X	X	X	
1 to 2	<i>Hypericum perforatum*</i>		X		X
2	<i>Hypericum punctatum</i>	X			
2	<i>Hypoxis hirsuta</i>		X		X
3	<i>Iris shrevei</i>	X		X	
2	<i>Juncus cf. greenei</i>	X			
3 to 4	<i>Juncus dudleyi</i>	X	X	X	
1	<i>Juniperus virginicus</i>		X		X
1 to 2	<i>Koeleria macrantha</i>		X		
1	<i>Krigia biflora</i>		X		X
1 to 2	<i>Lathyrus palustris</i>	X			
2	<i>Lathyrus palustris</i> var. <i>myrtifolius</i>	X		X	
1 to 2	<i>Leersia oryzoides</i>	X			
3	<i>Lemna minor</i>	X		X	
2 to 3	<i>Lemna trisulca</i>	X		X	
2	<i>Leucanthemum vulgare*</i>		X		X
2 to 3	<i>Liatris asper</i>		X		X
2-Jan	<i>Liatris pycnostachya</i>		X		X
2 to 3	<i>Liatris spicata</i>	X	X		X
1	<i>Lilium michiganense</i>		X	X	X
1	<i>Lithospermum canescens</i>		X		X
1	<i>Lobelia siphilitica</i>	X			
2 to 3	<i>Lobelia spicata</i>		X		
2	<i>Lonicera morrowii*</i>	X		X	X
2	<i>Lonicera x bella*</i>		X		
2	<i>Ludwigia palustris</i>	X		X	
1	<i>Ludwigia polycarpa</i>	X			
3	<i>Lycopus americanus</i>	X		X	
1	<i>Lycopus virginicus</i>	X			
3	<i>Lysimachia quadriflora</i>	X		X	
1	<i>Lysimachia thrysiflora</i>	X		X	

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		Marsh-Pond/ Sedge Meadow	Prairie/ Old Field	Marsh-Pond/ Sedge Meadow	Prairie/ Old Field
2	<i>Lythrum alatum</i>		X		
2 to 4	<i>Lythrum salicaria*</i>	X	X	X	
1	<i>Malus ioensis</i>		X		X
2	<i>Medicago lupulina*</i>		X		
2 to 3	<i>Melilotus alba*</i>		X		X
2	<i>Mentha arvensis</i> var. <i>villosa</i>	X		X	
1 to 2	<i>Mimulus ringens</i>	X			
3	<i>Monarda fistulosa</i>		X		X
2	<i>Myriophyllum heterophyllum</i>	X			
2	<i>Oenothera perennis</i>		X		
1 to 2	<i>Onoclea sensibilis</i>	X		X	
1	<i>Oxalis stricta</i>		X		X
2 to 3	<i>Oxypolis rigidior</i>	X		X	
2	<i>Panicum capillare</i>		X		
1	<i>Panicum virgatum</i>		X		
3	<i>Parthenium integrifolium</i>		X		X
2	<i>Pedicularis canadensis</i>		X		X
1	<i>Pedicularis lanceolata</i>	X			
2 to 3	<i>Penstemon digitalis</i>	X	X		X
1	<i>Penthorum sedoides</i>	X			
4	<i>Phalaris arundinacea</i>	X		X	
1	<i>Phleum pratense*</i>		X		
3	<i>Phlox glaberrima</i>	X			
3	<i>Phlox pilosa</i>		X		
1 to 2	<i>Phragmites australis</i>	X		X	
2	<i>Physalis pubescens</i>		X		
1 to 2	<i>Plantago rugellii</i>	X	X	X	X
4	<i>Poa compressa*</i>		X		X
1	<i>Poa pratensis*</i>	X			X
3 to 4	<i>Poa pratensis*</i>		X		
3	<i>Polygonum amphibium</i>	X			
2	<i>Polygonum punctatum</i>	X			
2	<i>Populus deltoides</i>	X		X	
2	<i>Populus tremuloides</i>		X		X
2	<i>Potamogeton foliosus</i>	X			
1	<i>Potentilla arguta</i>		X		
1	<i>Potentilla norvegica*</i>	X			
2	<i>Potentilla recta*</i>		X		
2	<i>Potentilla simplex</i>		X		X
1	<i>Prenanthes</i> cf. <i>crepidinea</i>		X		
1 to 2	<i>Proserpinaca palustris</i>	X		X	
2	<i>Prunella vulgaris</i> var. <i>elongata</i>		X		X
1	<i>Prunus americanus</i>		X		
2	<i>Prunus serotina</i>		X		X
1 to 2	<i>Prunus virginiana</i>		X		X
1 to 2	<i>Pycnanthemum pilosum</i>	X		X	
2 to 3	<i>Pycnanthemum virginiana</i>	X	X	X	X
1	<i>Quercus macrocarpa</i>		X		

Plant species list - Lake County Wetland Mitigation Site

Cover Class	Latin Species Name	1995-1996 Surveys		May 2006 Survey	
		Marsh-Pond/ Sedge Meadow	Prairie/ Old Field	Marsh-Pond/ Sedge Meadow	Prairie/ Old Field
2	<i>Quercus palustris</i>		X		
2	<i>Ranunculus flabellaris</i>	X			
2	<i>Ranunculus longirostre</i>	X			
2	<i>Ratibida pinnata</i>		X		X
4	<i>Rhamnus cathartica*</i>		X	X	X
2	<i>Rhamnus frangula*</i>	X		X	
2	<i>Rhus copallina</i>		X		
3	<i>Rhus glabra</i>		X		X
1	<i>Ribes americana</i>	X		X	
2	<i>Rosa blanda</i>	X		X	
2	<i>Rosa carolina</i>		X		X
2	<i>Rosa multiflora*</i>		X		X
2	<i>Rubus flagellaris</i>		X		
1	<i>Rubus strigosus</i>	X			
1	<i>Rumex crispus*</i>	X			
2	<i>Rudbeckia hirta</i>		X		X
2	<i>Sagittaria latifolia</i>	X			
2	<i>Salix alba*</i>	X			
2	<i>Salix discolor</i>	X		X	
2 to 3	<i>Salix petiolaris</i>	X		X	
2	<i>Schizachyrium scoparium</i>		X		X
2	<i>Scirpus acutus</i>	X		X	
2	<i>Scirpus atrovirens</i>	X			
2	<i>Scirpus cyperinus</i>	X			
2	<i>Scirpus fluviatilis</i>	X		X	
2	<i>Scirpus pendulus</i>		X		
2	<i>Scirpus tabernaemontanii</i>	X			
2	<i>Scutellaria lateriflora</i>	X			
4	<i>Senecio pauperculus</i>		X		X
2	<i>Silphium integrifolium</i>		X		X
2 to 3	<i>Silphium terebinthinaceum</i>		X		X
2 to 3	<i>Sisyrinchium albidum</i>		X		X
2	<i>Stum suave</i>	X		X	
2	<i>Smilacina stellata</i>	X	X	X	X
2 to 4	<i>Solidago canadensis</i>	X	X	X	X
2	<i>Solidago gigantea</i>	X	X		
2 to 3	<i>Solidago juncea</i>		X		X
3 to 4	<i>Solidago nemoralis</i>		X		
1 to 2	<i>Solidago riddellii</i>	X			
4	<i>Solidago rigida</i>		X		X
2 to 3	<i>Sorghastrum nutans</i>		X		
2 to 3	<i>Spartina pectinata</i>	X	X	X	
2	<i>Spiraea alba</i>	X	X	X	
2	<i>Spiranthes cernua</i>		X		
2	<i>Sporobolus heterolepis</i>		X		X
1	<i>Stachys palustris</i>	X		X	
1	<i>Stachys tenuifolia</i> var. <i>hispida</i>		X		
1	<i>Stellaria meadia*</i>		X		

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Cover Class	Latin Species Name	1995-1996 Surveys		May 2006 Survey	
		Marsh-Pond/ Sedge Meadow	Prairie/ Old Field	Marsh-Pond/ Sedge Meadow	Prairie/ Old Field
1	<i>Taraxicum officinale</i> *		X		X
1 to 2	<i>Thalictrum dasycarpum</i>	X	X	X	X
2 TO 3	<i>Tradescantia ohiensis</i>	X		X	X
3	<i>Trifolium pratense</i> *		X		
3	<i>Typha angustifolia</i>	X		X	
3 to 4	<i>Typha latifolia</i>	X		X	
2	<i>Ulmus americana</i>	X	X	X	X
2	<i>Urtica dioica</i>	X			
2	<i>Utricularia gibba</i>	X			
2	<i>Utricularia vulgaris</i>	X			
2	<i>Verbena hastata</i>	X		X	
2	<i>Vernonia fasciculata</i>	X			
1	<i>Veronica scutellata</i>	X			
2	<i>Veronicastrum virginicum</i>	X	X		X
1	<i>Viburnum lentago</i>		X	X	X
2	<i>Viburnum opulus</i> *	X			X
2	<i>Vicia americana</i>	X		X	
2	<i>Viola affinis</i>	X			
2	<i>Viola pedatifida</i>		X		X
2	<i>Viola sororia/pratincola</i>	X		X	X
2	<i>Vitis riparia</i>		X	X	
1 to 2	<i>Zizia aptera</i>		X		X
2 to 3	<i>Zizia aurea</i>	X	X		X
<b>Total Number of Taxa/Habitat</b>		140	147	71	91
<b>Total Taxa in Study Area</b>		256		144	
<b>Additional Species Observed on 10-11 May 2006</b>				<b>Marsh-Pond/ Sedge Meadow</b>	<b>Prairie/ Old Field</b>
	<i>Alnus glutinosa</i> *			X	X
	<i>Barbarea vulgaris</i> *				X
	<i>Carex stipata</i>			X	
	<i>Cirsium muticum</i>			X	
	<i>Galium tinctorium</i>			X	
	<i>Galium triflorum</i>			X	X
	<i>Glechoma hederacea</i> *				X
	<i>Impatiens capensis</i>			X	
	<i>Luzula multiflora</i>				X
	<i>Lychnis alba</i> *				X
	<i>Podophyllum peltatum</i>				X
	<i>Ranunculus sceleratus</i>			X	
	<i>Salix exigua</i>			X	
	<i>Salix x rubens</i> *			X	
	<i>Solanum dulcamera</i> *			X	
	<i>Trillium recurvatum</i>				X
	<i>Triosteum perfoliatum</i>				X
	<i>Viburnum recognitum</i> *				X