



ILLINOIS NATURAL
HISTORY SURVEY
PRAIRIE RESEARCH INSTITUTE

BOTANICAL SURVEY REPORT

Botanical Survey and Results of Eastern Prairie Fringed Orchid Searches Along IL 131 (FAP 880/FAP 2711) From Sunset Ave. to Russel Road, Lake County, Illinois

IDOT Sequence Numbers: 14766A



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**INHS/IDOT Statewide Biological Survey & Assessment Program
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Project Summary

Botanical surveys were conducted in June and July 2014 within three wetlands along the IL 131 (FAP 880/FAP 2711) project area in Lake County, IL. The emphasis of the surveys was to search for federally threatened eastern prairie fringed orchid *Platanthera leucophaea* (henceforth EPFO) populations within these wetlands, which were previously designated as potential EPFO habitat. No EPFO populations were found, nor were any other threatened and endangered (T&E) plant species found. One of the wetlands, however, was found to contain a native prairie-sedge meadow-marsh complex that was of high enough natural quality to be considered a regionally noteworthy botanical area.

Signed:



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Cover Photo: *Carex stricta*, *C. lacustris*, and *Sparganium eurycarpon* dominated sedge meadow (site #70) within the Waukegan Savanna Forest Preserve, Lake County IL.

Introduction

A request was received from the Illinois Department of Transportation (IDOT) on 27 November, 2013 to conduct EPFO surveys within the IL 131 (FAP 880/FAP 2711) project area from Sunset Ave. to Russel Road in Lake County, IL. Specifically, the emphasis of the surveys was to search for federally threatened eastern prairie fringed orchid *Platanthera leucophaea* (henceforth EPFO) populations in three wetlands in the project area. These wetlands (sites 69, 70, and 71, Figure 1) were previously identified as possible EPFO habitats by wetland surveys conducted by the INHS – IDOT Wetland Surveys Group (Marcum et al. 2013). Two of these wetlands, #69 and #70 fall wholly or partially within the Lake County Forest Preserve’s Waukegan Savanna Forest Preserve.

Methods

Plant searches were conducted in the three wetlands designated as appropriate EPFO habitat. The criteria for determining an appropriate area to search for EPFO’s are an FQIn score of > 17 **or** a Mean Cn > 3.5, **and** the presence of 4 or more associate species (<http://www.fws.gov/midwest/Endangered/section7/s7process/plants/epfos7guide.html>). Site identification follows numbering in previous reports (Marcum 2013). EPFO searches throughout the three wetlands were made following protocols established by the U.S. Fish and Wildlife Service on three non-successive days between June 30 and July 7.

Classification of natural communities generally follows the methods described by White (1978), and the updated Natural Areas Program (IDNR 2010). Detailed descriptions of natural communities were only made for remnant plant communities with high levels of natural quality. Natural quality of vegetation was assigned using grades ranging from A (highest quality native remnant) to E. In addition to the A to E grade system, qualifiers of + and - are used to further distinguish plant communities. For example, the classification of "C+" indicates a community that is intermediate between “C” and a “B-“. While "C" quality communities typically are typically not considered high enough quality remnants to qualify as Illinois Natural Areas Inventory (INAI) areas because of their disturbances levels, they may be regionally important for preserving biodiversity, especially if they are large, or if they are the “best-in-kind” for their community type in a particular region. Therefore, in addition to natural area grading for specific communities, habitats may also be placed within one of three other categories based on their conservation value.

Significant Botanical Resource Area – area with a high level of natural quality, which would appear to qualify for the Illinois Natural Areas Inventory (INAI) as a Category 1 natural area (defined as; a high quality terrestrial or wetland natural community).

Exceptional Botanical Resource Area – area that based on floristic quality (i.e., Grade A or B) would likely qualify for the INAI as a Category 1 natural area, but does not meet other INAI criteria for a particular community type (e.g., size requirement).

Regionally Noteworthy Botanical Resource Area – relatively high quality natural community that likely does not meet INAI criteria for a Category 1 natural area (e.g., Grade C), but is clearly an outstanding example of a specific community type, or assemblage of community types, for a particular region of Illinois, or within a defined project area.

Typical criteria used to determine natural quality, grade, and significance of communities included: presence of endangered or threatened species; abundance of exotic (non-native) species; diversity of native plants species; vegetation structure; levels of human disturbance (historic or current), as from grazing, logging, hydrological alteration, etc.; presence and abundance of conservative plant species; size and position of the community in the landscape.

In higher quality habitats, species lists were generated and relative abundance values (RAV) were assigned to each species (Appendix 1). RAV are reported as (1) uncommon, (2) occasional, (3) common, (4) abundant, and (5) dominant. Floristic Quality Assessment [FQA] (Taft et al. 1997) was also used to evaluate habitat quality; where the Coefficient of Conservatism values (C or CC) assigned to each native plant species were used to calculate an areas native Mean C (Mean Cn) and native FQI (FQIn) score. Non-native (exotic) species are indicated by an asterisk (*). EPFO associate species found in inventory areas are also highlighted in Appendix 1. Botanical nomenclature follows Mohlenbrock (2002). Janet Jarvis, Remote Sensing Specialist, calculated the acreage of high-quality remnants using ARCMAP.

Results and Discussion

Endangered and threatened species

No EPFO individuals were found, and no other threatened or endangered species were found within the three wetlands surveyed.

Native remnant plant communities

Of the three wetlands surveyed, wetlands #69 and #71 only contained highly degraded habitats of low natural quality (Grade D & E). The north western portion of wetland #69 had the vegetation structure of a remnant sedge meadow, with impressive development of *Carex stricta* tussocks (Figure 2). However, its diversity was very low, and its only other dominant plants were disturbance indicators such as *Cirsium arvense*. Wetland #70, on the other hand, contained sections of high quality remnant plant communities. Specifically, 4.77 acres of the eastern half of wetland #70 (Noteworthy Botanical Area, Figure 1), contained sections of Grade C marsh that graded into Grade B- sedge meadow (see cover photo), and then Grade C+ wet-mesic prairie, from south to north respectively. The prairie section to the north was characterized by a high abundance and diversity of forbs, with relatively little grass dominance, which is not a typical feature of a remnant wet-mesic prairie (White and Madany 1978). It is possible that this area's soils are frequently saturated by ground water such that it has a species

composition and structure that has similarities to both seep and a wet-mesic prairie communities, thereby accounting for its low dominance by graminoid plants.

Disturbances to the Noteworthy Botanical Area appear to be largely restricted to altered hydrology, as historic aerial photos show that the stream bisecting the larger wetland basin was previously channelized and straightened, in what was likely an attempt to drain it. Conversely, the uplands surrounding these communities have a history of crop production or heavy livestock grazing, as evidenced by their being dominated by European pasture/old-field species and exotic invasive shrub species. While exotic species generally dominate the wetland's periphery, specific encroachment appears to be ongoing with nearly mono-dominant stands of *Phalaris arundinacea** from the east surrounding the stream, and *Typha X glauca** in the marsh from the south. *Rhamnus cathartica** and *R. frangula** on the other hand are encroaching all parts of the periphery of the higher quality wetland.

Nonetheless, the Noteworthy Botanical Area portion of site #70 has maintained a considerable portion of its native floristic quality and diversity, with relatively few exotic species (Appendix 1). The abundance of Conservative species such as *Galium boreale* and *Carex vesicaria* in the sedge meadow and prairie, and *Lysimachia thrysifolia* and hard- and soft-stem bulrush in the marsh, illustrate the remnant nature of these communities. The wetland complex's FQA results also support its designation as high quality remnant habitat, with a flora that yielded an FQIn score of 37.5 and Mean Cn of 3.9, indicating both a highly conservative flora on average, and high level of native species diversity. To summarize, even though much of the eastern portion of site #70 is Grade C in quality, containing only a relatively small (i.e., approximately 2 acres) portion of Grade B- sedge meadow, when considered in its entirety, this complex is a regionally noteworthy botanical area.

Literature Cited

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Appendices and Figures

Appendix 1: Plant species observed in wetland #70, Waukegan Savanna Forest Preserve. Relative Abundance Values represent: 1 = uncommon, 2 = occasional, 3 = common, 4 = abundant, 5 = dominant species within the community. Highlighted species are recognized EPFO associates.

Site 70- Waukegan Savanna Forest Preserve Sedge Meadow		Mean C n = 3.91	FQIn = 37.5
Species Name	Common Name	Coefficient of Conservatism (C)	Relative Abundance
<i>Acer saccharinum</i>	SILVER MAPLE	1	1
<i>Achillea millefolium</i> *	COMMON MILFOIL		1
<i>Agrimonia gryposepala</i>	TALL AGRIMONY	3	1
<i>Agrostis stolonifera</i> var. <i>palustris</i>	CREEPING BENT GRASS	8	2
<i>Alisma subcordatum</i>	COMMON WATER PLANTAIN	2	1
<i>Apocynum cannabinum</i>	DOGBANE	2	2
<i>Asclepias incarnata</i>	SWAMP MILKWEED	4	2
<i>Asclepias syriaca</i>	COMMON MILKWEED	0	1
<i>Aster lanceolatus</i>	PANICLED ASTER	3	2
<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	4	1
<i>Aster puniceus</i>	BRISTLY ASTER	7	1
<i>Bidens frondosa</i>	COMMON BEGGAR'S TICKS	1	1
<i>Boehmeria cylindrica</i>	FALSE NETTLE	3	2
<i>Calamagrostis canadensis</i>	BLUE JOINT GRASS	3	3
<i>Calystegia sepium</i>	AMERICAN BINDWEED	1	2
<i>Cardamine bulbosa</i>	BULBOUS BITTER CRESS	6	2
<i>Carex cristatella</i>	CRESTED OVAL SEDGE	3	2
<i>Carex lacustris</i>	COMMON LAKE SEDGE	6	4
<i>Carex stricta</i>	COMMON TUSsock SEDGE	5	4
<i>Carex vesicaria</i>	TUFTED LAKE SEDGE	9	3
<i>Carex vulpinoidea</i>	BROWN FOX SEDGE	3	2
<i>Cicuta maculata</i>	WATER HEMLOCK	4	2
<i>Cirsium arvense</i> *	FIELD THISTLE		1
<i>Cornus obliqua</i>	PALE DOGWOOD	4	1
<i>Cornus racemosa</i>	GRAY DOGWOOD	2	2
<i>Dodecatheon meadia</i>	SHOOTING STAR	6	2
<i>Eleocharis erythropoda</i>	RED-ROOTED SPIKE RUSH	3	2
<i>Elymus canadensis</i>	CANADA WILD RYE	4	1
<i>Equisetum arvense</i>	COMMON HORSETAIL	0	1
<i>Erigeron annuus</i>	ANNUAL FLEABANE	1	2
<i>Erigeron philadelphicus</i>	MARSH FLEABANE	3	2
<i>Eupatoriadelphus maculatus</i>	SPOTTED JOE PYE WEED	5	3
<i>Eupatorium perfoliatum</i>	COMMON BONESET	4	2
<i>Euthamia graminifolia</i>	GRASS-LEAVED GOLDENROD	3	2
<i>Fragaria virginiana</i>	WILD STRAWBERRY	2	2
<i>Frangula alnus</i> *	GLOSSY BUCKTHORN		2
<i>Fraxinus lanceolata</i>	GREEN ASH	2	2
<i>Galium boreale</i>	NORTHERN BEDSTRAW	7	2
<i>Galium obtusum</i>	WILD MADDER	5	3
<i>Geum aleppicum</i>	YELLOW AVENS	6	2
<i>Geum laciniatum</i>	ROUGH AVENS	2	1
<i>Glyceria striata</i>	FOWL MANNA GRASS	4	2
<i>Helenium autumnale</i>	SNEEZEWEED	3	1

(CONTINUED) Site 70		Mean C n = 3.91	FQIn = 37.5
Species Name	Common Name	Coefficient of Conservatism (C)	Relative Abundance
<i>Helianthus grosseserratus</i>	SAWTOOTH SUNFLOWER	2	3
<i>Impatiens capensis</i>	SPOTTED TOUCH-ME-NOT	2	2
<i>Iris shrevei</i>	SOUTHERN BLUE FLAG	5	2
<i>Juncus dudleyi</i>	DUDLEY'S RUSH	4	2
<i>Juncus torreyi</i>	TORREY'S RUSH	3	1
<i>Lathyrus palustris</i>	MARSH VETCHLING	7	1
<i>Leersia oryzoides</i>	RICE CUT GRASS	3	2
<i>Leucanthemum vulgare*</i>	OX-EYE DAISY		2
<i>Lonicera tatarica*</i>	TARTARIAN HONEYSUCKLE		2
<i>Lycopus americanus</i>	COMMON WATER HOREHOUND	3	2
<i>Lycopus uniflorus</i>	NOTHERN BUGLE WEED	7	2
<i>Lysimachia quadrifolia</i>	WHORLED LOOSESTRIFE	9	1
<i>Lysimachia thyriflora</i>	TUFTED LOOSESTRIFE	7	3
<i>Lythrum alatum</i>	WINGED LOOSESTRIFE	5	2
<i>Lythrum salicaria*</i>	PURPLE LOOSESTRIFE		2
<i>Mentha arvensis var. villosa</i>	WILD MINT	4	2
<i>Onoclea sensibilis</i>	SENSITIVE FERN	5	2
<i>Penstemon digitalis</i>	FOXGLOVE BEARD TONGUE	4	2
<i>Persicaria amphibia</i>	WATER KNOTWEED	3	3
<i>Persicaria punctata</i>	SMARTWEED	3	2
<i>Phalaris arundinacea*</i>	REED CANARY GRASS		3
<i>Poa palustris</i>	FOWL BLUE GRASS	7	2
<i>Potentilla simplex</i>	COMMON CINQUEFOIL	3	2
<i>Prunella vulgaris var. elongata</i>	SELF-HEAL	1	1
<i>Pycnanthemum virginianum</i>	COMMON MOUNTAIN MINT	5	2
<i>Ranunculus pensylvanicus</i>	BRISTLY CROWFOOT	5	2
<i>Rhamnus cathartica*</i>	COMMON BUCKTHORN		3
<i>Rorippa palustris var. fernaldiana</i>	MARSH YELLOW CRESS	4	2
<i>Rosa multiflora*</i>	JAPANESE ROSE		2
<i>Rosa setigera</i>	ILLINOIS ROSE	5	1
<i>Rudbeckia hirta</i>	BLACK-EYED SUSAN	2	1
<i>Rumex altissimus</i>	PALE DOCK	2	2
<i>Rumex crispus*</i>	CURLY DOCK		1
<i>Rumex orbiculatus</i>	GREAT WATER DOCK	7	2
<i>Sagittaria latifolia</i>	COMMON ARROWHEAD	4	1
<i>Salix discolor</i>	PUSSY WILLOW	4	2
<i>Sambucus canadensis</i>	COMMON ELDER	2	1
<i>Schoenoplectus acutus</i>	HARD-STEMMED BULRUSH	6	2
<i>Schoenoplectus tabernaemontani</i>	SOFT-STEM BULRUSH	4	3
<i>Scirpus atrovirens</i>	DARK GREEN RUSH	4	2
<i>Scirpus pendulus</i>	RED BULRUSH	3	1
<i>Scutellaria galericulata</i>	MARSH SKULLCAP	6	3
<i>Senecio aureus</i>	GOLDEN RAGWORT	4	3
<i>Sium suave</i>	WATER PARSNIP	5	1
<i>Solanum dulcamara*</i>	BITTERSWEET NIGHTSHADE		2
<i>Solidago canadensis</i>	CANADA GOLDENROD	1	3
<i>Solidago gigantea</i>	LATE GOLDENROD	3	3
<i>Sparganium eurycarpum</i>	COMMON BUR REED	5	4
<i>Spartina pectinata</i>	PRAIRIE CORD GRASS	4	2
<i>Sphenopholis intermedia</i>	SLENDER WEDGE GRASS	5	1
<i>Stachys hispida</i>	MARSH HEDGE NETTLE	5	1
<i>Stachys pilosa var. homotricha</i>	WOUNDWORT	5	2
<i>Thalictrum dasycarpum</i>	PURPLE MEADOW RUE	5	1
<i>Typha latifolia</i>	BROAD-LEAVED CATTAIL	1	3
<i>Typha x glauca*</i>	HYBRID CATTAIL		3
<i>Ulmus americana</i>	AMERICAN ELM	5	2
<i>Verbena hastata</i>	BLUE VERVAIN	3	2
<i>Verbena urticifolia</i>	WHITE VERVAIN	3	1
<i>Veronicastrum virginicum</i>	CULVER'S ROOT	6	1
<i>Viburnum lentago</i>	NANNYBERRY	4	1
<i>Vitis riparia</i>	RIVERBANK GRAPE	2	2

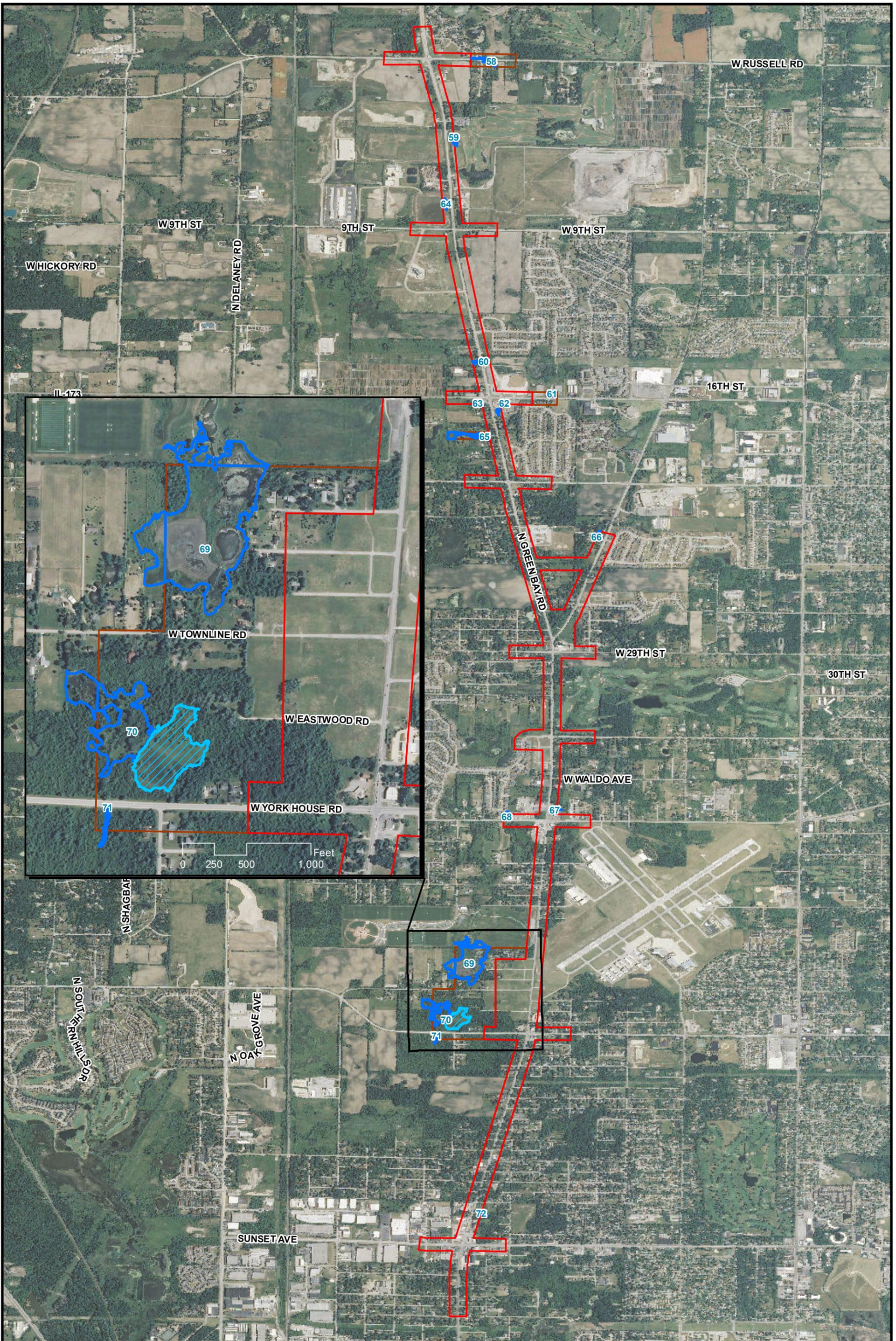


Figure 1. IL 131 wetlands 69, 70, and 71 (Seq no. 14766A), Lake Co, Illinois.

- Project Boundary
- Addendum A Boundary
- Wetlands
- Noteworthy Natural Area





Figure 2. Example of *Carex stricta* tussock development in wetland #69.