



**ILLINOIS NATURAL
HISTORY SURVEY**
PRAIRIE RESEARCH INSTITUTE

Botanical features including threatened and endangered species in
the IL 83 (FAP 866) and IL 137 (FAP 352) Illinois Department of
Transportation project area (Sequence #17101), Lake County

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INHS/IDOT
Statewide Biological Survey & Assessment
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INTRODUCTION

A request was received on 13 March 2012 for a botanical survey of the proposed IL 83 & IL 137 (FAP 866 and FAP 352) Illinois Department of Transportation (IDOT) project area in Lake County. The specified goal of this survey was to search for threatened and endangered species, including *Platanthera leucophaea*. Several element occurrences are recorded from within 1 mile of this study area (Figure 1). Known element occurrences include populations of 15 species listed as threatened or endangered by the Illinois Endangered Species Protection Board (IESPB), four state nature preserves, a forest preserve, and a land and water reserve. Of the IESPB listed species, 10 are listed as endangered (*Carex cryptolepis*, *Carex diandra*, *Drosera rotundifolia*, *Megalodonta beckii*, *Potamogeton praelongus*, *Potamogeton robbinsii*, *Potamogeton strictifolius*, *Ribes hirtellum*, *Sarracenia purpurea*, and *Vaccinium macrocarpon*) and 5 are listed as threatened (*Carex viridula*, *Epilobium strictum*, *Menyanthes trifoliata*, *Potamogeton gramineus*, and *Triglochin palustris*). These element occurrences are known to occur within Cedar Lake Bog Nature Preserve, Liberty Prairie Nature Preserve, Rollins Savanna Forest Preserve, and in or near five unprotected water bodies: Cranberry Lake, Deep Lake, Grays Lake, Round Lake and Sun Lake (Figure 1).

METHODS

Botanical surveys were conducted throughout the study area as defined by the environmental survey limits (Figure 1) with a focus on occurrences of threatened and endangered species and natural areas. Surveys in this project area were conducted on 5 June, 2012. Locations for threatened and endangered plant species discovered during 2012 field work were marked with a Garmin Etrex Summit HC GPS unit.

Classification of natural communities generally follows White and Madany (1978) as recently modified (IDNR 2010). Botanical nomenclature follows Mohlenbrock (1986) with exceptions for listed plant species whereupon nomenclature used by the Illinois Endangered Species Protection Board is followed (Illinois Endangered Species Protection Board 2011). Habitat quality was evaluated according to the criteria for the Illinois Natural Areas Inventory (White 1978). Floristic Quality Assessment (Taft et al. 1997) was applied to selected botanical resources to further evaluate habitat quality.

RESULTS AND DISCUSSION

No populations of threatened or endangered plants were discovered within the IL 83/137 (FAP 866 and FAP 352) Illinois Department of Transportation project area. However, a population of *Potamogeton gramineus* (variable-leaf pondweed) was found just outside the boundary of the project area. More detail on this species and its location relative to the project area is provided in the Threatened and Endangered Species section below.

The study area consisted of residential, commercial, and agricultural property interspersed with disturbed wet meadow, marsh, and old field natural communities. These communities all exhibited low (<10) Floristic Quality Indices (FQI) and did not warrant further study.

U. S. Fish and Wildlife criteria recommend a search for *Platanthera leucophaea*, eastern prairie fringed orchid, only when $FQI \geq 20$, at least four known associate species of *P. leucophaea* are present, and no more than three of those associates have assigned coefficients of conservatism ≤ 1 (USFWS 2011). The communities within the study area all had $FQI < 20$ and lacked sufficient known *P. leucophaea* associates, so searches for the orchid were not conducted during its bloom period.

Species lists and relative abundance for surveyed areas are provided in the Natural Communities section below.

Threatened and Endangered Species

Potamogeton gramineus L. (variable-leaf pondweed) POTAMOGETONACEAE. State Threatened.

A rooted specimen of *Potamogeton gramineus* was collected near the project area (Figure 2). The specimen, along with a detached (floating) individual of the same species, was found along the shoreline of Deep Lake, a glacial lake located north of IL Route 132 (Grand Avenue) and east of IL Route 83. This population is listed in a previous Element Occurrence Record and a new record of occurrence has been submitted (Appendix 1). The extent of the population at this location could not be determined. A paved road leads downslope from IL Route 132 through Waters Edge Subdivision to a boat ramp and private beach adjoining Deep Lake. At the time of the survey, the water's edge was 325 feet (99 meters) north and downslope of the paved edge of IL Route 132.

Potamogeton gramineus occurs in ponds, lakes, streams, and rivers of the northern and western regions of North America, as well as in Europe and Asia. In North America, its southernmost range extends along a line from central California to Maryland (Haynes and Hellquist 2000). It is categorized as threatened in Illinois and endangered in Ohio and Pennsylvania (USDA NRCS 2012). The five known populations of *P. gramineus* in Illinois all occur in Lake County within one mile of the project corridor; the Deep Lake population confirmed during this survey is among those previously known. Swink and Wilhelm (1994) report that *P. gramineus* also occurs in Cook and McHenry Counties, although it may now be extirpated from the latter (Natureserve 2012). USDA reports that the species occurs in Wabash County (USDA NRCS 2012). Studies and surveys in Europe indicate that *P. gramineus* is sensitive to nutrient pollution, occurring in oligotrophic to mesotrophic, but not eutrophic, waters (Wiegleb et al. 1991, Nurminen 2003, Penning et al. 2008, Søndergaard et al. 2010).

Natural Communities

Three sites along the IL 83 and IL 137 project corridor were identified as potential areas for notable natural communities and surveyed (Figure 1). None of the habitats contained threatened or endangered plant species, and low Floristic Quality Indices support interpretation of these areas as highly disturbed and degraded.

Site 1 - Wet Meadow:

A disturbed wet meadow community was located northeast of the intersection of IL 83 and Belvedere. The FQI = 7.3 (FQIn = 9.0) and \bar{C} = 1.4 (\bar{C}_n = 2.2). *Phalaris arundinacea* was the most common species at the site, and 35% of the species present were non-native. A summary of species composition is described below. * = non-native species.

Shrubs/Woody Vines – *Cornus racemosa*, *Parthenocissus quinquefolia*, *Rhamnus frangula**, *Salix exigua*, *Toxicodendron radicans*, *Viburnum opulus**

Herbaceous Species (w/ relative abundance values: 1 = rare, 2 = occasional, 3 = common, 4 = abundant, 5 = very abundant):

2	<i>Alliaria petiolata</i> *	2	<i>Hesperis matronalis</i> *
2-3	<i>Aster pilosus</i>	2-3	<i>Juncus interior</i>
1-2	<i>Boehmeria cylindrica</i>	2-3	<i>Leucanthemum vulgare</i> *
1-2	<i>Carex granularis</i> v. <i>haleana</i>	1-2	<i>Lycopus americanus</i>
3-4	<i>Cirsium arvense</i> *	1-2	<i>Panicum implicatum</i>
3	<i>Daucus carota</i> *	4-5	<i>Phalaris arundinacea</i> *
2-3	<i>Erigeron strigosus</i>	3	<i>Phragmites australis</i>
1-2	<i>Fragaria virginiana</i>	3	<i>Poa pratensis</i> *
2	<i>Galium aparine</i>	2-3	<i>Solidago gigantea</i>
1-2	<i>Geum aleppicum</i>	3	<i>Solidago rigida</i>

Site 2 - Marsh:

Also located northeast of the intersection of IL 83 and Belvedere and abutting the wet meadow was a disturbed marsh, primarily composed of *Typha*. The FQI = 7.5 (FQIn = 9.2) and \bar{C} = 2.2 (\bar{C}_n = 3.3). A summary of species composition is described below. * = non-native species.

Shrubs/Woody Vines – *Solanum dulcamara**

Herbaceous Species (w/ relative abundance values: 1 = rare, 2 = occasional, 3 = common, 4 = abundant, 5 = very abundant):

2	<i>Eupatorium maculatum</i>	2	<i>Sagittaria latifolia</i>
2	<i>Impatiens capensis</i>	2-3	<i>Scirpus fluviatilis</i>
1	<i>Iris shrevei</i>	2	<i>Solidago gigantea</i>
2	<i>Lythrum salicaria</i> *	5	<i>Typha angustifolia</i> *
3-4	<i>Phalaris arundinacea</i> *	3	<i>Typha latifolia</i>
1-2	<i>Polygonum amphibium</i>		

Site 3 – Old Field:

To the east of IL 83 approximately 0.25 miles (400 meters) north of Washington Street was a disturbed old field community. A total of 50% of species identified at this site were non-native. The FQI = 3.8 (FQIn = 5.4) and \bar{C} = 0.8 (\bar{C}_n = 1.6). A summary of species composition is described below. * = non-native species.

Canopy Species – *Juglans nigra*, *Populus deltoides*

Herbaceous Species (w/ relative abundance values: 1 = rare, 2 = occasional, 3 = common, 4 = abundant, 5 = very abundant):

3	<i>Alliaria petiolata*</i>	3	<i>Leucanthemum vulgare*</i>
2	<i>Asclepias syriaca</i>	2	<i>Nepeta cataria*</i>
3	<i>Aster drummondii</i>	1-2	<i>Oenothera biennis</i>
2	<i>Aster novae-angliae</i>	3	<i>Phragmites australis</i>
3	<i>Aster pilosus</i>	2	<i>Poa compressa*</i>
2	<i>Carduus nutans*</i>	3-4	<i>Poa pratensis*</i>
4	<i>Cirsium arvense*</i>	2	<i>Rumex crispus*</i>
3	<i>Daucus carota*</i>	3-4	<i>Solidago canadensis</i>
3	<i>Erigeron annuus</i>	2-3	<i>Thlaspi perfoliatum*</i>
3	<i>Lactuca canadensis</i>	1-2	<i>Verbascum thapsus*</i>

SUMMARY

No threatened or endangered plants were found in the IL 83/137 corridor. Because plant communities in the survey corridor had low Floristic Quality Indices and contained few known *Platanthera leucophaea* associates, surveys for eastern prairie fringed orchid were not conducted in accordance with U. S. Fish and Wildlife guidelines. However, *Potamogeton gramineus*, a state-threatened species, was collected from Deep Lake, located just outside the corridor boundary at Waters Edge Subdivision north of IL Route 132. Overall, the survey corridor was highly developed and urbanized, with few areas of potential natural vegetation. Those natural areas that were present were highly degraded.

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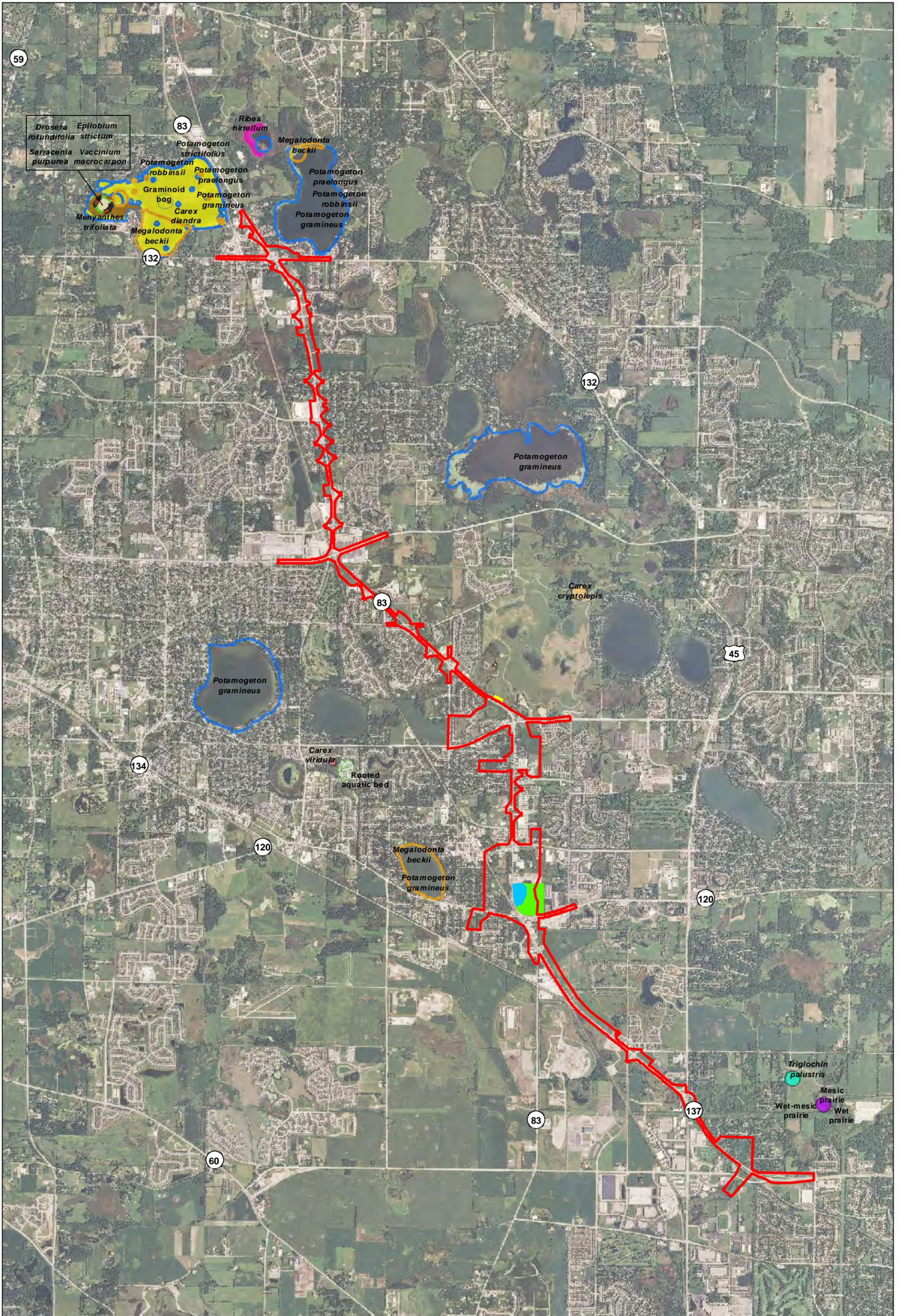
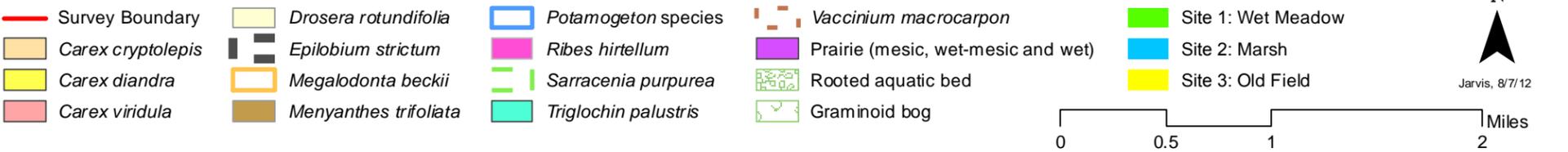


Figure 1: Botanical survey areas and known occurrences of endangered and threatened species in the IL 83 and IL 137 (FAP 866 and FAP 352) corridor



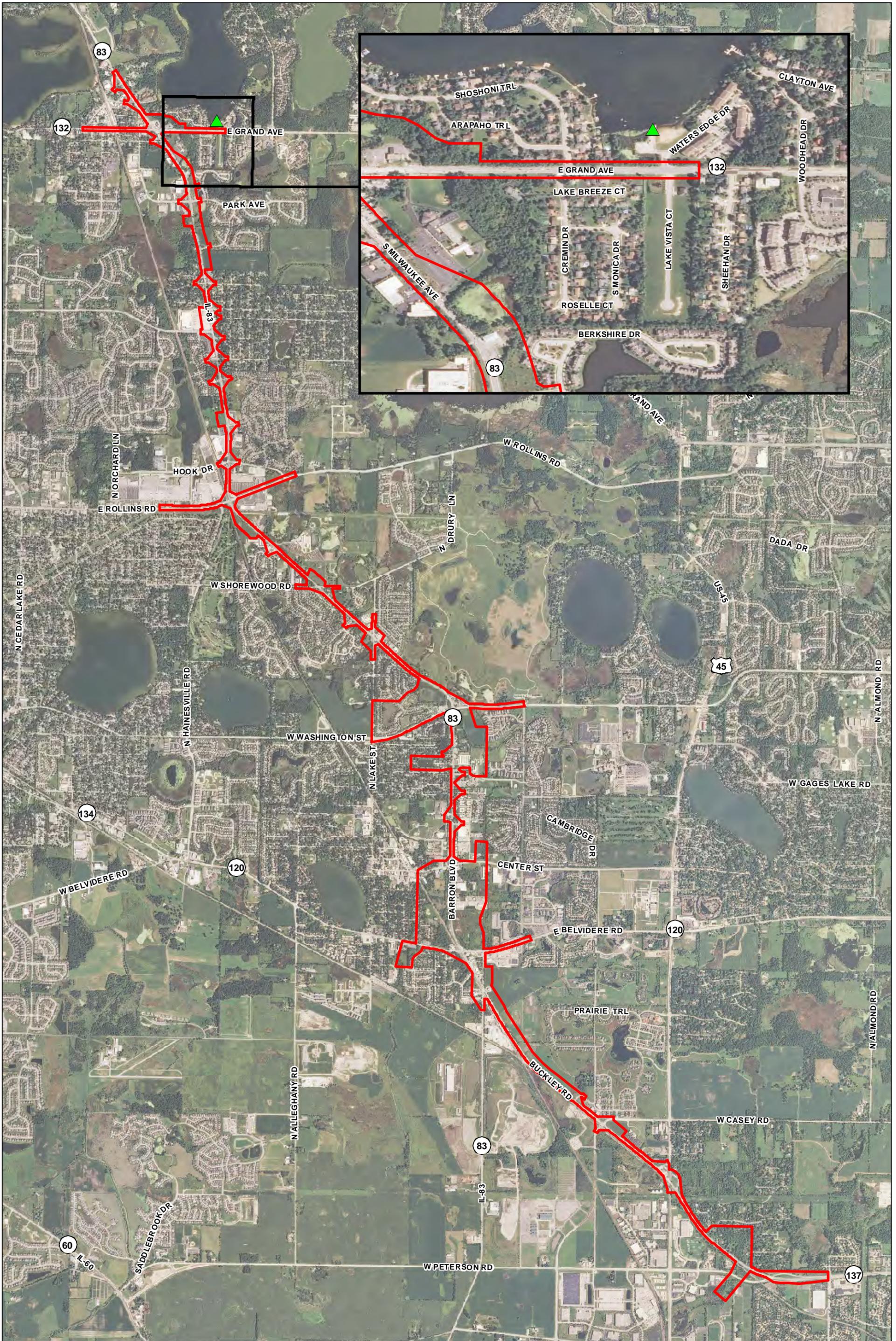
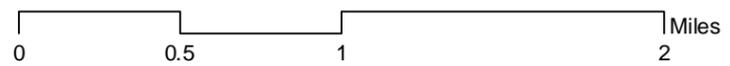


Figure 2: Location of *Potamogeton gramineus*, a state-endangered species, near the IL 83 and IL 137 (FAP 866 and FAP 352) corridor

- ▲ *Potamogeton gramineus*
- Survey Boundary



Illinois Natural Heritage Database Endangered /Threatened Species Occurrence and Sighting Report Form										
Name of Species:		<i>Potamogeton gramineus</i> L.				Date Observed:		5/5/2012		
New Sighting		or Update	<input checked="" type="checkbox"/>	Entire extent of occurrence is:				known OR	<input checked="" type="checkbox"/>	not known
Naturally Occurring	<input checked="" type="checkbox"/>	or	Introduced		When?		From Where?			
Location: (Also see attached map)										
County:	Lake		Latitude	42.41641		Longitude	-88.06494			
Direction from Nearest Landmark:			Take IL 132/Grand Avenue east from its intersection with IL 83. Turn north onto Waters Edge Drive and bear left onto the boat dock beside the small beach. This boat dock enters Deep Lake.							
Natural Division and Section:			Northeastern Morainal Division, Morainal Section							
Legal Description:		Township		Range		Section		Quad name		
INAI Site Name:	Deep Lake (Site ID 651)				Survey Site Name (alias)		Deep Lake			
Observations: Two rooted specimens were collected at this location, but the extent of the population could not be determined due to restricted access to the lake. Specimens were vegetative matter only. No floating leaves, flowers, or fruits were present at the time of collection.										
Description of Area:		Southeastern shoreline of Deep Lake, a glacial lake, to the east and west of a beach and boat dock owned by Waters Edge Subdivision. Sandy substrate supports several species of <i>Potamogeton</i> and more appear to float into the area from the northern portion of the lake.								
Comments:										
Specimen/voucher #(s):		Bertz 101				Where deposited?		Illinois Natural History Survey Herbarium		
Name of Observer:		Christine A. Bertz, John B. Taft								
Observer's Phone Number		(217)	300	-	1401			
Return to: Illinois Natural Heritage Database Program Manager, Illinois Department of Natural Resources, One Natural Resources Way, Springfield IL 62702-1271										
										Rev 11/07