

## TRANSMITTAL FORM

To: Bureau of Design and Environment  
Attn: Thomas Brooks  
From: Illinois Natural History Survey  
Re: Wetland Mitigation Monitoring

### Route and Location

Mark: IL 3  
Route: FAP 312  
County: Franklin  
IDOT District: 9  
Section Number: (135) RS -1, B-1  
Seq. no. : 9282

**Survey Conducted By:** Allen Plocher, Scott Wiesbrook, Rick Larimore, Brad Zercher,  
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**Date Conducted:** 6, 7 September 2006

### Project Summary:

We monitored, for the second year, the site created for wetland impact mitigation for FAP 312 (IL 3) in Franklin Co. The Illinois Dept. of Transportation constructed the site in 2005. The attached report includes information detailing monitoring methods and results. The status of the created wetland site is discussed. The created wetland site is depicted on the enclosed digital ortho quad photo.

Signed: \_\_\_\_\_  
Dr. Allen E. Plocher  
INHS/IDOT project Coordinator

Date: \_\_\_\_\_

Signed: \_\_\_\_\_  
Dr. Edward J. Heske  
INHS/IDOT project principal investigator

Date: \_\_\_\_\_

## **Wetland Mitigation Monitoring for FAP 312 /IL 3 (Sugar Camp Creek) - 2006**

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### **Introduction**

Road construction along IL 3 will result in impacts to 1.41 ha (3.49 acres) of wetland, including a site with Floristic Quality > 20.0 and harboring the State Threatened rice rat (*Oryzomys palustris*). A compensation plan was prepared which called for floodplain forest and emergent wetland restoration at a ratio of 5.5:1 (7.77 ha (19.19 acres)) at a site along Sugar Camp Creek near Benton, IL in Franklin Co. (Legal location: T 5 S, R 4 E, Sect. 32, SE/4 SE/4). Sugar Camp Creek enters the Middle Fork of the Big Muddy River 0.91 km (0.57 mi) south of the property. Over 405 ha (1000 ac) of floodplain forest, including one contiguous 600 acre block along the Middle Fork, occur within 7.25 km (4.5 mi) of the tract. The site consisted of a wet, fallow agricultural field surrounding a straightened and ditched section of the creek. Hydrologic alterations involve blocking a scratch ditch, which drains an abandoned oxbow in the field. The compensation plan calls restoration of 16.5 acres of floodplain forest and 2.6 acres of emergent wetland (the oxbow). The forest restoration involves the planting of bare root seedlings of nine species at a rate of 562 per acre. The understory is to be seeded with red top (*Agrostis alba*). The emergent restoration is to revegetate naturally. The site is to be monitored annually for the potential presence of *Oryzomys palustris* (rice rat). The wetland restoration site was mostly completed in spring 2005 (Taft et al. 1997, IDOT 2005). An additional 2.5 acres was planted in spring 2006 (IDOT, pers. comm.).

In 2006, field monitoring was conducted on 6 and 7 September, and mammal surveys on 17, 18 and 23 October. This report details results of the 2006 monitoring. Project goals, objectives and performance criteria are included, as are monitoring methods, monitoring results, summary information and recommendations. This project has no monitoring plan.

### **Project Goals, Objectives and Performance Criteria**

Proposed goals and objectives are based on information contained in the original IDOT project request (Sunderland 2005) and the project wetland compensation plan (IDOT 2005). Performance criteria are based on those specified in the U. S. C. O. E. Wetland Delineation Manual (Environmental Laboratory, 1987), and Guidelines for Developing Mitigation Proposals (USACOE, 1993). Each goal should be attained by the end of the five year monitoring period. Project goals, objectives and performance criteria are listed below.

**Project goal 1:** The wetland restoration site should be determined to be jurisdictional by current

federal standards.

**Objective:** The wetland restoration should compensate for the loss of 3.49 acres of forested wetland, swamp, marsh and scrub-shrub wetland at a replacement ratio of 5.5:1, for a total requirement of 19.19 acres.

**Performance Criteria:** The entire wetland restoration should satisfy the three criteria of the federal wetland definition: hydrophytic vegetation, hydric soils and wetland hydrology.

- A. Predominance of hydrophytic vegetation - More than 50% of the dominant plant species must be hydrophytic.
- B. Presence of hydric soils - Hydric soil characteristics must be present, or conditions favorable to the formation of hydric soil must persist at the site.
- C. Presence of wetland hydrology - the site must be inundated at an average depth of less than 2 m (6.6 ft) or have soils saturated to the surface for at least 12.5 % of the growing season.

**Project goal 2:** The wetland restoration should meet minimum standards as to planted tree survival and floristic composition.

**Objective:** The wetland restoration should compensate in-kind for loss of forested and emergent wetlands. The wetland compensation should be composed of vegetation characteristic of forested and emergent wetlands.

**Performance Criteria:** At the end of the five year monitoring period  $\geq 80\%$  of the planted trees should be alive (450 out of 562 per acre). At least 50% of the plant species present should be native and non-weedy. None of the three most dominant species in any stratum may be nonnative or weedy.

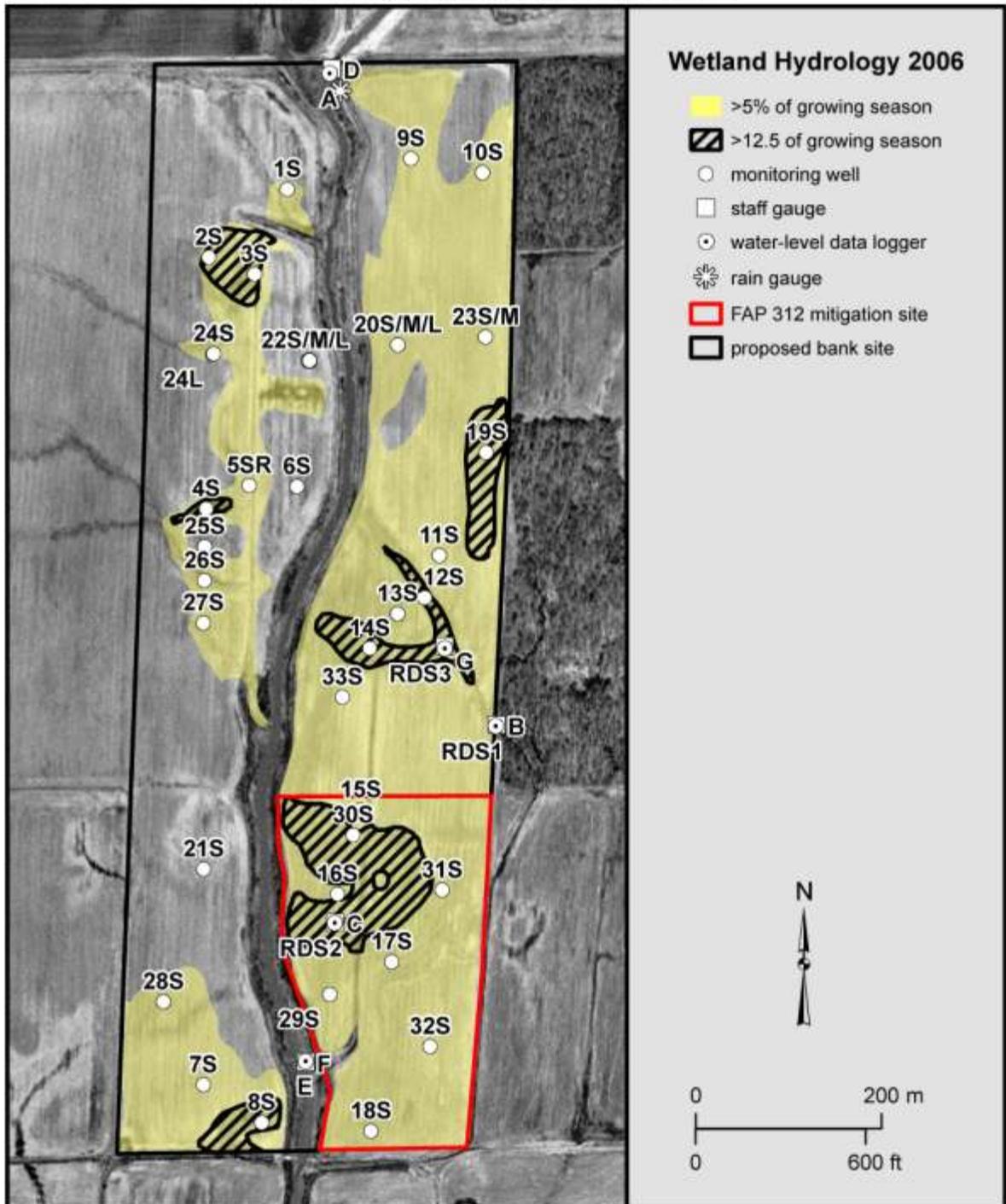
## Methods

Monitoring will be performed on the wetland restoration site. INHS personnel began monitoring the area in 2005 and will continue yearly monitoring through 2009 (five years). The Illinois State Geological Survey (ISGS) has been tasked to monitor hydrology. Monitoring reports on the status of the site will be submitted annually. The likelihood of meeting the proposed goals and performance criteria will be addressed. If evidence is discovered, indicating that the goals/performance criteria will not be met by the end of the five year monitoring period, written management recommendations will be submitted to IDOT in an effort to correct the problems.

# Sugar Camp Creek Wetland Compensation Site (FAP 312 and Proposed Wetland Mitigation Bank)

## Estimated Areal Extent of 2006 Wetland Hydrology

Map based on USGS digital orthophotograph, Ewing SE quarter quadrangle, aerial photography from April 1988 (ISGS 2000)



## **Project Goal 1**

A. Hydrophytic Vegetation - Using visual estimation, the dominant species of vegetation in each stratum are determined. Dominance is based on Importance Value, a numerical average of species' relative frequency, density and aerial coverage (or basal area) (Cox 1985). In each stratum dominant species include, starting with the most abundant, those species whose Importance Values, when summed in descending order, immediately exceed 50%, as well as any additional species whose Importance Values are 20% or greater (Federal Interagency Committee for Wetland Delineation, 1989). Dominant species are assigned wetland indicator status ratings (Reed 1988). Any plant rated facultative or wetter (FAC, FAC+, FACW-, FACW, FACW+ or OBL) is considered hydrophytic. Hydrophytic vegetation is determined to be present if greater than 50% of the dominant species are hydrophytic (Environmental Laboratory 1987).

B. Hydric Soils - Soil cores collected from the mitigation site are examined for the presence of redoximorphic features (Environmental Laboratory 1987). Hydrologic alteration at this site is minimal, consisting of blocking a scratch ditch draining the oxbow area. Therefore, soil conditions are not expected to change greatly over time.

C. Wetland Hydrology - The Illinois State Geological Survey has been tasked to monitor this site and monitoring wells have been installed. Information provided by the ISGS concerning hydrology of the site is included in this report. In addition, visual inspection of the site for field indicators of wetland hydrology, such as landscape position, inundation or surface saturation or wetland drainage and debris patterns will be used to determine the presence of wetland hydrology (Environmental Laboratory 1987).

## **Project Goal 2**

A. Woody vegetation - Within the forest restoration site, quantitative sampling of planted tree species is conducted. In the eastern section, starting 152 m (500 ft) in from the northeast corner of the site, and proceeding north to south then south to north on consecutive planted rows, the first 30 m (99 ft) in each 304 m (997 ft) section of row is sampled (10.6 ft X 99 ft (0.0241 acre) plot). This procedure results in a 10% sample (n = 46). In the southwest section, planted a year later, dense herbaceous cover rendered this sampling method impractical. Here, sampling points were established at 60 m intervals on parallel transects 30 m apart (n = 13). At each point, a 100 m<sup>2</sup> plot is established (5.55% sample). Within each sampled section (or plot) live trees are tallied by species. A minimum of 450 live, planted trees/acre (80% of 562/acre) must be present after five years. Importance Values of planted species are calculated as an average of relative frequency and relative density. The tree planting areas are mapped using Trimble GPS (global positioning system) and overlaid on digital ortho quad imagery using Arcview 3.2.

B. Herbaceous vegetation - Dominant herbaceous species within the wetland compensation site will be determined annually by visual estimation in an attempt to ensure that none of the three most dominant species are nonnative or weedy\*, and that at least 50% of the plant species present are native and non-weedy\* through the fifth year of monitoring. A species list will be prepared annually and a Floristic Quality Index computed for the site (Taft et al. 1997).

\* For our purposes here, certain native, early successional species (C=1) that commonly occur in healthy wetlands and do not tend to overwhelm plant communities are not considered weedy: *Acer saccharinum*, *Bidens frondosa*, *Polygonum pennsylvanicum*, *Cyperus ferruginescens*, etc.

### **Faunal Surveys (Mammals)**

In addition to the stated performance criteria, INHS personnel will conduct annual surveys of small mammals, in order to determine presence and abundance of *Oryzomys palustris* (rice rat).

Live trapping was conducted at the Sugar Camp Creek mitigation site on the nights of 17, 18, and 23 October 2006 by Joyce Hofmann, Steve Amundsen, Jean Mengelkoch, and Joseph Merritt of the INHS. Folding, aluminum Sherman traps measuring 8 x 9 x 23 cm were used (H.B. Sherman Traps, Inc., Tallahassee, FL). The traps were baited with a mixture of rolled oats and peanut butter and also contained a wad of polyester batting to protect animals from hypothermia. The traps were placed on the ground at intervals of approximately 10 m. They were set during the late afternoon and checked the following morning (beginning at 0800 h).

The species, sex, and reproductive condition of captured animals were recorded. The position of the testes (either abdominal or scrotal) was used as a general indicator of the reproductive condition of male rodents. Females were examined for pregnancy (by gentle palpation of the abdomen) or lactation (by examination of the teats). Animals were suspended from a Pesola scale and weighed to the nearest 0.5 g. To determine the number of individuals of each species captured at the site, every animal trapped for the first time on the first or second morning of the trapping session was marked temporarily by clipping a small patch of fur on its flank. This made it possible to distinguish individuals that were re-captured from those that were being caught for the first time. After examination animals were released near the trap location.

In October 2005 a line of traps had been established around standing water in an old oxbow in the southeastern section of the wetland compensation site. In October 2006 there was a relatively large pond of open water in this part of the site. The rest of the field was covered with *Agrostis* sp. and forbs. Perhaps because of recent rain, standing water was present in the vegetated area near the edge of the pond. A circular row of 53 traps (line S) was placed around this wet area.

In 2006 an additional section of the compensation site, north of the original monitoring area, had been released from cultivation. This area was covered with *Panicum* sp. and forbs. A Y-shaped channel with standing water and emergent vegetation ran through the field. A line of 73 traps was placed around this wet area (line N).

On the night of 17 October the sky was cloudy and the overnight low temperature was approximately 11°C. The sky was clear on the evening of 18 October, but it began to rain after midnight. The overnight low temperature was approximately 9°C. On the night of 23 October the sky was mostly clear and the low temperature was approximately -3°C. There had been a new moon the previous night.

## Results

**Project Goal 1:** The wetland restoration should be determined to be jurisdictional by current federal standards.

In 2006, conditions were considerably wetter than in 2005 (precipitation was 87% of normal) (Pociask 2006). The naturally regenerating emergent wetland had expanded from 0.89 ha (2.2 acres) to 1.44 ha (3.55 acres). The ISGS well data showed that the entire site may possess wetland hydrology for 2006, and that the emergent area conclusively displays wetland hydrology (figure 1). The emergent area is dominated by *Panicum dichotomiflorum* (FACW-) and *Echinochloa muricata* (OBL), and the forest restoration area is dominated by *Agrostis alba* (FACW), *Eupatorium serotinum* (FAC+) and *Solidago canadensis* (FACU). Therefore, both of these areas have hydrophytic vegetation. In 2006, an additional 1 ha (2.5 acres) of forest restoration was planted, bringing the total to 5.6 ha (13.8 acres). Of this, 1.48 ha (3.65 acres) is underlain by non-hydric Belknap silt loam. The remaining 4.1 ha (10.15 acres) of forest restoration plus the 1.44 ha (3.55 acres) of emergent wetland are underlain by hydric Bonnie silt loam (figure 2). Therefore, in 2006, out of 7.02 ha (17.35 acres) of mitigation area, 5.55 ha (13.7 acres) satisfy the three criteria of wetlands.

**Project goal 2:** The wetland restoration should meet minimum standards as to planted tree survival and floristic composition.

- A. Woody vegetation – At this site, nine species were listed for planting – *Betula nigra*, *Quercus palustris*, *Carya illinoensis*, *Q. bicolor*, *Platanus occidentalis*, *Fraxinus pennsylvanica*, *Q. shumardii*, *Taxodium distichum* and the shrub, *Cornus stolonifera*. The rate of stocking was specified as 562 stems/acre for 16.5 acres. All listed species were observed in the field. The listed, seeded ground cover, *Agrostis alba*, is now a dominant understory species at the site. In 2005, a 10.75 acre area was planted in parallel rows. Based on quantitative sampling, this area supports 416.7 live, planted trees/acre. Although actual planting density was determined to be higher than specified, second year survival in this area is 74.1% of the specified 562/acre. The dominant (most abundant and evenly distributed) surviving planted trees in this area (Area 1) were *Betula nigra*, *Quercus palustris* and *Quercus bicolor*. In 2006, an additional 2.5 acres was planted (Area 2), bringing the total to 5.6 ha (13.8 acres). Based on quantitative sampling, this area supports 218.0 live, planted trees/acre. First year survival in Area 2 is 38.8% of the specified 562/acre. The dominant (most abundant and evenly distributed) surviving planted trees in Area 2 were *Fraxinus pennsylvanica* and *Platanus occidentalis*. An additional 0.55 acre strip west of the emergent wetland supported 90 *Betula nigra* and 8 *Fraxinus pennsylvanica*. Within the emergent wetland restoration, a census revealed that 177 planted trees were present, predominantly *Taxodium distichum* (121) and *Betula nigra* (54). Scattered natural regeneration of six native tree species (*Acer saccharinum*, *Acer negundo*, *Diospyros virginiana*, *Fraxinus pennsylvanica*, *Populus deltoides* and *Ulmus americana*) was also observed. In 2006, the aerial extent of forest restoration falls short of the stated objective of 16.5 acres. The density of living planted trees is less than 450/acre (80% of the proposed 562/acre) (Table 1, 2, 3, Appendix 1).

QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

figure 1. Aerial extent of measured wetland hydrology - 2006

B. Herbaceous vegetation – Two years out of agriculture, the vegetation of the wetland restoration site is still early successional in nature. The dominant herbaceous vegetation in the forest restoration was *Agrostis alba*, *Eupatorium serotinum* and *Solidago canadensis*. The emergent restoration is dominated by *P. dichotomiflorum*, and *Echinochloa muricata*. All of these are weedy native species. However, both the forest restoration and the emergent wetland have improved in diversity and natural quality since 2005. In the forest restoration the number of plant species increased from 73 to 86 and the percent native species increased from 78% to 85%. The percentage of non-native or weedy species decreased from 48% to 35% and FQI increased from 16.0 to 22.0. In the emergent wetland the number of plant species increased from 20 to 44, although the percent native species decreased from 95% to 89%. The percentage of non-native or weedy species remained stable (34% vs. 35%) and FQI increased from 10.1 to 16.0. The number of rather conservative species colonizing the site has increased from three to seven (*Pluchea camphorata* C=8, *Lobelia cardinalis* C=6, *Mimulus alatus* C=6, *Amsonia tabernaemontana* C=6, *Panicum rigidulum* C=6, *Cyperus pseudovegatus* C= 5, *Hibiscus lasiocarpus* C= 5). In 2006, the percentage of nonnative or weedy native species remains less than 50% at both forested and emergent restoration sites and, therefore, meets this stated objective. However, neither site yet meets the requirement that the three most dominant species be native and nonweedy (Appendix 1).

Table 1. Planted Tree Species – east section. stems/acre, Importance Value (IV), percent survival, n=46

	stems/acre	I.V.	percent of 562/ac
<i>Betula nigra</i>	119.09	26.01	
<i>Quercus palustris/shumardi</i>	103.73	24.17	
<i>Quercus bicolor</i>	79.38	21.25	
<i>Platanus occidentalis</i>	57.72	12.49	
<i>Fraxinus pennsylvanica</i>	34.27	8.43	
<i>Carya illinoensis</i>	22.53	7.65	
Total (on 10.75 acres)	416.73	100.00	74.1%
Total (plus 90 <i>Betula</i> and 8 <i>Fraxinus</i> on addit. 0.55 acre)	405.12		72.1%

Table 2. Planted Tree Species – west section. stems/acre, Importance Value (IV), percent survival, n=13

	stems/acre	I.V.	percent of 562/ac
<i>Fraxinus pennsylvanica</i>	102.77	43.57	
<i>Platanus occidentalis</i>	56.06	26.19	
<i>Quercus palustris</i>	15.57	10.24	
<i>Carya illinoensis</i>	15.57	6.91	
<i>Cornus stolonifera</i>	12.46	6.19	
<i>Quercus bicolor</i>	12.46	4.52	
<i>Betula nigra</i>	3.11	2.38	
Total (on 2.5 acres)	218.00	100.00	38.8%

Table 3. Planted Tree Species – emergent wetland.

	stems
<i>Taxodium distichum</i>	121
<i>Betula nigra</i>	54
<i>Fraxinus pennsylvanica</i>	1
<i>Cornus stolonifera</i>	1
Total (on 3.55 acres)	177

### Faunal Surveys (Mammals)

The total number of trap-nights (one trap-night = one trap set for one night) during the trapping session was 357 (corrected for 21 traps that were closed, but empty, when checked). Nineteen small mammals were captured during the first night, 16 the second night, and 13 the third night. The total number of captures was 48, which represented an overall trapping success ( $[\text{number of captures}/\text{number of trap-nights}] \times 100$ ) of 13.4%.

Four species of rodents were trapped at this site -- prairie vole (*Microtus ochrogaster*), deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), and marsh rice rat (*Oryzomys palustris*). The most frequently captured species was the house mouse (24-27 individuals).

Only one marsh rice rat was captured during the 2006 trapping session. This individual was an adult male weighing 63 g (Table 3). He was caught in the northern part of the monitoring area. The trap (N24) was located at the western edge of the field, near Sugar Camp Creek.

Table 3. Marsh rice rats (*Oryzomys palustris*) captured at the Sugar Camp Creek mitigation site, Franklin County, IL - nights of 17, 18 and 23 October 2006.

<u>date</u>	<u>trap #</u>	<u>sex</u>	<u>reprod.</u>	<u>weight (g)</u>
23 October	N24	male	NR	63.0

NR = nonreproductive (males: testes abdominal; females: not pregnant or lactating)

## Summary and Recommendations

In the second year, this wetland restoration site is still making good progress. The presence of rice rats (*Oryzomys*) in consecutive years (although in lower numbers) suggests a resident population. And additional conservative plant species continue to colonize the site. Floristic Quality and species richness increased and percentage of weedy species decreased. Most of the site meets the three criteria of wetlands and an additional 2.5 acres of forest restoration was planted.

However, although less than 50% of the plant species present are weedy or non-native, all of the dominant species are still weedy natives. Five species present in 2006 in low numbers have the potential to persist and overwhelm some sites (*Phalaris arundinacea*, *Ambrosia trifida*, *Lespedeza cuneata*, *Solidago canadensis*, *Eleagnus umbellata*). The 2005 planted tree density is slightly less than the required 450/acre, and 2006 planting density is well below 450/acre. In addition, the current 13.7 acres of wetland on this site still falls short of the stated goal of 19.1 acres.

## Literature Cited

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- Taft, J., G. Wilhelm, D. Ladd and L. Masters. 1997. Floristic Quality Assessment for vegetation of Illinois: a method for assessing vegetation integrity. *Erignia* 15: 3-95.
- United States Army Corps of Engineers. 1993. Guidelines for developing mitigation proposals. Chicago District.

**Appendix 1: Wetland Determinations  
and Species Lists**

**ROUTINE ON-SITE WETLAND DETERMINATION**

Site 1 (page 1 of 5)

**Field Investigators:** Plocher, Larimore, Wiesbrook, Zercher, Draheim

**Date:** 6, 7 September 2006

**Sect. No.:** 102 (RS – 5, W –1)

**Project Name:** FAP 312 (IL 3)

**State:** Illinois **County:** Franklin **Applicant:** IDOT District 9

**Site Name:** wet meadow/forest restoration

**Legal Description:** T. 5 S., R. 4 E., Sect. 32, SE/4 SE/4

**Location:** majority of the site

Do normal environmental conditions exist at this site? Yes: X No:  
Has the vegetation, soil, or hydrology been significantly disturbed? Yes: No: X

**VEGETATION**

<b>Dominant Plant Species</b>	<b>Stratum</b>	<b>Indicator Status</b>
1. <i>Solidago canadensis</i>	herb	FACU
2. <i>Agrostis alba</i>	herb	FACW
3. <i>Eupatorium serotinum</i>	herb	FAC+

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 66.7%

**Hydrophytic vegetation:** Yes: X No:

**Rationale:** More than 50% of dominants are OBL, FACW, FAC+, or FAC.

**SOILS**

Series and phase: Bonnie silt loam (Typic Fluvaquent)

On county hydric soils list? Yes: X No:

Is the soil a histosol? Yes: No: X

Histic epipedon present? Yes: No: X

Redox Concentrations? Yes: X No: Color: 10YR 4/4, 4/3, and 4/6

Redox Depletions? Yes: X No: Color: 2.5Y 5/2

Matrix color: 10YR 4/3 over 2.5Y 7/1 and 5/2

Other indicators: This soil is found in a level to depressional area along a creek and was saturated to the surface in some areas.

**Hydric soils?** Yes: X No:

**Rationale:** The Natural Resources Conservation Service identifies Bonnie as a Typic Fluvaquent that is poorly drained. The presence of redox concentrations and depletions within a low chroma matrix indicates conditions of saturation for long duration during the growing season. Therefore, the soil at this site meets the hydric soil criterion. This soil meets NRCS hydric soil indicator F3 – Depleted matrix.

## ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 2 of 5)

**Field Investigators:** Plocher, Larimore, Wiesbrook, Zercher, Draheim

**Date:** 6, 7 September 2006

**Sect. No.:** 102 (RS – 5, W –1)

**Project Name:** FAP 312 (IL 3)

**State:** Illinois **County:** Franklin **Applicant:** IDOT District 9

**Site Name:** wet meadow/forest restoration – south section

**Legal Description:** T. 5 S., R. 4 E., Sect. 32, SE/4 SE/4

**Location:** majority of the site

### HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA

Depth to saturated soil: 0.2 m (8 in)

Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation, runoff from the surrounding uplands and ditch/creek overflow. Evapotranspiration and sheetflow are the major outputs.

Size of watershed: 101 km<sup>2</sup> (39 mi<sup>2</sup>)

Other field evidence observed: This site is level to depressional. Driftlines were observed.

**Wetland hydrology:** Yes: X No:

**Rationale:** Field evidence cited above indicates that the site is flooded or saturated for a sufficient period during the growing season to meet the criterion of wetland hydrology.

### WETLAND DETERMINATION AND RATIONALE:

**Is the site a wetland?:** Yes: X No:

**Rationale:** Hydrophytic vegetation, hydric soils and wetland hydrology are all present. Therefore the site is a wetland. The site is not coded by the NWI as wetland.

Determined by: Allen Plocher (vegetation and hydrology)  
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**ROUTINE ON-SITE WETLAND DETERMINATION**

Site 1 (page 3 of 5)

**Field Investigators:** Plocher, Larimore, Wiesbrook, Zercher, Draheim

**Date:** 6, 7 September 2006

**Sect. No.:** 102 (RS – 5, W –1)

**Project Name:** FAP 312 (IL 3)

**State:** Illinois    **County:** Franklin    **Applicant:** IDOT District 9

**Site Name:** wet meadow/forest restoration – south section

**Legal Description:** T. 5 S., R. 4 E., Sect. 32, SE/4 SE/4

**Location:** majority of the site

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	C**
<i>Acer negundo</i>	box elder	seedling	FACW-	1
<i>Acer saccharinum</i>	silver maple	seedling	FACW	1
<i>Agalinus tenuifolia</i>	slender false foxglove	herb	FACW	5
<i>Agrostis alba</i>	red top	herb	FACW	0
<i>Allium vineale</i>	field garlic	herb	FACU	*
<i>Amaranthus tuberculatus</i>	water hemp	herb	OBL	1
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Andropogon virginicus</i>	broomsedge	herb	FAC-	1
<i>Asclepias incarnata</i>	swamp milkweed	herb	OBL	4
<i>Asclepias syriaca</i>	common milkweed	herb	UPL	0
<i>Aster pilosus</i>	hairy aster	herb	FACU+	0
<i>Aster prealtus</i>	willow leaf aster	herb	FACW	4
<i>Aster simplex</i>	panicked aster	herb	FACW	3
<i>Betula nigra</i>	river birch	seedling	planted	4
<i>Bidens aristosa</i>	swamp marigold	herb	FACW	1
<i>Bidens frondosa</i>	beggar's ticks	herb	FACW	1
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Boltonia asteroides</i>	false aster	herb	FACW	5
<i>Bromus commutatus</i>	hairy brome	herb	UPL	*
<i>Calystegia sepium</i>	hedge bindweed	herb	FAC	1
<i>Campsis radicans</i>	trumpet creeper	herb	FAC	2
<i>Carex annectans</i>	sedge	herb	FACW	3
<i>Carex normalis</i>	sedge	herb	FACW	4
<i>Carya illinoensis</i>	pecan	seedling	planted	6
<i>Chamaesyce maculata</i>	nodding spurge	herb	FACU-	0
<i>Cicuta maculata</i>	water hemlock	herb	OBL	4
<i>Cirsium vulgare</i>	bull thistle	herb	FACU-	*
<i>Cornus stolonifera</i>	red osier dogwood	shrub	planted	4
<i>Cynanchum laeve</i>	blue vine	herb	FAC	1
<i>Cyperus ferruginescens</i>	flat sedge	herb	OBL	1
<i>Cyperus strigosus</i>	yellow flat sedge	herb	FACW	0

\*\*Coefficient of conservatism, as developed by Taft, Ladd, Wilhelm and Masters (1997)

\* nonnative species

Continued on following page

**ROUTINE ON-SITE WETLAND DETERMINATION**

Site 1 (page 4 of 5)

**Field Investigators:** Plocher, Larimore, Wiesbrook, Zercher, Draheim  
**Date:** 6, 7 September 2006  
**Sect. No.:** 102 (RS – 5, W –1)      **Project Name:** FAP 312 (IL 3)  
**State:** Illinois    **County:** Franklin      **Applicant:** IDOT District 9  
**Site Name:** wet meadow/forest restoration – south section  
**Legal Description:** T. 5 S., R. 4 E., Sect. 32, SE/4 SE/4

**Location:** majority of the site

SPECIES LIST (Continued)

Scientific name	Common name	Stratum	Wetland indicator status	C**
<i>Digitaria sanguinalis</i>	hairy crab grass	herb	FACU	*
<i>Diodea virginiana</i>	large buttonweed	herb	FACW	4
<i>Diospyros virginiana</i>	persimmon	seedling	FAC	2
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Eclipta prostrata</i>	yerba de tajo	herb	FACW	2
<i>Eleagnus umbellata</i>	autumn olive	seedling	UPL	*
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4
<i>Erechtites hieracifolia</i>	fireweed	herb	FACU	2
<i>Eupatorium coelestinum</i>	mistflower	herb	FAC+	3
<i>Eupatorium serotinum</i>	late flowering thoroughwort	herb	FAC+	1
<i>Euthamia graminifolia</i>	grass leaf goldenrod	herb	FACW-	3
<i>Festuca pratensis</i>	English bluegrass	herb	FACU-	*
<i>Fraxinus pennsylvanica</i>	green ash	seedling	FACW	2
<i>Geum canadense</i>	white avens	herb	FAC	2
<i>Gleditsia triacanthos</i>	honey locust	seedling	FAC	2
<i>Helianthus grosseserratus</i>	sawtooth sunflower	herb	FACW-	2
<i>Hibiscus lasiocarpus</i>	hairy rose mallow	herb	FACW+	5
<i>Ipomoea hederacea</i>	ivy leaf morning glory	herb	FAC	*
<i>Ipomoea lacunosa</i>	small white morning glory	herb	FACW	1
<i>Iva annua</i>	sumpweed	herb	FAC	0
<i>Lactuca floridana</i>	blue lettuce	herb	FAC-	4
<i>Lespedeza cuneata</i>	sericea lespedeza	herb	NI	*
<i>Lobelia cardinalis</i>	cardinal flower	herb	OBL	6
<i>Lycopus americanus</i>	water horehound	herb	OBL	3
<i>Lycopus virginicus</i>	bugleweed	herb	OBL	5
<i>Mimulus alatus</i>	winged monkey flower	herb	OBL	6
<i>Oenothera biennis</i>	evening primrose	herb	FACU	1
<i>Panicum acuminatum</i>	panic grass	herb	FAC	2
<i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0
<i>Panicum virgatum</i>	switchgrass	herb	FAC+	4
<i>Paspalum laeve</i>	smooth beadgrass	herb	FACW-	2

\*\*Floristic Quality Index, as developed by Taft, Ladd, Wilhelm and Masters (1997)

\* nonnative species

Continued on following page

**ROUTINE ON-SITE WETLAND DETERMINATION**

Site 1 (page 5 of 5)

**Field Investigators:** Plocher, Larimore, Wiesbrook, Zercher, Draheim

**Date:** 6, 7 September 2006

**Sect. No.:** 102 (RS – 5, W –1)

**Project Name:** FAP 312 (IL 3)

**State:** Illinois    **County:** Franklin    **Applicant:** IDOT District 9

**Site Name:** wet meadow/forest restoration – south section

**Legal Description:** T. 5 S., R. 4 E., Sect. 32, SE/4 SE/4

**Location:** majority of the site

SPECIES LIST (Continued)

Scientific name	Common name	Stratum	Wetland indicator status	C**
<i>Phalaris arundinacea</i>	reed canarygrass	herb	FACW+	*
<i>Phyla lanceolata</i>	fog fruit	herb	OBL	1
<i>Platanus occidentalis</i>	sycamore	seedling	planted	3
<i>Pluchea camphorata</i>	camphorweed	herb	FACW	8
<i>Polygonum hydropiperoides</i>	water pepper	herb	OBL	4
<i>Polygonum pensylvanicum</i>	giant smartweed	herb	FACW+	1
<i>Populus deltoides</i>	cottonwood	seedling	FAC+	2
<i>Potentilla simplex</i>	common cinquefoil	herb	FACU-	3
<i>Quercus bicolor</i>	swamp white oak	seedling	planted	7
<i>Quercus palustris</i>	pin oak	seedling	planted	4
<i>Quercus shumardii</i>	Shumard oak	seedling	planted	7
<i>Rubus allegheniensis</i>	blackberry	herb	FACU+	2
<i>Rudbeckia laciniata</i>	cutleaf coneflower	herb	FACW+	3
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Rumex crispus</i>	curly dock	herb	FAC+	*
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	*
<i>Sida spinosa</i>	prickly sida	herb	FACU	*
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Solidago gigantea</i>	late goldenrod	herb	FACW	3
<i>Sonchus arvensis</i>	sow thistle	herb	FAC-	*
<i>Tridens flavus</i>	purple top	herb	UPL	1
<i>Ulmus americana</i>	American elm	seedling	FACW-	5
<i>Verbena hastata</i>	blue vervain	herb	FACW+	3
<i>Xanthium strumarium</i>	cocklebur	herb	FAC	0

\*\*Coefficient of conservatism, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

\* nonnative species

FQI (with planted species) =  $188/\sqrt{73} = 22.0$ , mean rated quality =  $188/73 = 2.57$

FQI (without planted species) =  $153/\sqrt{66} = 18.8$ , mean rated quality =  $153/66 = 2.32$

Percent nonnative or weedy native (perennial or annual) species –  $30/86 = 34.9\%$

Percent native species – 84.9%

**ROUTINE ON-SITE WETLAND DETERMINATION**

Site 2 (page 1 of 4)

**Field Investigators:** Plocher, Larimore, Wiesbrook, Zercher, Draheim

**Date:** 6, 7 September 2006

**Sect. No.:** 102 (RS – 5, W –1)

**Project Name:** FAP 312 (IL 3)

**State:** Illinois **County:** Franklin **Applicant:** IDOT District 9

**Site Name:** wet meadow/oxbow

**Legal Description:** T. 5 S., R. 4 E., Sect. 32, SE/4 SE/4

**Location:** northwest portion of the site

Do normal environmental conditions exist at this site? Yes: X No:  
Has the vegetation, soil, or hydrology been significantly disturbed? Yes: No: X

**VEGETATION**

Dominant Plant Species	Stratum	Indicator Status
1. <i>Panicum dichotomiflorum</i>	herb	FACW-
2. <i>Echinochloa muricata</i>	herb	OBL

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 100%

**Hydrophytic vegetation:** Yes: X No:

**Rationale:** More than 50% of dominants are OBL, FACW, FAC+, or FAC.

**SOILS**

Series and phase: Bonnie silt loam (Typic Fluvaquent)

On county hydric soils list? Yes: X No:

Is the soil a histosol? Yes: No: X

Histic epipedon present? Yes: No: X

Redox Concentrations? Yes: X No: Color: 10YR 4/4, 4/3, and 4/6

Redox Depletions? Yes: X No: Color: 2.5Y 5/2

Matrix color: 10YR 4/3 over 2.5Y 7/1 and 5/2

Other indicators: This soil is found in a depressional area along a creek and is inundated.

**Hydric soils?** Yes: X No:

**Rationale:** The Natural Resources Conservation Service identifies Bonnie as a Typic Fluvaquent that is poorly drained. The presence of redox concentrations and depletions within a low chroma matrix indicates conditions of saturation for long duration during the growing season. Therefore, the soil at this site meets the hydric soil criterion. This soil meets NRCS hydric soil indicator F3 – Depleted matrix.

## ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 2 of 4)

**Field Investigators:** Plocher, Larimore, Wiesbrook, Zercher, Draheim

**Date:** 6, 7 September 2006

**Sect. No.:** 102 (RS – 5, W –1)

**Project Name:** FAP 312 (IL 3)

**State:** Illinois **County:** Franklin **Applicant:** IDOT District 9

**Site Name:** wet meadow/oxbow

**Legal Description:** T. 5 S., R. 4 E., Sect. 32, SE/4 SE/4

**Location:** northwestern portion of the site

### HYDROLOGY

Inundated: Yes: X No: Depth of standing water: 0.15 m (6 in)

Depth to saturated soil: at surface

Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation, runoff from the surrounding uplands and ditch/creek overflow. Evapotranspiration and sheetflow are the major outputs.

Size of watershed: 101 km<sup>2</sup> (39 mi<sup>2</sup>)

Other field evidence observed: This site is depressional. Driftlines and bare areas were observed.

**Wetland hydrology:** Yes: X No:

**Rationale:** Field evidence sited above indicates that the site is flooded or saturated for a sufficient period during the growing season to meet the criterion of wetland hydrology.

### WETLAND DETERMINATION AND RATIONALE:

**Is the site a wetland?:** Yes: No:

**Rationale:** Hydrophytic vegetation, hydric soils and wetland hydrology are all present. Therefore the site is a wetland. The site is not coded by the NWI as wetland.

Determined by: Allen Plocher (vegetation and hydrology)  
Scott Wiesbrook (soils and hydrology)  
Brad Zercher (GPS and hydrology)  
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(217) 333-6292

**ROUTINE ON-SITE WETLAND DETERMINATION**

Site 2 (page 3 of 4)

**Field Investigators:** Plocher, Larimore, Wiesbrook, Zercher, Draheim

**Date:** 6, 7 September 2006

**Sect. No.:** 102 (RS – 5, W –1)

**Project Name:** FAP 312 (IL 3)

**State:** Illinois    **County:** Franklin    **Applicant:** IDOT District 9

**Site Name:** wet meadow/oxbow– south section

**Legal Description:** T. 5 S., R. 4 E., Sect. 32, SE/4 SE/4

**Location:** northwestern portion of the site

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	C**
<i>Agrostis alba</i>	red top	herb	FACW	0
<i>Amaranthus tuberculatus</i>	water hemp	herb	OBL	1
<i>Ammannia coccinea</i>	ammannia	herb	OBL	5
<i>Amsonia tabernaemontana</i>	blue star	herb	FACW	6
<i>Andropogon virginicus</i>	broomsedge	herb	FAC-	1
<i>Aster simplex</i>	panicked aster	herb	FACW	3
<i>Betula nigra</i>	river birch	seedling	planted	4
<i>Bidens aristosa</i>	swamp marigold	herb	FACW	1
<i>Boltonia asteroides</i>	false aster	herb	FACW	5
<i>Campsis radicans</i>	trumpet creeper	herb	FAC	2
<i>Carex annectans</i>	sedge	herb	FACW	3
<i>Cornus stolonifera</i>	red osier dogwood	shrub	planted	4
<i>Cyperus ferruginescens</i>	flat sedge	herb	OBL	1
<i>Cyperus pseudovegatus</i>	flat sedge	herb	FACW	5
<i>Cyperus strigosus</i>	straw colored flat sedge	herb	FACW	0
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Eclipta prostrata</i>	yerba de tajo	herb	FACW	2
<i>Eleocharis obtusa</i>	spikerush	herb	OBL	2
<i>Eupatorium serotinum</i>	late flowering thoroughwort	herb	FAC+	1
<i>Fraxinus pennsylvanica</i>	green ash	seedling	planted	2
<i>Juncus acuminatus</i>	knotty leaved rush	herb	OBL	4
<i>Juncus torreyi</i>	Torrey's rush	herb	FACW	3

\*\*Coefficient of conservatism, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

\* nonnative species

Continued on following page

**ROUTINE ON-SITE WETLAND DETERMINATION**

Site 2 (page 4 of 4)

**Field Investigators:** Plocher, Larimore, Wiesbrook, Zercher, Draheim

**Date:** 6, 7 September 2006

**Sect. No.:** 102 (RS – 5, W –1)

**Project Name:** FAP 312 (IL 3)

**State:** Illinois    **County:** Franklin    **Applicant:** IDOT District 9

**Site Name:** wet meadow/oxbow– south section

**Legal Description:** T. 5 S., R. 4 E., Sect. 32, SE/4 SE/4

**Location:** northwestern portion of the site

SPECIES LIST (Continued)

Scientific name	Common name	Stratum	Wetland indicator status	C**
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Lindernia dubia</i>	false pimpernel	herb	OBL	5
<i>Ludwigia palustris</i>	marsh seedbox	herb	OBL	4
<i>Ludwigia peploides</i>	creeping primrose willow	herb	OBL	5
<i>Ludwigia polycarpa</i>	false loosestrife	herb	OBL	5
<i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0
<i>Panicum rigidulum</i>	Munro grass	herb	FACW	6
<i>Paspalum laeve</i>	smooth beadgrass	herb	FACW-	2
<i>Phalaris arundinacea</i>	reed canarygrass	herb	FACW+	*
<i>Polygonum lapathifolium</i>	nodding smartweed	herb	FACW+	0
<i>Polygonum pennsylvanicum</i>	giant smartweed	herb	FACW+	1
<i>Polygonum punctatum</i>	dotted smartweed	herb	OBL	3
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Rumex crispus</i>	curly dock	herb	FAC+	*
<i>Scirpus atrovirens</i>	dark green bulrush	herb	OBL	4
<i>Setaria glauca</i>	yellow foxtail	herb	FAC	*
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Taxodium distichum</i>	bald cypress	seedling	planted	*
<i>Tridens flavus</i>	purple top	herb	UPL	1
<i>Typha angustifolia</i>	narrow leaf cattail	herb	OBL	*
<i>Verbena hastata</i>	blue vervain	herb	FACW+	3
<i>Xanthium strumarium</i>	cockle bur	herb	FAC	0

\*\*Coefficient of conservatism, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

\* nonnative species

FQI (with planted species) =  $100/\sqrt{39} = 16.0$ , mean rated quality =  $100/39 = 2.56$

FQI (without planted species) =  $90/\sqrt{36} = 15.0$ , mean rated quality =  $90/36 = 2.50$

Percent nonnative or weedy native (perennial or annual) species –  $15/44 = 34.1\%$

Percent native species – 88.6%

Wetland Mitigation Monitoring - 2006  
FAP 312 (IL 3), Willis Property  
Franklin County

figure 2



0 400 800 Feet

0 100 200 Meters

	non-hydric soil
	emergent vegetation
	planted area 1
	planted area 2
	mitigation site



Scale 1:4800  
1 inch=400 ft