

**Wetland Mitigation Monitoring Report for the FAP 42 (IL 13/127) site
near Pyatts, Perry County, Illinois
(Fourth monitoring year--2005)**

by Paul Tessene and Jesse Kurylo
Illinois Natural History Survey, Champaign

Summary

Based on observations made during the 2005 growing season (fourth year of monitoring), the following is a summary relating the likelihood that the compensation site will meet each goal within the five-year monitoring period. The goals, objectives, and performance standards follow those outlined in the IDOT monitoring request (15 April 2002).

Overall Project goal: To create and restore 3.8 ha (9.5 acres) of wetland (including forested wetland, pond, sedge meadow, and wet prairie areas), and preserve and enhance 2.2 ha (5.5 acres) of existing floodplain forest. (Note: ISGS measurements put the size of the entire site at 6.7 ha (16.4 acres) instead of 6 ha (15 acres) as noted in the IDOT monitoring request.)

Hydrophytic vegetation, hydric soils, and wetland hydrology are currently present on much of the area designated "restored forested wetland." Only part of the area designated "shallow emergent pond" meets wetland criteria, because the proposed pond berm was not constructed. The planned "wet mesic prairie" and part of the "sedge meadow" lack dominant hydrophytic vegetation, hydric soils, and wetland hydrology, and are unlikely to develop these under current conditions.

Vegetation that colonized the "restored forested wetland" site is dominated by native, aggressive species. Most of the planted pecan saplings survived and appear to be doing well, and planted pin oaks that did not survive are being replaced by natural regeneration. The performance standard of 80% survival of planted trees is not met; swamp white oaks (especially) will need to be planted to maintain compliance. Fewer shrubs were observed than expected and follow no pattern, but those observed appear healthy and capable of persisting and spreading.

The prairie seeding appears well established, but fescue is also predominant, and should be controlled to allow native species to dominate. This area will never become wetland, for it lacks necessary hydrology, soils, and vegetation. The berm for the pond remains unconstructed, so the development of the "pond" and "sedge meadow" communities as wetlands will be limited.

Introduction

This report describes the fourth year of monitoring of wetlands created, restored, and preserved to mitigate for wetlands affected by the resurfacing and partial realignment of FAP 42 (IL 13/127) between Murphysboro and Pinckneyville in 2001.

Wetland delineations were previously conducted on a pre-existing floodplain forest within the mitigation site (Tessene and Brooks 1991; Wilm *et al.* 2002).

Figure 1 includes a map showing the proposed plant community types for the site. The site plan did not state whether earthwork would be done to achieve site goals, other than an inclusion of a berm to create a shallow pond, as shown on the site map. Proposed plant communities for the site included: 1) wet mesic prairie, 2) a shallow pond, 3) a sedge meadow, 4) a floodplain forest restoration (“restored forested wetland”) and 5) preservation of existing floodplain forest. The restoration/creation areas were to be planted with seeds, with rootstocks at the pond, and plantings of saplings and shrubs in the “restored forested wetland” area.

Preparation of the site was completed at least a year before monitoring began, for perennial vegetation was well established on the intended creation/restoration area. Of special note was the seeding of prairie grasses and forbs on part of the site; their abundance would suggest that more than a year had gone by since planting.

Goals, Objectives, and Performance Criteria

In the request to monitor the site (Scott Marlow, IDOT, 15 April 2002), the only explicitly stated goal was that 80% of planted trees should survive to the end of the five-year monitoring period. Because the materials describing the site included a site plan map and lists of species that were proposed for planting on the site (Table 1); thus, an implied additional goal would be that the vegetation of the site and site conditions would approach the plan. Additional goals are based on those specified in the US Army Corps of Engineers wetland delineation manual (Environmental Laboratory 1987) and Guidelines for Developing Mitigation Proposals (USCOE 1998).

Project Goal 1: Each of the created wetland plant communities should be jurisdictional wetlands as defined by current federal standards.

Objective: The created wetland areas will be formed in a 9.5-acre former crop field.

Performance criteria:

- a. Predominance of hydrophytic vegetation: More than 50% of the dominant plant species must be hydrophytic.
- b. Presence of hydric soils: Hydric soil characteristics should be present, or conditions favorable for hydric soil formation should persist at the site.

c. Presence of wetland hydrology: The area must be either permanently or periodically inundated at average depths less than 2 m (6.6 ft), or be saturated to the surface, for at least 12.5% of the growing season.

Project Goal 2: The created wetland plant communities should meet standards for floristic composition and vegetation cover.

Objectives: A floodplain forest will be created by planting native woody species. A wet-mesic prairie will be established through seeding. A pond and sedge meadow will be established through seeding and planting rootstocks. The plantings will supplement the natural increase of herbaceous and woody species appropriate for the sites.

Performance criteria:

a. Planted species survivorship: At the end of the five-year monitoring period, living representatives of the seeded and planted species should be present.

b. Dominant plant species: None of the three most dominant plant species in the planned wetland plant communities should be non-native species.

Project Goal 3: The planted trees should meet minimum standards for survival.

Objectives: Planting native tree species should help foster the development of floodplain forest on part of the site. Shrub species will be planted as part of the understory.

Performance criteria:

a. Planted species survivorship: At the end of the five-year monitoring period, 80% of the planted trees should be represented by living stems. The shrub species should show evidence of persisting on the site.

Table 1. Lists of species proposed for each planting area on the site.

Area 1—wet –mesic prairie (seed mixture)	Area 2—shallow pond (rootstocks)
<i>Agrostis alba</i>	<i>Acorus calamus</i>
<i>Andropogon gerardii</i>	<i>Pontedaria cordata</i>
<i>Panicum virgatum</i>	<i>Sagittaria latifolia</i>
<i>Sorghastrum nutans</i>	<i>Saururus cernuus</i>
<i>Aster novae-angliae</i>	
<i>Liatris pycnostachya</i>	
<i>Ratibida pinnata</i>	
<i>Rudbeckia hirta</i>	
Area 3—sedge meadow (seed mixture)	Area 4—restored floodplain forest
trees)	(seeded grasses and planted shrubs and
<i>Agrostis alba</i>	<i>Agrostis alba</i>

<i>Calamagrostis canadensis</i>	<i>Ilex decidua</i>
<i>Carex grayi</i>	<i>Itea virginica</i>
<i>Carex lacustris</i>	<i>Lindera benzoin</i>
<i>Elymus canadensis</i>	<i>Carya illinoensis</i>
<i>Iris shrevei</i>	<i>Liquidambar styraciflua</i>
<i>Juncus effusus</i>	<i>Quercus bicolor</i>
<i>Lobelia cardinalis</i>	<i>Quercus palustris</i>
<i>Scirpus validus</i>	<i>Quercus shumardii</i>

Methods

Project Goal 1

a) Predominance of hydrophytic vegetation

The method for determining dominant hydrophytic vegetation at a wetland site is described in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987), based on areal coverage estimates for individual plant species. Each of the dominant plant species is assigned its wetland indicator rating (Reed 1988). A plant species that is rated facultative or wetter (FAC, FAC+, FACW, or OBL) is considered to be hydrophytic. If more than 50% of the dominant species present are hydrophytic, this criterion of wetlands is met. Separate wetland determinations were done for each of the plant communities, and for wetland and non-wetland areas within the existing floodplain forest. (See Goal 2b below.)

b) Occurrence of hydric soils

To monitor hydric soil development, the soil was sampled. Soil profile morphology, including horizon color, texture, and structure was analyzed at representative points in each plant community on the site. Additionally, the presence, type, size, and abundance of redoximorphic features were recorded. In the absence of hydric soil indicators, hydrologic data can be used to confirm that conditions favorable for hydric soil formation persist at the site (Environmental Laboratory 1987).

c) Presence of wetland hydrology

Indicators of wetland hydrology include, but are not limited to, drift lines, wetland drainage patterns, sediment deposits on leaves, watermarks on trees, and visual observation of inundated or saturated soils (Environmental Laboratory 1987). Personnel from the Illinois State Geological Survey (ISGS) installed stage gages and monitoring wells in order to monitor the hydrology of the site. Monitoring well data from the ISGS in 2002 (Pociask and Lake 2002) were incomplete, but were sufficient in 2003 and 2004 to estimate acreage that met the wetland hydrology criterion (Pociask and Lake 2003).

Project Goal 2

a) Planted species survivorship

The mitigation plan for the site states that 20 herbaceous species were planted (Table 1 above). The mitigation site was surveyed for the presence of live individuals of the listed species

b) Dominant plant species

A complete vegetation survey of the entire wetland creation/restoration site was conducted. Separate species lists for each vegetation area were composed, and for wetland and non-wetland areas within the pre-existing forested area. Most of the area proposed as pond and sedge meadow did not appear different than the prairie area, thus the species list for these areas were combined. Dominant species for each vegetation area were those that appeared to have the greatest abundance or cover.

Included with the assessment of a site is the site's Floristic Quality Index, as described by Swink and Wilhelm (1994) and Taft *et al.* (1997). Although the Index is not a substitute for quantitative vegetation analysis in assessing plant communities, it provides a measure of the floristic integrity or level of disturbance of a site. Each plant species native to Illinois is assigned a rating between 0 and 10 (the Coefficient of Conservatism) that is a subjective indicator of how likely a plant may be found on an undisturbed site in a natural plant community. A plant species that has a low Coefficient of Conservatism (c) tends to be common and is likely to tolerate disturbed conditions; a species with a high c is relatively rare and is likely to require specific, undisturbed habitats. Species that are not native to Illinois are not rated.

To calculate the Floristic Quality Index (FQI), first compute the mean c value (\bar{c}), $\bar{c} = (\sum C)/N$, where $\sum C$ represents the sum of the numerical ratings (c) for all species native to Illinois recorded for a site, and N represents the number of native species on the site. The c value for each species is shown in the species list for the site. The FQI of each site is determined by multiplying the mean c value by the square root of N ($\bar{c} \sqrt{N}$) (equivalent to $\sum C/\sqrt{N}$). An Index score below 10 suggests a site of low natural quality; below 5, a highly disturbed site. An FQI value of at least 20 (\bar{c} above 3.0) suggests that a site has evidence of native character and may be considered an environmental asset.

Project Goal 3

a) Planted species survivorship

The mitigation plan for the site states that 25 individuals of five different tree species (*Carya illinoensis*, *Liquidambar styraciflua*, *Quercus bicolor*, *Q. palustris*, and *Q. shumardii*) would be planted, and that 80% of the trees should survive for the five years of monitoring. Thus the trees were identified to species and enumerated. *Quercus palustris* and *Q. shumardii* are similar species that are most easily distinguished by their acorns, so their numbers were combined. Planted shrub species (*Ilex decidua*, *Itea virginica*, and *Lindera benzoin*), proposed for planting at the rate of 100 each, were also counted.

Results and discussion

Project goal 1

a) Predominance of hydrophytic vegetation

Dominant plant species for each of the vegetation areas are listed in Table 2 below. Full lists of plant species observed are presented in the wetland determination forms at the end of this report (Appendix 1).

Table 2. Dominant plant species by stratum and wetland indicator status.

Area 1: prairie planting

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Festuca pratensis</i>	FACU-	herb
2. <i>Sorghastrum nutans</i>	FACU+	herb

Area 2: marsh in drainageway at “pond” location

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Juncus effusus</i>	OBL	herb
2. <i>Leersia oryzoides</i>	OBL	herb

Area 3: wet meadow understory in the open tree planting area “floodplain forest restoration”

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Agrostis alba</i>	FACW	herb
2. <i>Festuca pratensis</i>	FACU-	herb
3. <i>Juncus effusus</i>	OBL	herb

Area 4: low area in existing floodplain forest

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Quercus palustris</i>	FACW	tree
2. <i>Ulmus americana</i>	FACW-	tree
3. <i>Aster ontarionus</i>	FAC	herb
4. <i>Elymus virginicus</i>	FACW-	herb

Area 5: another low area in existing floodplain forest, near the highway

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Acer saccharinum</i>	FACW	tree
2. <i>Platanus occidentalis</i>	FACW	tree
3. <i>Aster lateriflorus</i>	FACW-	herb
4. <i>Cinna arundinacea</i>	FACW	herb

Area 6: majority of existing floodplain forest

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Quercus palustris</i>	FACW	tree
2. <i>Ulmus americana</i>	FACW-	tree
3. <i>Lonicera japonica</i>	FACU	woody vine
4. <i>Eupatorium rugosum</i>	FACU	herb
5. <i>Viola pratincola</i>	FAC	herb

For all the sites other than the prairie planting (Area 1), hydrophytic vegetation predominates. The predominance of fescue in the prairie planting is also a potential problem for the development of vegetation on that site, and it is also spreading vigorously into the adjacent wet meadow (Area 3)

b) Presence of hydric soils

According to the soil survey, the soils on the site include the Hoyleton series, which is somewhat poorly drained, and the Bonnie series, which is poorly drained (Grantham and Idorante 1988). Most of the soils throughout the site were similar to the two previously mentioned soils. The Hoyleton series was found within the prairie planting area and the Bonnie series was found in the wetter and lower areas of the site to include low areas in the floodplain forest and restored floodplain forest, and along the "pond" drainageway. A third series, the somewhat poorly drained Belknap, was found on parts of the existing floodplain forest. Soils in the Bonnie and Belknap series are commonly found in the Beaucoup Creek floodplain (This site is located along a small tributary to Beaucoup Creek.). They consist of very deep soils formed in silty alluvium. The Hoyleton series consists of deep soils on low convex ridges in uplands.

Soil cores were examined from representative locations at each vegetation area at the site. Redoximorphic features are present in the soil profiles for Areas 2-5 (vegetation areas in Table 2 above). The site hydrology and morphological characteristics of these soils suggest that they are saturated long enough for anaerobic conditions to occur in the upper profile for a significant duration. Therefore, these soils are hydric. Hydric soil characteristics have been found on parts of Site 6 this year and in 2004 as well; previously, soils on that part of the existing forested area resembled the somewhat poorly draining Belknap soil. The soil in Area 1 has too bright a matrix color to be hydric.

c) Presence of wetland hydrology

Field evidence of wetland hydrology included drift lines, water-borne sediment deposits, and low landscape position. Wetland hydrology on the site derives from local flooding and groundwater input (pers. comm. G. Pociask), but could be affected by floods on Beaucoup Creek from time to time. Four separate areas on the entire site met the wetland hydrology criteria, based on our observations. These include the "pond" drainageway (Site 2), much of the open area in the floodplain forest restoration (Site 3), and two low areas within the existing floodplain forest (Sites 4 and 5). These areas correspond fairly well with the areas that the ISGS found to have wetland

hydrology for more than 12.5% of the growing season this year (Pociask and Shofner 2005) (see Appendix 2).

In 2005, ISGS measurements suggested that 2.6 ha (6.4 acres) met the wetland hydrology criterion (Pociask and Shofner 2005), as they found in 2003 (Pociask and Lake 2003). On the other hand only 2.1 ha (5.3 acres) met wetland conditions in 2004 (Pociask and Shofner 2004). The area mapped by the ISGS (Appendix 2) includes all the sites considered wetland in this report. Portions of the project area corresponding roughly to Sites 2-5 could be considered to meet the wetland hydrology criterion for more than 12.5% of the growing season; parts of Site 6 met the criterion for over 5% of the growing season. The area with wetland hydrology for the longer period constituted 1.4 ha (3.4 acres). In 2004, only the area corresponding to Site 5 met the wetland hydrology criterion for 12.5% of the growing season.

Project Goal 2

a) Survival of planted species

Table 1 above listed the species intended for planting on the site. Almost all of them were found growing on the site. (See species lists in Appendix 2.) Species commonly occurring in wetlands may have grown from the planted seed, but they could have been derived from local seedbanks as well. Planted woody species are described more fully under Project Goal 3

Three hundred individuals each of four species (*Acorus calamus*, *Pontedaria cordata*, *Sagittaria latifolia*, and *Saururus cernuus*) were proposed for planting in the “pond” area (memo from Scott Marlow 2002). None were observed during our monitoring of the site (Tessene *et al.* 2003, 2004, 2005, and this report), but the memo stated that the species were to be planted after a stable water level was established at the pond.

b) Dominant plant species

Most of the dominant plant species on the wetland creation/restoration site are native species. One notable exception is *Festuca pratensis* in the prairie planting. This aggressive turf grass may have spread from the nearby roadside planting when the site was established, or it may have been inadvertently introduced in the seed mix for the site. In any case, it should be controlled, perhaps by a combination of controlled burns and herbicide, because it tends to suppress other species growing with it. This species is also spreading into the adjacent wet meadow (Site 3), and is becoming dominant there as well.

Two non-native shrubs, *Elaeagnus umbellata* and *Rosa multiflora*, were also found in the prairie planting. Their numbers are still low, and they should be easily removed through the use of controlled burns, cutting, and herbicide. In the case of controlled burns, an effort should be made to protect the tree and shrub plantings on the mitigation site from fire effects.

Typha angustifolia has been a dominant species in the marsh along the drainageway at the west edge of the site (Site 2). This non-native species appears to be confined to this area on this mitigation site, but the species can spread aggressively, so control by means of herbicide is advised to prevent further spread.

Agrostis alba, although sometimes considered a weedy native, is present on the site as a cover crop planting. This species remains dominant in the wet meadow area (Site 3). It is not as aggressive as *Festuca pratensis*, and is likely to be replaced by other species over time.

The small area of prairie planting north of the existing floodplain forest contains a variety of weedy annual and perennial species, many of them non-native. If this site was seeded at the same time as the rest of the prairie planting, perennial species should eventually develop, and come to dominate.

The prairie planting area contained no hydrophytic vegetation in its dominants. This may be in part due to a large proportion of non-wetland species in the seed mix. Also, this area is at a relatively higher elevation than the rest of the site. Fescue, an aggressive non-native, non-wetland grass, is discouraging the growth of other species.

Lonicera japonica is dominant and *L. maackii* is locally common in higher areas in the existing floodplain forest (Site 6). If control measures are used against the other aggressive non-natives discussed above, these would also be good candidates.

Project Goal 3

a) Survival of planted species

Table 4 presents data for planted tree survival, with numbers of observed live stems. According to the memo regarding the site, 25 individuals of five different species were to be planted. (Individuals of *Quercus palustris* and *Q. shumardii* are considered together, since young individuals are difficult to distinguish.

Table 4. Observed survival of planted trees, 2002-2005, at the Pyatts wetland mitigation site.

Species	Live stems Observed			Survival since planting (%)	
	2002	2003	2004	2005	
<i>Carya illinoensis</i>	26	23	24	24	96
<i>Liquidambar styraciflua</i>	25	19	22	16	64
<i>Quercus bicolor</i>	11	6	3	3	12
<i>Quercus palustris/shumardii</i>	38	33	32	40	80
Total	100	81	81	83	66.4

The survival of pecans remains high. Pin oak numbers are improving, most likely from natural recruits from the existing floodplain forest. Perhaps some more of the apparently dead ones had resprouted as well, as some sweetgums had in 2004. In any case, overall survival of planted trees does not meet the performance standard. Thus, more swamp white oaks, and perhaps sweetgums, may need to be planted.

On the other hand, young pin oaks, elms, ashes, and other species are appearing along the edge of the existing floodplain forest in this part of the restoration/creation site. Young ashes and willows are growing thickly along the edge of the woods in the area proposed as sedge meadow as well.

As part of the goal of restoring floodplain forest on part of the mitigation site, shrubs of three species were planted. Nowhere near the 100 of each species proposed for planting were found, though some may have been overlooked in the thick herbaceous cover in the open part of the area. Some were also located in an adjacent part of the existing floodplain forest, and some of those may have been confused with naturally occurring individuals, rather than planted ones. (*Ilex* and *Lindera* are native to floodplain forests in the area.)

Table 5. Observed survival of planted shrubs, 2002-2005, at the Pyatts wetland mitigation site.

Species	Live stems observed			
	2002	2003	2004	2005
<i>Ilex decidua</i>	40	31	13	10
<i>Itea virginica</i>	20	14	26	14
<i>Lindera benzoin</i>	5	28	2	10
Total	65	73	41	34

Conclusions

After four years of monitoring, 2.6 ha (6.4 acres) on the 6.7 ha (16.4 acre) site has wetland hydrology. About half of this area is on the wetland creation/restoration part of the site and half within the existing floodplain forest. This falls short of the 3.8 ha (9.5 acres) of creation and restoration that were proposed in the mitigation plan. Much of this is because the prairie planting area, which comprises much of the area of potential wetland creation, lacks hydric soils and is at a landscape position that will not allow for the development of wetland conditions.

Non-native *Festuca pratensis* remains a dominant in the prairie planting area and now dominates in the wet meadow/floodplain forest restoration as well. *Lonicera japonica* remains a dominant in the drier portions of the existing floodplain forest.

Of the 20 herbaceous species listed as planted on the site, 11 are currently present. Planted tree survival is 66%, and planted shrub survival is 11%. Overall, floristic quality of the created and existing plant communities range from fair to good (FQI values from 16 to 30).

Recommendations

The pond proposed for the site remains unconstructed. If this continues to be a project goal, constructing the berm is necessary in order to establish wetland conditions for the pond and

sedge meadow areas (other than along the existing drainageway, where wetland conditions do exist).

In order to achieve the desired 80% survival (over five years) of planted trees called for in the initial mitigation site plan, more *Quercus bicolor* will need to be installed. The planted pecans survived at acceptable rates. Pin oaks are being replaced by natural reproduction from the existing forest.

The prairie planting area meets none of the three wetland criteria. Without excavation of this area, it will never be wetland. However, the main prairie planting has a good cover of perennial species, and serves as a buffer for the rest of the site. The dominant, aggressive, non-native grass *Festuca pratensis* should be controlled in the interests of increasing plant species diversity. This could be done by using herbicide during the dormant season, because fescue remains nearly evergreen while most native species are dormant by late fall.

Only parts of the existing floodplain forest meet all three wetland criteria. However, this plant community serves as an important buffer for the small stream running through the site.

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Appendix 1—Wetland Delineation Forms

ROUTINE ONSITE WETLAND DETERMINATION

Site 1 (page 1 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
State: Illinois County: Perry Applicant: IDOT District 9
Site name: Prairie (native grassland)
Legal Description: SW/4, SW/4, SW/4, Sec. 7 and NW/4, NW/4, NW/4, Sec. 18, T.6S.,
R.2W.

Location: Prairie planting area, mainly in the southwest part of the creation/restoration site

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

VEGETATION

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Festuca pratensis</i>	FACU-	herb
2. <i>Sorghastrum nutans</i>	FACU+	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 0%

Hydrophytic vegetation: Yes: No: X

Rationale: Fewer than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Hoyleton silt loam (Aquertic Hapludalfs)

On Perry County hydric soils list? Yes: No: X

Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X

Redox Concentrations? Yes: X No: Color: 10YR 3/3

Redox Depletions? Yes: No: X Color: N/A

Matrix color: 10YR 4/4

Other hydric soil indicators: Soil is located at a higher topographic position relative to the rest of the site.

Hydric soils: Yes: No: X

Rationale: The Natural Resources Conservation Service classifies Hoyleton as having somewhat poorly drained and slowly permeable soils. The brightly colored matrix is evidence that this soil is not saturated for a significant period of the growing season. Therefore the soil is not hydric.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: None

Depth to saturated soil: Not able to be determined

Overview of hydrologic flow through system: Precipitation and sheet flow contribute water to this site. Water leaves the site by evapotranspiration and sheet flow.

Size of watershed: Less than 2.6 km² (1.0 mi²)

Other field evidence observed: None

Wetland hydrology: Yes: No: X

Rationale: This site is at the highest relative elevation in the project area. The lack of indicators of wetland hydrology suggest that the site is not inundated or saturated long enough during the growing season to meet the wetland hydrology criterion. This site is not included in the area that the ISGS considers as having wetland hydrology.

ROUTINE ONSITE WETLAND DETERMINATION

Site 1 (page 2 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Prairie (native grassland)
 Legal Description: SW/4, SW/4, SW/4, Sec. 7 and NW/4, NW/4, NW/4, Sec. 18, T.6S.,
 R.2W.

Location: Prairie planting area, mainly in the southwest part of the creation/restoration site

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: No: X

Rationale: This site meets none of the three wetland criteria. The site is not included in the NWI.

SPECIES LIST (unplanted species)

Scientific name	Common name	Stratum	Wetland Indicator	C*	
<i>Acalypha virginica</i>	three-seeded mercury	herb	FACU	2	
<i>Acer saccharinum</i>	silver maple	shrub, herb	FACW	1	
<i>Allium vineale</i>	field garlic	herb	FACU	**	
<i>Ambrosia artemisiifolia</i>	common ragweed	herb	FACU	0	
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0	
<i>Andropogon virginicus</i>	broomsedge	herb	FAC-	1	
<i>Apocynum cannabinum</i>	dogbane	herb	FAC	2	
<i>Asclepias syriaca</i>	common milkweed	herb	UPL	0	
<i>Aster pilosus</i>	field aster	herb	FACU+	0	
<i>Aster vimineus</i>	small white aster	herb	FACW-	3	
<i>Bidens aristosa</i>	swamp marigold	herb	FACW	1	
<i>Boltonia asteroides</i>	false aster	herb	FACW	5	
<i>Bromus japonicus</i>	Japanese brome	herb	FACU	**	
<i>Calystegia sepium</i>	hedge bindweed	herb	FAC	1	
<i>Campsis radicans</i>	trumpet creeper	shrub, herb	FAC	2	
<i>Cardiospermum halicabamum</i>		balloon vine	herb	FAC	**
<i>Carduus nutans</i>	nodding thistle	herb	UPL	**	
<i>Carex annectens</i>	sedge	herb	FACW	3	
<i>Cassia fasciculata</i>	partridge pea	herb	FACU-	1	
<i>Cirsium discolor</i>	field thistle	herb	UPL	2	
<i>Cirsium vulgare</i>	bull thistle	herb	FACU-	**	
<i>Conium maculatum</i>	poison hemlock	herb	FACW	**	
<i>Conyza canadensis</i>	horseweed	herb	FAC-	0	
<i>Cornus drummondii</i>	rough-leaved dogwood	shrub	FAC	2	
<i>Coronilla varia</i>	crown vetch	herb	UPL	**	
<i>Cynanchum laeve</i>	climbing milkweed	herb	FAC	1	
<i>Dactylis glomerata</i>	orchard grass	herb	FACU	**	
<i>Daucus carota</i>	Queen Anne's lace	herb	UPL	**	
<i>Digitaria ischaemum</i>	smooth crabgrass	herb	FACU	**	
<i>Diodia teres</i>	buttonweed	herb	UPL	2	
<i>Diospyros virginiana</i>	persimmon	shrub	FAC	2	
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0	
<i>Elaeagnus umbellata</i>	autumn olive	shrub	UPL	**	

<i>Eragrostis spectabilis</i>	purple love grass	herb	UPL	3
<i>Erechtites hieracifolia</i>	fireweed	herb	FACU	2

* Coefficient of Conservatism (see introduction)
(Species list continues on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION

Site 1 (page 3 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Prairie (native grassland)
 Legal Description: SW/4, SW/4, SW/4, Sec. 7 and NW/4, NW/4, NW/4, Sec. 18, T.6S.,
 R.2W.
 Location: Prairie planting area, mainly in the southwest part of the creation/restoration site

SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Erigeron annuus</i>	daisy fleabane	herb	FAC-	1
<i>Eupatorium serotinum</i>	late boneset	herb	FAC+	1
<i>Euphorbia maculata</i>	nodding spruce	herb	FACU-	0
<i>Festuca pratensis</i>	tall fescue	herb	FACU-	**
<i>Fraxinus pennsylvanica</i>	green ash	shrub	FACW	2
<i>Hibiscus lasiocarpus</i>	woolly rose-mallow	herb	OBL	5
<i>Juniperus virginiana</i>	red cedar	shrub	UPL	1
<i>Lactuca biennis</i>	biennial lettuce	herb	FAC	4
<i>Lactuca saligna</i>	willow lettuce	herb	FACU	**
<i>Lespedeza capitata</i>	prairie bush clover	herb	FACU	4
<i>Lonicera japonica</i>	Japanese honeysuckle	woody vine	FACU	**
<i>Lonicera maackii</i>	Amur honeysuckle	shrub	UPL	**
<i>Lotus corniculatus</i>	birdsfoot trefoil	herb	FAC-	**
<i>Medicago lupulina</i>	black medic	herb	FAC-	**
<i>Melilotus alba</i>	white sweet clover	herb	FACU	**
<i>Morus alba</i>	white mulberry	shrub	FAC	**
<i>Oenothera biennis</i>	evening primrose	herb	FACU	1
<i>Oxalis dillenii</i>	yellow wood-sorrel	herb	FACU	0
<i>Panicum implicatum</i>	old field panic grass	herb	FAC	2
<i>Parthenocissus quinquefolia</i>	Virginia creeper	woody vine	FAC-	2
<i>Paspalum laeve</i>	lens grass	herb	FACW-	2
<i>Physalis subglabrata</i>	smooth ground-cherry	herb	UPL	0
<i>Phytolacca americana</i>	pokeweed	herb	FAC-	1
<i>Plantago lanceolata</i>	buckhorn plantain	herb	FAC	**
<i>Platanus occidentalis</i>	sycamore	shrub	FACW	3
<i>Polygala sanguinea</i>	field milkwort	herb	FACU	5
<i>Prunella vulgaris</i>	self-heal	herb	FAC	1
<i>Prunus serotina</i>	black cherry	shrub	FACU	1
<i>Pyrrhappus carolinianus</i>	false dandelion	herb	UPL	1
<i>Quercus palustris</i>	pin oak	shrub	FACW	4
<i>Rhus copallina</i>	winged sumac	shrub	UPL	3
<i>Rosa multiflora</i>	multiflora rose	shrub	FACU	**
<i>Rosa setigera</i>	Illinois rose	shrub	FACU+	5

<i>Rubus allegheniensis</i>	wild blackberry	shrub	FACU+	2
<i>Rubus flagellaris</i>	creeping dewberry	herb	FACU-	2
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Rumex crispus</i>	curly dock	herb	FAC+	**
<i>Salix nigra</i>	black willow	shrub	OBL	3
<i>Sassafras albidum</i>	sassafras	shrub	FACU	2

* Coefficient of Conservatism (see introduction)
(Species list concludes on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION

Site 1 (page 4 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005

Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site

State: Illinois County: Perry Applicant: IDOT District 9

Site name: Prairie (native grassland)

Legal Description: SW/4, SW/4, SW/4, Sec. 7 and NW/4, NW/4, NW/4, Sec. 18, T.6S.,
R.2W.

Location: Prairie planting area, mainly in the southwest part of the creation/restoration site

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	**
<i>Setaria glauca</i>	yellow foxtail	herb	FAC	**
<i>Solanum carolinense</i>	horse nettle	herb	FACU-	0
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Taraxacum officinale</i>	dandelion	herb	FACU	**
<i>Teucrium canadense</i>	American germander	herb	FACW-	3
<i>Toxicodendron radicans</i>	poison ivy	woody vine, herb	FAC+	1
<i>Tridens flavus</i>	purpletop	herb	UPL	1
<i>Trifolium pratense</i>	red clover	herb	FACU+	**
<i>Trifolium repens</i>	white clover	herb	FACU+	**
<i>Ulmus rubra</i>	slippery elm	shrub	FAC	3
<i>Verbena hastata</i>	blue vervain	herb	FACW+	3
<i>Vernonia gigantea</i>	ironweed	herb	FAC	4
<i>Xanthium strumarium</i>	cocklebur	herb	FAC	0

* Coefficient of Conservatism (see introduction)

** Species not native to Illinois

Mean c value = $\sum C/N = 112/61 = 1.8$

$FQI = \bar{c} \sqrt{N} = \sum C/\sqrt{N} = 112/\sqrt{61} = 14.3$

SPECIES LIST (including species listed as planted in Table 1)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Agrostis alba</i>	redtop	herb	FACW	0
<i>Andropogon gerardii</i>	big bluestem	herb	FAC-	5
<i>Aster novae-angliae</i>	New England aster	herb	FACW	4
<i>Panicum virgatum</i>	switch grass	herb	FAC+	4
<i>Ratibida pinnata</i>	yellow coneflower	herb	UPL	4
<i>Rudbeckia hirta</i>	black-eyed Susan	herb	FACU	2
<i>Sorghastrum nutans</i>	Indian grass	herb	FACU+	4

* Coefficient of Conservatism (see introduction)
Mean c value = $\sum C/N = 135/68 = 2.0$

** Species not native to Illinois
 $FQI = \bar{c} \sqrt{N} = \sum C/\sqrt{N} = 135/\sqrt{68} = 16.4$

Determined by: Paul Tessene (vegetation and hydrology)
Jesse Kurylo (soils and hydrology)
Illinois Natural History Survey
Center for Wildlife and Plant Ecology
1816 South Oak Street
Champaign, Illinois 61820
(217) 244-7984, 244-0692

ROUTINE ONSITE WETLAND DETERMINATION

Site 2 (page 1 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
State: Illinois County: Perry Applicant: IDOT District 9
Site name: Marsh
Legal Description: SW/4, SW/4, SW/4, Sec. 7, T.6S., R.2W.
Location: Along a drainageway extending from the road to the existing floodplain forest

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

VEGETATION

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Juncus effusus</i>	OBL	herb
2. <i>Leersia oryzoides</i>	OBL	herb
3. <i>Typha angustifolia</i>	OBL	herb

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

Hydrophytic vegetation: Yes: X No:

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

SOILS

Series and phase: Bonnie silt loam (Typic Fluvaquent)

On Perry 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: Colors: 7.5YR 4/4 & 7.5YR 4/6

Redox Depletions? Yes: X No: Color: 10YR 6/2

Matrix color: 10YR 4/2

Other hydric soil indicators: None

Hydric soils: Yes: X No:

Rationale: The Natural Resources Conservation Service classifies Bonnie as having poorly drained conditions. The presence of redoximorphic features and a low chroma matrix are evidence of an environment saturated at a duration sufficient to promote extended periods of anaerobic conditions. Therefore, the soil meets the hydric soil criterion.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: None

Depth to saturated soil: More than 0.6 m (24 in)

Overview of hydrologic flow through system: Precipitation and sheet flow contribute water to this site. Flooding on Beaucoup Creek can sometimes reach the site, or at least affect water tables. Water leaves the site by evapotranspiration, sheet flow, and soil infiltration.

Size of watershed: Less than 2.6 km² (1.0 mi²) (647.5 km² (250 mi²) for Beaucoup Creek)

Other field evidence observed: This site is located along a drainageway. We observed drift lines, water-borne sediment deposits, and some bare areas that suggest prolonged ponding.

Wetland hydrology: Yes: X No:

Rationale: Landscape position and the evidence of prolonged ponding suggest that the site is inundated or saturated long enough during the growing season to meet the wetland hydrology criterion. This area is included in the area that meets the criterion from ISGS estimates as well.

ROUTINE ONSITE WETLAND DETERMINATION

Site 2 (page 2 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Marsh
 Legal Description: SW/4, SW/4, SW/4, Sec. 7, T.6S., R.2W.
 Location: Along a drainageway extending from the road to the existing floodplain forest

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: X No:

Rationale: This site meets all three wetland criteria. The site is not included in the NWI.

SPECIES LIST (unplanted species)

Scientific name	Common name	Stratum	Wetland Indicator	C*	
<i>Acer saccharinum</i>	silver maple	shrub, herb	FACW	1	
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0	
<i>Ammania coccinea</i>	scarlet loosestrife	herb	OBL	5	
<i>Apocynum cannabinum</i>	dogbane	herb	FAC	2	
<i>Asclepias incarnata</i>	swamp milkweed	herb	OBL	4	
<i>Asclepias syriaca</i>	common milkweed	herb	UPL	0	
<i>Aster ontarionis</i>	Ontario aster	herb	FAC	4	
<i>Aster vimineus</i>	small white aster	herb	FACW-	3	
<i>Barbarea vulgaris</i>	winter cress	herb	FAC	**	
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3	
<i>Bidens aristosa</i>	swamp marigold	herb	FACW	1	
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3	
<i>Campsis radicans</i>	trumpet creeper	shrub, herb	FAC	2	
<i>Cardiospermum halicabamum</i>	balloon vine	herb	FAC	**	
<i>Carex annectens</i>	sedge	herb	FACW	3	
<i>Carex aureolensis</i>	sedge	herb	OBL	4	
<i>Carex lupulina</i>	hop sedge	herb	OBL	5	
<i>Carex normalis</i>	sedge	herb	FACW	4	
<i>Carex shortiana</i>	sedge	herb	FACW+	4	
<i>Carex tribuloides</i>	sedge	herb	FACW+	3	
<i>Carex vulpinoidea</i>	fox sedge	herb	OBL	3	
<i>Cicuta maculata</i>	water hemlock	herb	OBL	4	
<i>Commelina diffusa</i>	day flower	herb	FACW	3	
<i>Coronilla varia</i>	crown vetch	herb	UPL	**	
<i>Cyperus strigosus</i>	straw nutsedge	herb	FACW	0	
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0	
<i>Eleocharis acicularis</i>	spike rush	herb	OBL	3	
<i>Eleocharis obtusa</i>	spike rush	herb	OBL	2	
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4	
<i>Eupatorium coelestinum</i>	blue mistflower	herb	FAC+	3	
<i>Festuca pratensis</i>	tall fescue	herb	FACU-	**	
<i>Fraxinus pennsylvanica</i>	green ash	shrub, herb	FACW	2	
<i>Geum canadense</i>	white avens	herb	FAC	2	
<i>Helenium autumnale</i>	sneezeweed	herb	FACW+	3	
<i>Hibiscus lasiocarpus</i>	woolly rose-mallow	herb	OBL	5	

* Coefficient of Conservatism (see introduction)
 (Species list concludes on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION

Site 2 (page 3 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Marsh
 Legal Description: SW/4, SW/4, SW/4, Sec. 7, T.6S., R.2W.
 Location: Along a drainageway extending from the road to the existing floodplain forest

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Hypericum punctatum</i>	spotted St. Johnswort	herb	FAC+	3
<i>Impatiens capensis</i>	orange jewelweed	herb	FACW	2
<i>Ipomoea lacunosa</i>	small morning glory	herb	FACW	1
<i>Juncus biflorus</i>	rush	herb	FACW	5
<i>Juncus diffusissimus</i>	slim-pod rush	herb	FACW	7
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Lobelia siphilitica</i>	great blue lobelia	herb	FACW+	4
<i>Lotus corniculatus</i>	birdsfoot trefoil	herb	FAC-	**
<i>Ludwigia alternifolia</i>	seedbox	herb	OBL	5
<i>Ludwigia palustris</i>	marsh purslane	herb	OBL	4
<i>Lycopus americanus</i>	bugleweed	herb	OBL	3
<i>Lycopus virginicus</i>	Virginia bugleweed	herb	OBL	5
<i>Morus alba</i>	white mulberry	sapling, shrub	FAC	**
<i>Panicum clandestinum</i>	deer-tongue grass	herb	FACW	4
<i>Panicum rigidulum</i>	Munro grass	herb	FACW	6
<i>Penthorum sedoides</i>	ditch stonecrop	herb	OBL	2
<i>Phalaris arundinacea</i>	reed canary grass	herb	FACW+	**
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Polygonum pensylvanicum</i>	smooth smartweed	herb	FACW+	1
<i>Polygonum punctatum</i>	dotted smartweed	herb	OBL	3
<i>Prunella vulgaris</i>	self-heal	herb	FAC	1
<i>Pyrrhopappus carolinianus</i>	false dandelion	herb	UPL	1
<i>Quercus palustris</i>	pin oak	shrub	FACW	4
<i>Rosa multiflora</i>	multiflora rose	shrub	FACU	**
<i>Rotala ramosior</i>	toothcup	herb	OBL	4
<i>Rubus allegheniensis</i>	wild blackberry	shrub	FACU+	2
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Rumex crispus</i>	curly dock	herb	FAC+	**
<i>Salix nigra</i>	black willow	shrub, herb	OBL	3
<i>Scirpus atrovirens</i>	green bulrush	herb	OBL	4
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	**
<i>Setaria glauca</i>	yellow foxtail	herb	FAC	**
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Sorghastrum nutans</i>	Indian grass	herb	FACU+	4
<i>Toxicodendron radicans</i>	poison ivy	herb	FAC+	1
<i>Trifolium hybridum</i>	alsike clover	herb	FAC-	**
<i>Typha angustifolia</i>	narrowleaf cattail	herb	OBL	**
<i>Typha latifolia</i>	common cattail	herb	OBL	1

* Coefficient of Conservatism (see introduction)
(Species list concludes on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION
Site 2 (page 4 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
State: Illinois County: Perry Applicant: IDOT District 9
Site name: Marsh
Legal Description: SW/4, SW/4, SW/4, Sec. 7, T.6S., R.2W.
Location: Along a drainageway extending from the road to the existing floodplain forest

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Ulmus americana</i>	American elm	shrub	FACW-	5
<i>Verbena hastata</i>	blue vervain	herb	FACW+	3
<i>Vernonia missurica</i>	Missouri ironweed	herb	FAC+	5
<i>Xanthium strumarium</i>	cocklebur	herb	FAC	0

* Coefficient of Conservatism (see introduction)
Mean c value = $\sum C/N = 185/64 = 2.9$

** Species not native to Illinois
 $FQI = \bar{c} \sqrt{N} = \sum C/\sqrt{N} = 185/\sqrt{64} = 23.1$

SPECIES LIST (including species listed as planted)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Agrostis alba</i>	redtop	herb	FACW	0
<i>Iris shrevei</i>	blue flag iris	herb	OBL	5
<i>Juncus effusus</i>	soft rush	herb	OBL	4
<i>Lobelia cardinalis</i>	cardinal flower	herb	OBL	6
<i>Panicum virgatum</i>	switch grass	herb	FAC+	4

* Coefficient of Conservatism (see introduction)
Mean c value = $\sum C/N = 204/69 = 3.0$

** Species not native to Illinois
 $FQI = \bar{c} \sqrt{N} = \sum C/\sqrt{N} = 204/\sqrt{69} = 24.6$

Determined by: Paul Tessene (vegetation and hydrology)
Jesse Kurylo (soils and hydrology)
Illinois Natural History Survey
Center for Wildlife and Plant Ecology
1816 South Oak Street
Champaign, Illinois 61820
(217) 244-7984, 244-0692

ROUTINE ONSITE WETLAND DETERMINATION

Site 3 (page 1 of 5)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
State: Illinois County: Perry Applicant: IDOT District 9
Site name: Wet meadow (floodplain forest restoration)
Legal Description: NW/4, NW/4, NW/4, Sec. 18, T.6S., R.2W.
Location: Low, open area in southeastern part of site with planted trees; between the road and the existing floodplain forest

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

VEGETATION

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Agrostis alba</i>	FACW	herb
2. <i>Festuca pratensis</i>	FACU-	herb
3. <i>Juncus effusus</i>	OBL	herb

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

Hydrophytic vegetation: Yes: X No:

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

SOILS

Series and phase: Bonnie silt loam (Typic Fluvaquent)

On Perry 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: Colors: 7.5YR 4/4 & 7.5YR 3/3

Redox Depletions? Yes: No: X Color: N/A

Matrix color: 10YR 3.5/2

Other hydric soil indicators: None

Hydric soils: Yes: X No:

Rationale: The Natural Resources Conservation Service classifies Bonnie as having poorly drained conditions. The presence of abundant redoximorphic features and a low chroma matrix are evidence of an environment saturated at a duration sufficient to promote extended periods of anaerobic conditions. Therefore, the soil meets the hydric soil criterion.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: None

Depth to saturated soil: More than 0.7 m (28 in)

Overview of hydrologic flow through system: Precipitation, sheet flow, and groundwater flow contribute water to this site. Flooding on Beaucoup Creek can sometimes reach the site, or at least affect water tables. Water leaves the site by evapotranspiration, sheet flow, and soil infiltration.

Size of watershed: Less than 2.6 km² (1.0 mi²) (647.5 km² (250 mi²) for Beaucoup Creek)

Other field evidence observed: This site is located in a low area. We observed drift lines and wetland drainage patterns.

Wetland hydrology: Yes: X No:

Rationale: Landscape position and the evidence of flooding suggest that the site is inundated or saturated long enough during the growing season to meet the wetland hydrology criterion. This area is included in the area that meets the criterion from ISGS estimates as well.

ROUTINE ONSITE WETLAND DETERMINATION

Site 3 (page 2 of 5)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Wet meadow (floodplain forest restoration)
 Legal Description: NW/4, NW/4, NW/4, Sec. 18, T.6S., R.2W.
 Location: Low, open area in southeastern part of site with planted trees; between the road and the existing floodplain forest

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: X No:

Rationale: This site meets all three wetland criteria. The site is not included in the NWI.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*	
<i>Acalypha rhomboidea</i>	three-seeded mercury	herb	FACU	0	
<i>Acer saccharinum</i>	silver maple	shrub, herb	FACW	1	
<i>Allium vineale</i>	field garlic	herb	FACU	**	
<i>Amaranthus tuberculatus</i>	water hemp	herb	OBL	1	
<i>Ambrosia artemisiifolia</i>	common ragweed	herb	FACU	0	
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0	
<i>Andropogon virginicus</i>	broomsedge	herb	FAC-	1	
<i>Apocynum cannabinum</i>	dogbane	herb	FAC	2	
<i>Asclepias incarnata</i>	swamp milkweed	herb	OBL	4	
<i>Asclepias syriaca</i>	common milkweed	herb	UPL	0	
<i>Aster ontarionis</i>	Ontario aster	herb	FAC	4	
<i>Aster pilosus</i>	field aster	herb	FACU+	0	
<i>Aster vimineus</i>	small white aster	herb	FACW-	3	
<i>Barbarea vulgaris</i>	winter cress	herb	FAC	**	
<i>Bidens aristosa</i>	swamp marigold	herb	FACW	1	
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3	
<i>Boltonia asteroides</i>	false aster	herb	FACW	5	
<i>Bromus japonicus</i>	Japanese brome	herb	FACU	**	
<i>Cardiospermum halicabamum</i>		balloon vine	herb	FAC	**
<i>Carduus nutans</i>	nodding thistle	herb	UPL	**	
<i>Carex annectens</i>	sedge	herb	FACW	3	
<i>Carex aureolensis</i>	sedge	herb	OBL	4	
<i>Carex conjuncta</i>	sedge	herb	FACW	5	
<i>Carex cristatella</i>	sedge	herb	FACW+	3	
<i>Carex frankii</i>	sedge	herb	OBL	4	
<i>Carex lupulina</i>	hop sedge	herb	OBL	5	
<i>Carex normalis</i>	sedge	herb	FACW	4	
<i>Carex scoparia</i>	pointed broom sedge	herb	FACW	5	
<i>Carex shortiana</i>	sedge	herb	FACW+	4	
<i>Carex tribuloides</i>	sedge	herb	FACW+	3	
<i>Carex vulpinoidea</i>	fox sedge	herb	OBL	3	
<i>Cicuta maculata</i>	water hemlock	herb	OBL	4	
<i>Cirsium vulgare</i>	bull thistle	herb	FACU-	**	
<i>Conyza canadensis</i>	horseweed	herb	FAC-	0	

* Coefficient of Conservatism (see introduction)
 (Species list continues on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION

Site 3 (page 3 of 5)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Wet meadow (floodplain forest restoration)
 Legal Description: NW/4, NW/4, NW/4, Sec. 18, T.6S., R.2W.
 Location: Low, open area in southeastern part of site with planted trees; between the road and the existing floodplain forest

SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Cornus drummondii</i>	rough-leaved dogwood	shrub	FAC	2
<i>Cyperus erythrorhizos</i>	red-rooted sedge	herb	OBL	1
<i>Cyperus esculentus</i>	yellow nutsedge	herb	FACW	0
<i>Cyperus strigosus</i>	straw nutsedge	herb	FACW	0
<i>Dactylis glomerata</i>	orchard grass	herb	FACU	**
<i>Daucus carota</i>	Queen Anne's lace	herb	UPL	**
<i>Desmodium paniculatum</i>	panicked tick trefoil	herb	FACU	2
<i>Digitaria ischaemum</i>	smooth crabgrass	herb	FACU	**
<i>Diospyros virginiana</i>	persimmon	shrub	FAC	2
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Eclipta prostrata</i>	yerba de tajo	herb	FACW	2
<i>Elaeagnus umbellata</i>	autumn olive	shrub	UPL	**
<i>Eleocharis obtusa</i>	spike rush	herb	OBL	2
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4
<i>Erechtites hieracifolia</i>	fireweed	herb	FACU	2
<i>Erigeron annuus</i>	daisy fleabane	herb	FAC-	1
<i>Erigeron philadelphicus</i>	marsh fleabane	herb	FACW	3
<i>Eupatorium coelestinum</i>	blue mistflower	herb	FAC+	3
<i>Eupatorium perfoliatum</i>	boneset	herb	FACW+	4
<i>Eupatorium serotinum</i>	late boneset	herb	FAC+	1
<i>Euthamia graminifolia</i>	grass-leaved goldenrod	herb	FACW-	3
<i>Festuca pratensis</i>	tall fescue	herb	FACU-	**
<i>Fraxinus pennsylvanica</i>	green ash	shrub	FACW	2
<i>Geum canadense</i>	white avens	herb	FAC	2
<i>Hibiscus lasiocarpus</i>	woolly rose-mallow	herb	OBL	5
<i>Hordeum pusillum</i>	little barley	herb	FAC	0
<i>Hypericum mutilum</i>	dwarf St. John's wort	herb	FACW	5
<i>Hypericum punctatum</i>	spotted St. Johnswort	herb	FAC+	3
<i>Ipomoea lacunosa</i>	small morning glory	herb	FACW	1
<i>va annua</i>	false ragweed	herb	FAC	0
<i>Juncus acuminatus</i>	sharp-fruited rush	herb	OBL	4
<i>Juncus biflorus</i>	rush	herb	FACW	5
<i>Juncus tenuis</i>	path rush	herb	FAC	0
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Lespedeza stipulacea</i>	Korean bush-clover	herb	FACU	**
<i>Lonicera japonica</i>	Japanese honeysuckle	woody vine	FACU	**
<i>Lonicera maackii</i>	Amur honeysuckle	shrub	UPL	**

<i>Ludwigia alternifolia</i>	seedbox	herb	OBL	5
<i>Lycopus americanus</i>	bugleweed	herb	OBL	3
<i>Lycopus virginicus</i>	Virginia bugleweed	herb	OBL	5

* Coefficient of Conservatism (see introduction)
(Species list continues on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION

Site 3 (page 4 of 5)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Wet meadow (floodplain forest restoration)
 Legal Description: NW/4, NW/4, NW/4, Sec. 18, T.6S., R.2W.
 Location: Low, open area in southeastern part of site with planted trees; between the road and the existing floodplain forest

SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Lythrum alatum</i>	winged loosestrife	herb	OBL	5
<i>Mimulus alatus</i>	monkey flower	herb	OBL	6
<i>Morus alba</i>	white mulberry	shrub	FAC	**
<i>Oenothera biennis</i>	evening primrose	herb	FACU	1
<i>Oxalis dillenii</i>	yellow wood-sorrel	herb	FACU	0
<i>Panicum clandestinum</i>	deer-tongue grass	herb	FACW	4
<i>Panicum dichotomiflorum</i>	fall panic grass	herb	FACW-	0
<i>Panicum rigidulum</i>	Munro grass	herb	FACW	6
<i>Paspalum floridanum</i>	giant bead grass	herb	FACW	7
<i>Penthorum sedoides</i>	ditch stonecrop	herb	OBL	2
<i>Phalaris arundinacea</i>	reed canary grass	herb	FACW+	**
<i>Phragmites australis</i>	common reed	herb	FACW+	1
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Plantago lanceolata</i>	buckhorn plantain	herb	FAC	**
<i>Plantago rugelii</i>	Rugel's plantain	herb	FAC+	0
<i>Platanus occidentalis</i>	sycamore	shrub	FACW	3
<i>Pluchea camphorata</i>	camphor weed	herb	FACW	7
<i>Poa pratensis</i>	Kentucky bluegrass	herb	FAC-	**
<i>Polygonum lapathifolium</i>	nodding smartweed	herb	FACW+	0
<i>Polygonum pensylvanicum</i>	smooth smartweed	herb	FACW+	1
<i>Polygonum persicaria</i>	lady's-thumb	herb	FACW	**
<i>Polygonum punctatum</i>	dotted smartweed	herb	OBL	3
<i>Populus deltoides</i>	cottonwood	shrub, herb	FAC+	2
<i>Potentilla norvegica</i>	rough cinquefoil	herb	FAC	0
<i>Pyrrhopappus carolinianus</i>	false dandelion	herb	UPL	1
<i>Quercus palustris</i>	pin oak	shrub	FACW	4
<i>Rosa multiflora</i>	multiflora rose	shrub	FACU	**
<i>Rosa setigera</i>	Illinois rose	shrub	FACU+	5
<i>Rubus allegheniensis</i>	wild blackberry	shrub	FACU+	2
<i>Rubus flagellaris</i>	creeping dewberry	herb	FACU-	2
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Rumex crispus</i>	curly dock	herb	FAC+	**
<i>Rumex verticillatus</i>	swamp dock	herb	OBL	5
<i>Salix exigua</i>	sandbar willow	shrub	OBL	1

<i>Salix nigra</i>	black willow	shrub, herb	OBL	3
<i>Sambucus canadensis</i>	elderberry	shrub	FACW-	2
<i>Scirpus atrovirens</i>	green bulrush	herb	OBL	4
<i>Setaria glauca</i>	yellow foxtail	herb	FAC	**
<i>Sida spinosa</i>	prickly mallow	herb	FACU	**
<i>Solanum carolinense</i>	horse nettle	herb	FACU-	0

* Coefficient of Conservatism (see introduction)
(Species list concludes on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION

Site 3 (page 5 of 5)

Field Investigators: Tessene and Kurylo

Date: 22 June 2005

Job No.: P99-102-90

Project Name: FAP 42 (IL 13/127) wetland mitigation site

State: Illinois

County: Perry

Applicant: IDOT District 9

Site name: Wet meadow (floodplain forest restoration)

Legal Description: NW/4, NW/4, NW/4, Sec. 18, T.6S., R.2W.

Location: Low, open area in southeastern part of site with planted trees; between the road and the existing floodplain forest

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Solidago gigantea</i>	late goldenrod	herb	FACW	3
<i>Sorghastrum nutans</i>	Indian grass	herb	FACU+	4
<i>Sphenopholis obtusata</i>	wedge grass	herb	FAC	5
<i>Symphoricarpos orbiculatus</i>	buckbrush	shrub	FACU	1
<i>Toxicodendron radicans</i>	poison ivy	herb	FAC+	1
<i>Typha latifolia</i>	common cattail	herb	OBL	1
<i>Ulmus americana</i>	American elm	shrub	FACW-	5
<i>Verbena hastata</i>	blue vervain	herb	FACW+	3
<i>Vernonia gigantea</i>	ironweed	herb	FAC	4
<i>Vitis cinerea</i>	winter grape	woody vine	FACW	4
<i>Xanthium strumarium</i>	cocklebur	herb	FAC	0

* Coefficient of Conservatism (see introduction)

** Species not native to Illinois

Mean c value = $\sum C/N = 257/103 = 2.5$

$FQI = \bar{c} \sqrt{N} = \sum C/\sqrt{N} = 257/\sqrt{103} = 25.3$

(including planted species)

<i>Agrostis alba</i>	redtop	herb	FACW	0
<i>Aster novae-angliae</i>	New England aster	herb	FACW	4
<i>Calamagrostis canadensis</i>	bluejoint grass	herb	OBL	3
<i>Elymus canadensis</i>	nodding wild rye	herb	FAC-	4
<i>Iris shrevei</i>	blue flag iris	herb	OBL	5
<i>Juncus effusus</i>	soft rush	herb	OBL	4
<i>Lobelia cardinalis</i>	cardinal flower	herb	OBL	6
<i>Panicum virgatum</i>	switch grass	herb	FAC+	4
<i>Ratibida pinnata</i>	yellow coneflower	herb	UPL	4
<i>Carya illinoensis</i>	pecan	sapling	FACW	6
<i>Ilex decidua</i>	deciduous holly	shrub	FACW	6
<i>Itea virginica</i>	Virginia sweetspire	shrub	OBL	10
<i>Liquidambar styraciflua</i>	sweet gum	sapling	FACW	6

<i>Quercus bicolor</i>	swamp white oak	sapling	FACW+	7
<i>Quercus shumardii</i>	Shumard oak	sapling	FACW-	7

$$\text{Mean } c \text{ value} = \sum C/N = 333/118 = 2.8$$

$$\text{FQI} = \bar{c} \sqrt{N} = \sum C/\sqrt{N} = 333/\sqrt{118} = 30.7$$

Determined by: Paul Tessene (vegetation and hydrology)
Jesse Kurylo (soils and hydrology)
Illinois Natural History Survey
Center for Wildlife and Plant Ecology
1816 South Oak Street
Champaign, Illinois 61820
(217) 244-7984, 244-0692

ROUTINE ONSITE WETLAND DETERMINATION

Site 4 (page 1 of 3)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
State: Illinois County: Perry Applicant: IDOT District 9
Site name: Floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 7, T.6S., R.2W.
Location: Low area near the south end of the existing floodplain forest

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

VEGETATION

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Quercus palustris</i>	FACW	tree
2. <i>Ulmus americana</i>	FACW-	tree
3. <i>Aster ontarionus</i>	FAC	herb
4. <i>Elymus virginicus</i>	FACW-	herb

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

Hydrophytic vegetation: Yes: X No:

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

SOILS

Series and phase: Bonnie silt loam (Typic Fluvaquent)

On Perry 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: Colors: 5YR 3/3 & 7.5 YR 4/6

Redox Depletions? Yes: No: X Color: N/A

Matrix color: 10YR 4/2 over 10YR 3/2

Other hydric soil indicators: None

Hydric soils: Yes: X No:

Rationale: The Natural Resources Conservation Service classifies Bonnie as having poorly drained conditions. The presence of redoximorphic features and a low chroma matrix are evidence of an anaerobic and saturated environment. Therefore, the soil meets the hydric soil criterion. This soil also meets the F3 hydric soil indicator from the NRCS.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: None

Depth to saturated soil: More than 0.6 m (24 in)

Overview of hydrologic flow through system: Precipitation, sheet flow, groundwater flow, and flooding on an intermittent stream contribute water to this site. Flooding on Beaucoup Creek can sometimes reach the site, or at least affect water tables. Water leaves the site by evapotranspiration and slow soil infiltration.

Size of watershed: Less than 2.6 km² (1.0 mi²) (647.5 km² (250 mi²) for Beaucoup Creek)

Other field evidence observed: This site is located in a low area in the floodplain of a small stream. We observed drift lines, water-borne sediment deposits, wetland drainage patterns, and bare areas that suggest prolonged ponding.

Wetland hydrology: Yes: X No:

Rationale: Low landscape position and the evidence of flooding suggest that the site is inundated or saturated long enough during the growing season to meet the wetland hydrology criterion. This area is included in the area that meets the criterion from ISGS estimates as well.

ROUTINE ONSITE WETLAND DETERMINATION

Site 4 (page 2 of 3)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Floodplain forest
 Legal Description: SW/4, SW/4, SW/4, Sec. 7, T.6S., R.2W.
 Location: Low area near the south end of the existing floodplain forest

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: X No:

Rationale: This site meets all three wetland criteria. The site is not included in the NWI.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Acer saccharinum</i>	silver maple	tree, sapling, shrub	FACW	1
<i>Allium canadense</i>	wild garlic	herb	FACU	2
<i>Aster lateriflorus</i>	calico aster	herb	FACW-	2
<i>Aster ontarionis</i>	Ontario aster	herb	FAC	4
<i>Bidens frondosa</i>	beggar's ticks	herb	FACW	1
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Carex aureolensis</i>	sedge	herb	OBL	4
<i>Carex blanda</i>	sedge	herb	FAC	2
<i>Carex granularis</i>	pale sedge	herb	FACW+	2
<i>Carex grayi</i>	bur sedge	herb	FACW+	6
<i>Carex lupulina</i>	hop sedge	herb	OBL	5
<i>Carex muskingumensis</i>	sedge	herb	OBL	6
<i>Carex normalis</i>	sedge	herb	FACW	4
<i>Carex radiata</i>	sedge	herb	UPL	5
<i>Carex shortiana</i>	sedge	herb	FACW+	4
<i>Carex squarrosa</i>	sedge	herb	OBL	5
<i>Carex tribuloides</i>	sedge	herb	FACW+	3
<i>Carex vulpinoidea</i>	fox sedge	herb	OBL	3
<i>Celtis occidentalis</i>	hackberry	sapling, shrub	FAC-	3
<i>Cephalanthus occidentalis</i>	buttonbush	shrub	OBL	4
<i>Cicuta maculata</i>	water hemlock	herb	OBL	4
<i>Cinna arundinacea</i>	tall wood reed	herb	FACW	5
<i>Diospyros virginiana</i>	persimmon	tree, sapling	FAC	2
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4
<i>Erigeron philadelphicus</i>	marsh fleabane	herb	FACW	3
<i>Eupatorium rugosum</i>	white snakeroot	herb	FACU	2
<i>Fraxinus pennsylvanica</i>	green ash	tree, shrub	FACW	2
<i>Geum canadense</i>	white avens	herb	FAC	2
<i>Glyceria striata</i>	fowl manna grass	herb	OBL	4
<i>Hibiscus lasiocarpus</i>	woolly rose-mallow	herb	OBL	5
<i>Hypericum punctatum</i>	spotted St. Johnswort	herb	FAC+	3
<i>Ilex decidua</i>	deciduous holly	shrub	FACW	6
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Leersia virginica</i>	white grass	herb	FACW	4

* Coefficient of Conservatism (see introduction)
 (Species list concludes on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION
 Site 4 (page 3 of 3)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Floodplain forest
 Legal Description: SW/4, SW/4, SW/4, Sec. 7, T.6S., R.2W.
 Location: Low area near the south end of the existing floodplain forest

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Lobelia cardinalis</i>	cardinal flower	herb	OBL	6
<i>Lobelia siphilitica</i>	great blue lobelia	herb	FACW+	4
<i>Lonicera maackii</i>	Amur honeysuckle	shrub	UPL	**
<i>Lycopus virginicus</i>	Virginia bugleweed	herb	OBL	5
<i>Panicum clandestinum</i>	deer-tongue grass	herb	FACW	4
<i>Parthenocissus quinquefolia</i>	Virginia creeper	woody vine	FAC-	2
<i>Pilea pumila</i>	clearweed	herb	FACW	3
<i>Polygonum punctatum</i>	dotted smartweed	herb	OBL	3
<i>Prunella vulgaris</i>	self-heal	herb	FAC	1
<i>Quercus imbricaria</i>	shingle oak	tree, sapling	FAC-	2
<i>Quercus palustris</i>	pin oak	tree, sapling, shrub	FACW	4
<i>Ranunculus septentrionalis</i>	swamp buttercup	herb	FACW+	4
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Scirpus atrovirens</i>	green bulrush	herb	OBL	4
<i>Solanum carolinense</i>	horse nettle	herb	FACU-	0
<i>Symphoricarpos orbiculatus</i>	buckbrush	shrub	FACU	1
<i>Toxicodendron radicans</i>	poison ivy	woody vine, herb	FAC+	1
<i>Ulmus americana</i>	American elm	tree, sapling, shrub	FACW-	5
<i>Vernonia gigantea</i>	ironweed	herb	FAC	4
<i>Viola missouriensis</i>	Missouri violet	herb	FACW	4
<i>Viola pratincola</i>	common blue violet	herb	FAC	1

* Coefficient of Conservatism (see introduction)
 Mean c value = $\sum C/N = 178/54 = 3.3$

** Species not native to Illinois
 $FQI = \bar{c} \sqrt{N} = \sum C/\sqrt{N} = 178/\sqrt{54} = 24.2$

Determined by: Paul Tessene (vegetation and hydrology)
 Jesse Kurylo (soils and hydrology)
 Illinois Natural History Survey
 Center for Wildlife and Plant Ecology
 1816 South Oak Street
 Champaign, Illinois 61820
 (217) 244-7984, 244-0692

ROUTINE ONSITE WETLAND DETERMINATION

Site 5 (page 1 of 3)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
State: Illinois County: Perry Applicant: IDOT District 9
Site name: Floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 7, T.6S., R.2W.
Location: Southwestern part of the existing floodplain forest, directly east of IL 13/127

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

VEGETATION

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Acer saccharinum</i>	FACW	tree
2. <i>Platanus occidentalis</i>	FACW	tree
3. <i>Aster lateriflorus</i>	FACW-	herb
4. <i>Cinna arundinacea</i>	FACW	herb

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

Hydrophytic vegetation: Yes: No:

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

SOILS

Series and phase: Bonnie silt loam (Typic Fluvaquent)

On Perry County hydric soils list? Yes: No:

Is the soil a histosol? Yes: No: Histic epipedon present? Yes: No:

Redox Concentrations? Yes: No: Colors: 7.5YR 4/3 & 7.5YR 4/4

Redox Depletions? Yes: No: Color: N/A

Matrix color: 10YR 4/2

Other hydric soil indicators: None

Hydric soils: Yes: No:

Rationale: The Natural Resources Conservation Service classifies Bonnie as having poorly drained conditions. The presence of redoximorphic features and a low chroma matrix are evidence of an anaerobic and saturated environment. Therefore, the soil meets the hydric soil criterion.

HYDROLOGY

Inundated: Yes: No: Depth of standing water: None

Depth to saturated soil: More than 0.6 m (24 in)

Overview of hydrologic flow through system: Precipitation, sheet flow, and flooding on an intermittent stream contribute water to this site. Flooding on Beaucoup Creek can sometimes reach the site, or at least affect water tables. Water leaves the site by evapotranspiration and slow soil infiltration.

Size of watershed: Less than 2.6 km² (1.0 mi²) (647.5 km² (250 mi²) for Beaucoup Creek)

Other field evidence observed: This site is located in a depression in the floodplain a small stream. We observed drift lines, water-borne sediment deposits, wetland drainage patterns, watermarks on trees, and bare areas that suggest prolonged ponding.

ROUTINE ONSITE WETLAND DETERMINATION

Site 5 (page 2 of 3)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Floodplain forest
 Legal Description: SW/4, SW/4, SW/4, Sec. 7, T.6S., R.2W.
 Location: Southwestern part of the existing floodplain forest, directly east of IL 13/127

Wetland hydrology: Yes: X No:

Rationale: Landscape position and the evidence of flooding suggest that the site is inundated or saturated long enough during the growing season to meet the wetland hydrology criterion. This area is included in the area that meets the criterion from ISGS estimates as well.

WETLAND DETERMINATION AND RATIONALE

Is the site a wetland? Yes: X No:

Rationale: This site meets all three wetland criteria. The site is not included in the NWI.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Acer negundo</i>	box elder	sapling, shrub	FACW-	1
<i>Acer saccharinum</i>	silver maple	tree, sapling, shr., herb	FACW	1
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Aster lateriflorus</i>	calico aster	herb	FACW-	2
<i>Aster ontarionis</i>	Ontario aster	herb	FAC	4
<i>Aster vimineus</i>	small white aster	herb	FACW-	3
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Carex annectens</i>	sedge	herb	FACW	3
<i>Carex aureolensis</i>	sedge	herb	OBL	4
<i>Carex blanda</i>	sedge	herb	FAC	2
<i>Carex grayi</i>	bur sedge	herb	FACW+	6
<i>Carex lupulina</i>	hop sedge	herb	OBL	5
<i>Carex lurida</i>	bottlebrush sedge	herb	OBL	7
<i>Carex stipata</i>	sedge	herb	OBL	2
<i>Carex tribuloides</i>	sedge	herb	FACW+	3
<i>Celtis occidentalis</i>	hackberry	sapling, shrub	FAC-	3
<i>Cephalanthus occidentalis</i>	buttonbush	shrub	OBL	4
<i>Cinna arundinacea</i>	tall wood reed	herb	FACW	5
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4
<i>Eupatorium perfoliatum</i>	boneset	herb	FACW+	4
<i>Fraxinus pennsylvanica</i>	green ash	tree, shrub	FACW	2
<i>Geum canadense</i>	white avens	herb	FAC	2
<i>Ipomoea lacunosa</i>	small morning glory	herb	FACW	1
<i>Juncus effusus</i>	soft rush	herb	OBL	4
<i>Lactuca floridana</i>	blue lettuce	herb	FAC-	4

<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Leersia virginica</i>	white grass	herb	FACW	4
<i>Lonicera maackii</i>	Amur honeysuckle	shrub	UPL	**
<i>Morus alba</i>	white mulberry	herb	FAC	**

* Coefficient of Conservatism (see introduction)
(Species list concludes on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION

Site 5 (page 3 of 3)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Floodplain forest
 Legal Description: SW/4, SW/4, SW/4, Sec. 7, T.6S., R.2W.
 Location: Southwestern part of the existing floodplain forest, directly east of IL 13/127

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Phalaris arundinacea</i>	reed canary grass	herb	FACW+	**
<i>Phragmites australis</i>	common reed	herb	FACW+	1
<i>Pilea pumila</i>	clearweed	herb	FACW	3
<i>Platanus occidentalis</i>	sycamore	tree, sapling	FACW	3
<i>Polygonum punctatum</i>	dotted smartweed	herb	OBL	3
<i>Polygonum scandens</i>	climbing knotweed	herb	FAC	2
<i>Populus deltoides</i>	cottonwood	tree	FAC+	2
<i>Quercus palustris</i>	pin oak	sapling, shrub	FACW	4
<i>Scirpus atrovirens</i>	green bulrush	herb	OBL	4
<i>Toxicodendron radicans</i>	poison ivy	woody vine, herb	FAC+	1
<i>Ulmus americana</i>	American elm	tree, sapling	FACW-	5
<i>Viola pratincola</i>	common blue violet	herb	FAC	1

* Coefficient of Conservatism (see introduction)

** Species not native to Illinois

Mean c value = $\sum C/N = 115/38 = 3.0$

$FQI = \bar{c} \sqrt{N} = \sum C/\sqrt{N} = 115/\sqrt{38} = 18.7$

Determined by: Paul Tessene (vegetation and hydrology)
 Jesse Kurylo (soils and hydrology)
 Illinois Natural History Survey
 Center for Wildlife and Plant Ecology
 1816 South Oak Street
 Champaign, Illinois 61820
 (217) 244-7984, 244-0692

ROUTINE ONSITE WETLAND DETERMINATION

Site 6 (page 1 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
State: Illinois County: Perry Applicant: IDOT District 9
Site name: Mesic floodplain forest
Legal Description: SW/4, SW/4, SW/4, Sec. 7 and NW/4, NW/4, NW/4, Sec. 18, T.6S.,
R.2W.
Location: Most of the existing floodplain forest north of Pyatts, directly east of IL 13/127

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

VEGETATION

<u>Dominant Plant Species</u>	<u>Indicator Status</u>	<u>Stratum</u>
1. <i>Quercus palustris</i>	FACW	tree
2. <i>Ulmus americana</i>	FACW-	tree
3. <i>Lonicera japonica</i>	FACU	woody vine
4. <i>Eupatorium rugosum</i>	FACU	herb
5. <i>Viola pratincola</i>	FAC	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 60%

Hydrophytic vegetation: Yes: X No:

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

SOILS

Series and phase: Bonnie silt loam (Typic Fluvaquent)

On Perry 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: 7.5YR 3/4 & 3/3

Redox Depletions? Yes: No: X Color: N/A

Matrix color: 10YR 3/2

Other hydric soil indicators: None

Hydric soils: Yes: X No:

Rationale: The Natural Resources Conservation Service classifies Bonnie as having poorly drained conditions. The presence of redoximorphic features and a low chroma matrix are evidence of an environment saturated at a duration sufficient to promote extended periods of anaerobic conditions. Therefore, the soil meets the hydric soil criterion. This site seems to be an exception this year compared to other years when this area did not contain redoximorphic features nor a matrix color sufficient to be hydric.

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: None

Depth to saturated soil: More than 0.6 m (24 in)

Overview of hydrologic flow through system: Precipitation, sheet flow, and flooding on an intermittent stream contribute water to this site. Flooding on Beaucoup Creek can sometimes reach the site, or at least affect water tables. Water leaves the site by evapotranspiration and soil infiltration.

Size of watershed: Less than 2.6 km² (1.0 mi²) (647.5 km² (250 mi²) for Beaucoup Creek)

Other field evidence observed: This site is located along a small stream. We observed some drift lines.

ROUTINE ONSITE WETLAND DETERMINATION

Site 6 (page 2 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Mesic floodplain forest
 Legal Description: SW/4, SW/4, SW/4, Sec. 7 and NW/4, NW/4, NW/4, Sec. 18, T.6S.,
 R.2W.
 Location: Most of the existing floodplain forest north of Pyatts, directly east of IL 13/127

Wetland hydrology: Yes: No: X

Rationale: This site is at a slightly higher elevation than Sites 4 and 5 and lacks enough evidence of flooding to suggest that the site is inundated or saturated long enough during the growing season to meet the wetland hydrology criterion. This site is not included in the area considered by the ISGS to have wetland hydrology.

WETLAND DETERMINATION AND RATIONALE

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

Rationale: Although dominant hydrophytic vegetation is present and hydric soils may also have developed, there is no clear evidence of wetland hydrology, or that site conditions had changed since last year. The site is not included in the NWI.

SPECIES LIST

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Acalypha rhomboidea</i>	three-seeded mercury	herb	FACU	0
<i>Acer negundo</i>	box elder	tree, shrub	FACW-	1
<i>Acer saccharinum</i>	silver maple	tree, shrub	FACW	1
<i>Allium canadense</i>	wild garlic	herb	FACU	2
<i>Allium vineale</i>	field garlic	herb	FACU	**
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Aster lateriflorus</i>	calico aster	herb	FACW-	2
<i>Aster ontarionis</i>	Ontario aster	herb	FAC	4
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Carex aureolensis</i>	sedge	herb	OBL	4
<i>Carex conjuncta</i>	sedge	herb	FACW	5
<i>Carex grayi</i>	bur sedge	herb	FACW+	6
<i>Carex grisea</i>	sedge	herb	UPL	3
<i>Carex muskingumensis</i>	sedge	herb	OBL	6
<i>Carex normalis</i>	sedge	herb	FACW	4
<i>Carex radiata</i>	sedge	herb	UPL	5
<i>Carex tribuloides</i>	sedge	herb	FACW+	3
<i>Carya tomentosa</i>	mockernut hickory	tree	UPL	6
<i>Cassia marilandica</i>	Maryland senna	herb	FACW	4
<i>Celtis occidentalis</i>	hackberry	tree, sapling, shrub	FAC-	3
<i>Cephalanthus occidentalis</i>	buttonbush	shrub	OBL	4
<i>Cicuta maculata</i>	water hemlock	herb	OBL	4
<i>Cinna arundinacea</i>	tall wood reed	herb	FACW	5

<i>Cornus drummondii</i>	rough-leaved dogwood	shrub	FAC	2
<i>Cryptotaenia canadensis</i>	honewort	herb	FAC	1

* Coefficient of Conservatism (see introduction)
(Species list continues on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION

Site 6 (page 3 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Mesic floodplain forest
 Legal Description: SW/4, SW/4, SW/4, Sec. 7 and NW/4, NW/4, NW/4, Sec. 18, T.6S.,
 R.2W.
 Location: Most of the existing floodplain forest north of Pyatts, directly east of IL 13/127

SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Desmodium paniculatum</i>	panicked tick trefoil	herb	FACU	2
<i>Diospyros virginiana</i>	persimmon	tree, sapling, shrub	FAC	2
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4
<i>Eupatorium rugosum</i>	white snakeroot	herb	FACU	2
<i>Festuca pratensis</i>	tall fescue	herb	FACU-	**
<i>Fraxinus pennsylvanica</i>	green ash	tree, sapling, shrub	FACW	2
<i>Geum canadense</i>	white avens	herb	FAC	2
<i>Gleditsia triacanthos</i>	honey locust	tree, shrub	FAC	2
<i>Glyceria striata</i>	fowl manna grass	herb	OBL	4
<i>Hibiscus lasiocarpus</i>	woolly rose-mallow	herb	OBL	5
<i>Hypericum punctatum</i>	spotted St. Johnswort	herb	FAC+	3
<i>Ilex decidua</i>	deciduous holly	shrub	FACW	6
<i>Impatiens capensis</i>	orange jewelweed	herb	FACW	2
<i>Lactuca biennis</i>	biennial lettuce	herb	FAC	4
<i>Lactuca floridana</i>	blue lettuce	herb	FAC-	4
<i>Leersia virginica</i>	white grass	herb	FACW	4
<i>Lonicera japonica</i>	Japanese honeysuckle	woody vine	FACU	**
<i>Lonicera maackii</i>	Amur honeysuckle	shrub	UPL	**
<i>Lycopus virginicus</i>	Virginia bugleweed	herb	OBL	5
<i>Maclura pomifera</i>	Osage orange	sapling, shrub	FACU	**
<i>Morus alba</i>	white mulberry	tree, shrub	FAC	**
<i>Morus rubra</i>	red mulberry	tree	FAC-	4
<i>Muhlenbergia frondosa</i>	satn grass	herb	FACW	3
<i>Oxalis dillenii</i>	yellow wood-sorrel	herb	FACU	0
<i>Panicum clandestinum</i>	deer-tongue grass	herb	FACW	4
<i>Parthenocissus quinquefolia</i>	Virginia creeper	woody vine	FAC-	2
<i>Phalaris arundinacea</i>	reed canary grass	herb	FACW+	**
<i>Physallis heterophylla</i>	clammy ground cherry	herb	UPL	2
<i>Phytolacca americana</i>	pokeweed	herb	FAC-	1
<i>Pilea pumila</i>	clearweed	herb	FACW	3
<i>Platanus occidentalis</i>	sycamore	tree	FACW	3
<i>Polygonum cespitosum</i>	long-bristled smartweed	herb	UPL	**
<i>Polygonum punctatum</i>	dotted smartweed	herb	OBL	3
<i>Polygonum scandens</i>	climbing knotweed	herb	FAC	2
<i>Podophyllum peltatum</i>	mayapple	herb	FACU	4

<i>Prunus serotina</i>	black cherry	tree	FACU	1
<i>Quercus alba</i>	white oak	sapling	FACU	5
<i>Quercus imbricaria</i>	shingle oak	tree, sapling	FAC-	2
<i>Quercus palustris</i>	pin oak	tree, sapling	FACW	4
<i>Ranunculus abortivus</i>	kidneyleaf buttercup	herb	FACW-	1
<i>Rhus copallina</i>	winged sumac	shrub	UPL	3

* Coefficient of Conservatism (see introduction)
(Species list concludes on next page)

** Species not native to Illinois

ROUTINE ONSITE WETLAND DETERMINATION

Site 6 (page 4 of 4)

Field Investigators: Tessene and Kurylo Date: 22 June 2005
 Job No.: P99-102-90 Project Name: FAP 42 (IL 13/127) wetland mitigation site
 State: Illinois County: Perry Applicant: IDOT District 9
 Site name: Mesic floodplain forest
 Legal Description: SW/4, SW/4, SW/4, Sec. 7 and NW/4, NW/4, NW/4, Sec. 18, T.6S.,
 R.2W.

Location: Most of the existing floodplain forest north of Pyatts, directly east of IL 13/127

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Rosa multiflora</i>	multiflora rose	shrub	FACU	**
<i>Rubus allegheniensis</i>	wild blackberry	shrub	FACU+	2
<i>Rubus flagellaris</i>	creeping dewberry	herb	FACU-	2
<i>Sambucus canadensis</i>	elderberry	shrub	FACW-	2
<i>Sanicula gregaria</i>	black snakeroot	herb	FAC+	2
<i>Sassafras albidum</i>	sassafras	tree, shrub	FACU	2
<i>Smilax hispida</i>	bristly catbrier	woody vine	FAC	3
<i>Solanum carolinense</i>	horse nettle	herb	FACU-	0
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Symphoricarpos orbiculatus</i>	buckbrush	shrub	FACU	1
<i>Teucrium canadense</i>	American germander	herb	FACW-	3
<i>Toxicodendron radicans</i>	poison ivy	woody vine, herb	FAC+	1
<i>Tridens flavus</i>	purpletop	herb	UPL	1
<i>Ulmus americana</i>	American elm	tree, sapling, shrub	FACW-	5
<i>Verbena urticifolia</i>	white vervain	herb	FAC+	3
<i>Vernonia gigantea</i>	ironweed	herb	FAC	4
<i>Viola missouriensis</i>	Missouri violet	herb	FACW	4
<i>Viola pratincola</i>	common blue violet	herb	FAC	1

* Coefficient of Conservatism (see introduction)

** Species not native to Illinois

Mean c value = $\sum C/N = 225/75 = 3.0$

FQI = $\bar{c} \sqrt{N} = \sum C/\sqrt{N} = 225/\sqrt{75} = 26.0$

Including planted woody species:

Scientific name	Common name	Stratum	Wetland Indicator	C*
<i>Carya illinoensis</i>	pecan	sapling	FACW	6
<i>Itea virginica</i>	Virginia sweetspire	shrub	OBL	10
<i>Lindera benzoin</i>	spicebush	shrub	FACW-	5
<i>Liquidambar styraciflua</i>	sweet gum	sapling	FACW	6

$$\text{Mean } c \text{ value} = \sum C/N = 252/79 = 3.2$$

$$\text{FQI} = \bar{c} \sqrt{N} = \sum C/\sqrt{N} = 252/\sqrt{79} = 28.4$$

Determined by: Paul Tessene (vegetation and hydrology)
Jesse Kurylo (soils and hydrology)
Illinois Natural History Survey
Center for Wildlife and Plant Ecology
1816 South Oak Street
Champaign, Illinois 61820
(217) 244-7984, 244-0692

Appendix 2
Estimated Aerial Extent of Wetland Hydrology for 2005
At the FAP 42 (IL 13/127) wetland creation/restoration site, near Pyatts, Perry County, Illinois
From ISGS data

Pyatts Blacktop Wetland Compensation Site (FAP 42)

Estimated Areal Extent of 2005 Wetland Hydrology

map produced by rectifying IDOT design plans to USGS digital orthophotograph
Pinckneyville, SE quarter quadrangle (ISGS 2002)

