Wetland Mitigation Monitoring for FAP 331 (IL 13) - 1999

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Introduction

Road construction for FAP 331 (IL 13) resulted in impacts requiring 9.15 acres of wetland mitigation. A compensation plan was prepared which called for floodplain forest, emergent, and shrub scrub (changed to cypress gum swamp) wetland creation, located in a 20 acre abandoned agricultural field in western Saline Co. Reexamination of the original report (Morris et al., 1994) shows that the field contained approximately 2.02 acres of wetland prior to alteration of the site. Approximately 2.5 acres (the area originally planned for emergent and cypress-gum wetlands) were excavated to a depth of 6 to 12 in. A shallow berm, including water control structure, was established at the southeastern corner of the site in order to retard sheetflow and hold more surface water on-site. The wetland creation site was completed in 1997. Vegetation planting was carried out in 1997 and 1998.

In 2000, field monitoring was conducted on 21 September. This report details results of the 2000 monitoring. Project goals, objectives and performance criteria are included, as are monitoring methods, monitoring results, summary information and recommendations. A wetland mitigation site assessment (Morris et al., 1994) and hydrogeologic characterization report (Rorick and Hilchen, 1995) were prepered by the Illinois Natural History Survey and Illinois State Geological Survey. A wetland mitigation plan was prepared by Smith (1995).

Project Goals, Objectives and Performance Criteria

Proposed goals and objectives are based on information contained in the original IDOT project request (Brooks, 1999) and the project Special Provisions (IDOT, no date). 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.

Created Wetland Site

Project goal 1: The created wetland site should be determined to be jurisdictional by current federal standards.

Objective: The created wetland should compensate for losses of 4.7 acres of forested wetland, emergent wetland, and shrub scrub wetland. A total of 9.15 acres of wetland compensation is required.

Performance Criteria: The entire created wetland 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 created wetland 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 created wetland should meet minimum standards as to floristic composition.

Objective: The created wetland should compensate in-kind for loss of forested, shrub scrub, and emergent wetlands. The wetland compensation should be composed of vegetation characteristic of forested, shrub scrub, and emergent wetlands.

Performance Criteria: Planted herbaceous and woody species should have good survivorship and health over the five year monitoring period. At least 50% of the plant species present should be non-weedy, native, perennial species. None of the three most dominant species in any stratum should be nonnative, or weedy species.

Methods

Monitoring will be performed on the created wetland site. Illinois Natural History Survey personnel monitored the site in 1999 and 2000 and will continue yearly monitoring through 2003 (five years). The Illinois State Geological Survey has been tasked to monitor hydrology. Monitoring reports on the status of the wetland creation 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 critieria 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.

Project Goal 1

Created wetland areas will be measured in the field, plotted on aerial photographs, and acreages determined with digital planimeter.

A. Hydrophytic Vegetation - Within the 2.5 acre excavated area, where planting was carried out, species composition (relative frequency, relative dominance, and Importance Value) will be determined annually through quantitative vegetation sampling of permanent plots. Five parallel transects were established at 15.2 m (50 ft) intervals. Sampling points were established at 15.2 m (50 ft) intervals on each transect. At each sampling point, vegetation was tallied by species and percent cover in 24, 1 m^2 quadrats. Beginning in 2000, with planted trees and shrubs now tall enough to be seen in the dense herbaceous vegetation, woody species composition within the excavated area will be determined through

quantitative sampling of permanent plots. Four transects were established at 30.5 m (100 ft) intervals. Sampling points were established at 30.5 m (100 ft) intervals on each transect. At each sampling point, number of shrub layer individuals by species were recorded in 9, 100 m^2 plots. For the remainder of the site, 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 dominant, 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). This site includes 2.5 acres of shallow (≤ 1 ft) excavation, and a shallow berm erected in the vicinity of the southeast corner of the site. The excavated area and the area near the berm are expected to display changing soil characteristics as those portions of the site adjust to new hydrologic conditions. The western portion of the site is not expected to experience soil conditions that change over time.

C. Wetland Hydrology - The Illinois State Geological Survey has been tasked to monitor this site. Six stage gauges have been installed, and the number of monitoring wells has been increased from 18 to 25 (Ketterling et al., 2000). Information provided by ISGS concerning hydrology of the site will be incorporated into 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. Survival of planted species – At this site, complications prohibit the determination of percent survival of planted species. For both woody and herbaceous species, there have been substitutions and omissions of species listed in the planting plan and the number of individuals per species has been altered and is not known. In addition, the woody species have been planted in different areas than what is specified in the mitigation plan and apparently have been placed randomly, with no stakes to mark planting locations. The planting boxes for herbaceous species had been removed before the first year's monitoring fieldwork began, and species have begun to spread beyond their planting cells. Therefore, in 1999, for woody species, the areas planted were determined and lists of observed live, planted species prepared. In following years, quantitative sampling of these areas will be used to estimate numbers of live, planted woody species. In 1999, while the outlines of the recently removed planting boxes (pods) were still apparent, aerial extent, percent cover and a qualitative success rating were determined for each cell of herbaceous planting. In subsequent years, as the various species spread or decline, it will be increasingly difficult to assess each planted herbaceous species in relation to its original planting cell. Therefore, for each of the nine original planted species, aerial extent, percent cover and a qualitative success (population health) rating will be determined and related to values given in the 1999 sampling season.

B. Vegetation - Dominant plant species in each stratum in the emergent wetland and wet meadow (oak-hickory wetland) will be determined annually by quantitative sampling.

Dominant plant species for the other created wetland communities within the site will be determined by visual estimation. Lists of dominant species will be examined in an attempt to ensure that, in the created wetlands, none of the three most dominant species are weedy or non-native. A species list will be prepared annually for each community in order to ensure that at least 50% of the plant species are non-weedy, native and perennial. A Floristic Quality Index will be computed annually for each plant community. Since the areas of old field and wet meadow on this site are rapidly succeeding to forest, the 1994 cover type map and report have been updated.

Faunal Surveys

In addition to stated performance criteria, INHS personnel will conduct annual surveys of herpetofauna and avifauna.

Herpetofauna

The compensation site was visited by INHS personnel on 4, 14 and 15 March, 26 May, and 20 July 2000. The main objective was to conduct visual encounter surveys, and limited dipnetting, throughout the site and compile a species list. Emphasis was placed on amphibian species and evidence of breeding and recruitment of these species. Fishless, ephemeral wetlands are among the rarest habitat types in Illinois and it is these wetlands that many native amphibian species utilize for reproduction. We surveyed the entire property, but special attention was directed to the emergent wetland. A large ditch/pool located just off the southwest edge of the property was also surveyed. A list was compiled of all the amphibians and reptiles encountered at the wetland compensation site to date.

Avifauna

We established four census points 150 m apart and at least 50 m from the edge of the property. Because of the complexity of the habitat, all points encompass several habitat types (Table 7). We used standard avian point counts (Manley et al., 1993) to subsample the avifauna, recording all individuals heard or seen within a range of 50 m during ten minute count periods. These timed counts provide measures of the structure of bird communities (number of individuals and number of species) in the area. Censuses were conducted on 30 May and 26 June, 2000.

Results

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

We have revised our estimate of preconstruction wetland acreage after reexamining the original report (Morris et al., 1994). This site originally supported 0.82 ha (2.02 acres) of wetland. Further examination of soils throughout the site in 2000 reveal that shallow excavation and berm construction have resulted in creation of 4.45 ha (11.0 acres) of additional wetland (about 6.98 acres of nonwetland remain). All wetland areas are underlain by Bonnie silt loam, poorly drained, which is a hydric soil (Appendix 1). Within the excavated area, a 0.49 ha (1.2 acre) emergent wetland now exists, surrounded by a 0.77 ha (1.9 acre) wet meadow (oak–hickory wetland). The emergent wetland is dominated by *Ludwigia palustris* (OBL), *Panicum rigidulum* (FACW), *Juncus acuminatus* (OBL), and *Sagittaria latifolia* (OBL). The wet meadow is dominated by *Juncus interior* (FAC+),

Lespedeza cuneata (NI), *Panicum acuminatum* (FAC), *Pycnanthemum tenuifolium* (FAC), *Eupatorium serotinum* (FAC+), and *Solidago canadensis* (FACU). The hydrophytic vegetation criterion is thereby satisfied for both of these sites. The construction of a shallow berm at the southeast border of the site has impeded surface flow and resulted in the creation of approximately 1.98 ha (4.9 acres) of shrub scrub wetland (young forest) in the eastern portion of the site. This community is dominated by *Acer rubrum* (FAC), and *Fraxinus pennsylvanica* (FACW) in both sapling and shrub layers, thereby satisfying the hydrophytic vegetation criterion (Appendix 1).

In all created wetland areas, field indicators of wetland hydrology were observed. These included wetland drainage patterns, driftlines, water stained leaves and low, level topography. In addition, the Illinois State Geological Survey (ISGS) established four monitoring wells and three stage gauges within the created wetland sites. Based on well and stage gauge data, these sites meet the wetland hydrology criterion (saturation or inundation for at least 12.5% of the growing season) (fig. 1, 2).

In 2000, the ISGS has added wells and revised their estimate of acreage supporting wetland hydrology (Ketterling et al., 2000), and the INHS has carried out additional soils investigations, reexamined the original report's estimate of wetland acreage, and also produced a revised estimate. The two estimates are in closer agreement than was the case in 1999. Currently the ISGS estimates 8.2 acres of new wetlands onsite (fig. 1, 2), while we estimate 11.0 acres. We are now both in agreement that: 1) the majority of the western portion of the site is nonwetland, 2) wetlands extend across most of the north boundary, and 3) a portion of the mature forest along the south boundary is nonwetland. The remaining points of contention concern the extent of wetland acreage along the southern boundary and in the northeast corner. It is clear, however, that this site is spatially quite variable in hydrology and, based on two years of well data, variable across time as well. Both the INHS and ISGS will continue to refine estimates of wetland acreage.

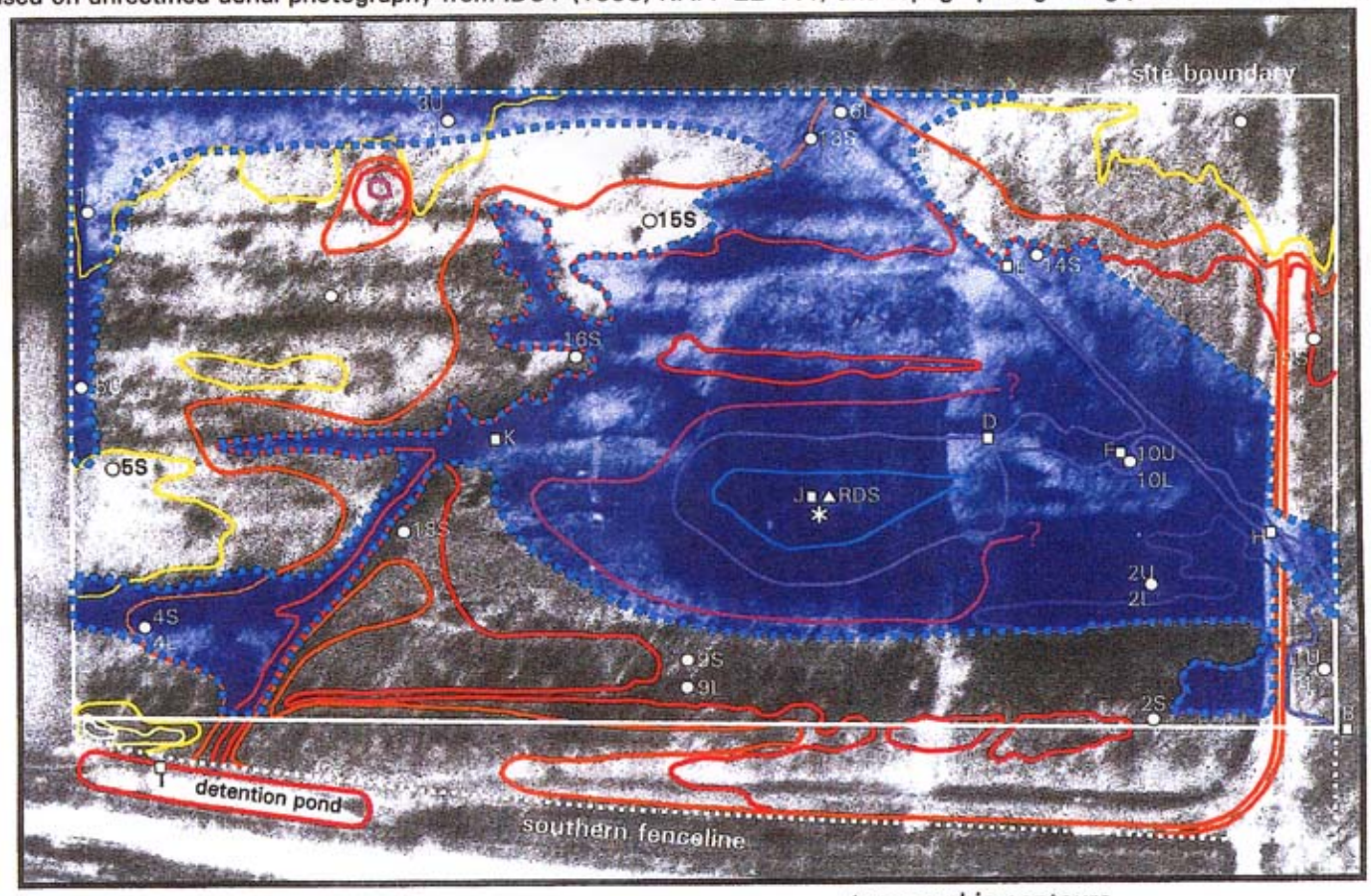
Project goal 2: The created wetland should meet minimum standards as to floristic composition.

A. Survival of Planted Species

Woody Species - The wetland mitigation plan called for creation of 7.3 acres of forested wetland and 1.4 acres of shrub scrub wetland. The area designated for forested wetland was not planted, and 0.77 ha (1.9 acres) of forested (oak-hickory) wetland was planted in the area designated for shrub scrub. Cypress – gum wetland has been substituted for shrub scrub, and 0.49 ha (1.2 acres) of this planting type has been superimposed over the emergent wetland planting. Exactly what species were planted, and in what numbers is unknown. In the oak-hickory wetland, the following planted species were observed: *Quercus palustris, Quercus lyrata, Quercus bicolor, Liquidambar styraciflua, Nyssa sylvatica, Carya illinoensis, Carya* sp., *Acer rubrum, Fraxinus pennsylvanica, Betula nigra, Carpinus caroliniana, Crateagus phaenopyrum,* and *Cornus obliqua.* In the emergent wetland the following planted woody species were observed: *Taxodium distichum, Fraxinus pennsylvanica, Quercus lyrata, Betula nigra, Cephalanthus occidentalis, Crateagus phaenopyrum, Itea virginica,* and *Callicarpa dichotoma.* Both sites support abundant natural regeneration of *Acer rubrum, Fraxinus pennsylvanica* and *Betula nigra,* which makes accurate assessment of planted stock impossible for these species.

Saline County Wetland Compensation Site
(FAP 331)
Estimated Areal Extent of 2000 Wetland Hydrology
based on data collected between September 1, 1999 and September 1, 2000

map based on unrectified aerial photography from IDOT (1998, NAPP 22-441) and topographic grading plans from IDOT (05/19/1995)



- monitoring well
- staff gauge
- surface water level logger
- rain gauge

estimated areal extent of 2000 wetland hydrology

inferred boundary

topographic contours

405.0, 404.5, 404.0, 403.5, 403.0, 402.5, 402.0, 401.5

Vertical Datum NGVD, 1929
contour interval 0.5 ft

N

0 200 ft
0 60 m

figure 1. Estimated extent of 2000 wetland hydrology

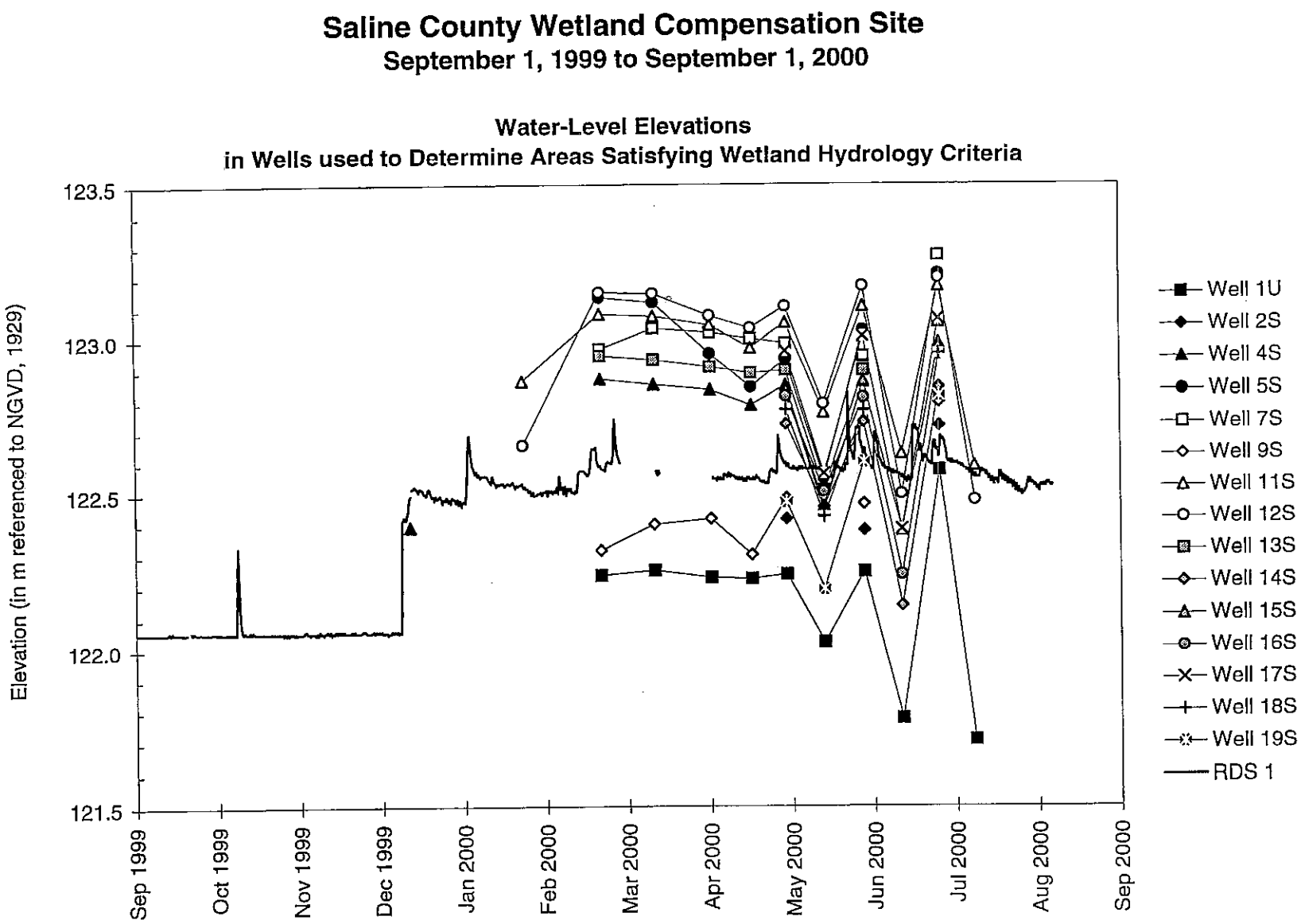


figure 2. Water level elevations used for wetland hydrology determinations

In the 1.9 acre oak-hickory wetland (wet meadow) the shrub layer is dominated by *Fraxinus pennsylvanica, Ulmus americana, Cornus obliqua* (planted) and *Quercus palustris* (planted). Total shrub layer density is 923 indiv./acre. Planted species (including both planted and natural *Acer, Fraxinus* and *Betula*) occur at a density of 713/acre or 1353 total. Plantings were supposed to occur at a rate of 500 per acre for 9.5 acres or 4750 stems total (Table 1).

In the1.2 acre emergent wetland, the shrub layer is dominated by *Salix nigra, Ulmus americana* and *Acer rubrum*. Total shrub layer density is 1123 indiv./acre. Planted species (including both planted and natural *Fraxinus* and *Betula*) occur at a density of 243/acre or 291 total. Plantings were supposed to occur at a rate of 1000 indiv./acre for 1.4 acres or 1400 stems total (Table 2).

Herbaceous species – Within the excavated portion of the site, a 0.49 ha (1.2 acre) emergent wetland has become established, thus exceeding the planned 0.84 acre. In the emergent wetland area, herbaceous species were planted in five, 20 ft X 50 ft, and one 20 ft X 30 ft, pods, each consisting of a number of (two to eight) smaller cells of varying sizes. The corner stakes of the planting cells had been removed prior to sampling , and the planted herbaceous species had begun to spread beyond their cells.

We identified nine planted herbaceous species: *Scirpus americanus, Scirpus validus, Scirpus atrovirens, Sparganium eurycarpum, Sagittaria latifolia, Alisma plantago aquatica, Iris shrevii, Pontederia cordata,* and *Eleocharis erythropoda. Eleocharis erythropoda* appears to have been substituted for *E. acicularis,* and *P. cordata* for *Sagittaria rigida. Sagittaria latifolia* and *Scirpus atrovirens* are naturally occurring and abundant onsite. *Scirpus cyperinus, Asclepias incarnata, Carex annectans* (similar to *C. vulpinoidea),* and *Ludwigia polycarpa* do not appear to have been planted, but are also naturally occurring and abundant onsite. In general, all planted species except *Iris* apppear to be doing well and spreading vegetatively. *Iris* has decreased in aerial extent from 1999 levels and may be considered to exhibit only fair performance. *Pontederia* is doing well and spreading overall, but has decreased in coverage in three out of four cells compared with last year's levels. This year, *Scirpus atrovirens* is doing especially well and has increased in aerial extent. Although several of the poorer cells of *Sagittaria* have apparently disappeared, the species overall is spreading vigorously. In fact *Sagittaria* has spread vegetatively beyond its planting cells to the point where it is no longer possible to distinguish the planted from the natural population. The total aerial extent of all planted species has decreased from 0.23 acre to 0.19 acre since last year, but is still greater than the 0.13 acre originally planted. *Scirpus americanus, Scirpus validus, Sparganium eurycarpum, Scirpus atrovirens* and *Sagittaria latifolia* are doing especially well (Table 3).

B. Vegetation

In 2000, a number of plant identifications have been revised, based on better specimens. *Juncus torreyi, Pycnanthemum virginianum* and *Rubus allegheniensis* have been revised to *J. brachycarpus, P. tenuifolium* and *R. pensylvanicus*. Specimens previously identifired as *Acalypha rhomboidea* include both *A. rhomboidea* and *A. virginica*. Planted individuals referred to as *Cornus* sp. and Unknown Shrub have been identified as *Cornus obliqua* and *Callicarpa dichotoma.*

Table 1. Shrub layer species composition of Wet Meadow (Site 2). Freq., Rel. Freq., Density (indiv./100 m^2), Rel. Density, Importance Value (%), N=5.

Species	Freq.	Rel. Freq.	Density	Rel. Dens.	I.V.
Fraxinus pennsylvanica	1.000	0.1351	6.200	0.2719	20.35
Ulmus americana	0.800	0.1081	3.800	0.1667	13.74
**Cornus obliqua*	0.800	0.1081	1.600	0.0702	8.92
**Quercus palustris*	0.600	0.0811	2.000	0.0877	8.44
Acer rubrum	0.400	0.0540	2.600	0.1140	8.40
**Crateagus phaenopyrum*	0.800	0.1081	1.000	0.0439	7.60
**Carpinus caroliniana*	0.600	0.0811	1.600	0.0702	7.56
Platanus occidentalis	0.600	0.0811	1.200	0.0526	6.68
**Liquidambar styraciflua*	0.600	0.0811	1.000	0.0439	6.25
**Quercus lyrata*	0.200	0.0270	0.800	0.0351	3.11
Betula nigra	0.200	0.0270	0.200	0.0088	1.79
**Nyssa sylvatica*	0.200	0.0270	0.200	0.0088	1.79
**Carya* sp.	0.200	0.0270	0.200	0.0088	1.79
Diospyros virginiana	0.200	0.0270	0.200	0.0088	1.79
**Quercus bicolor*	0.200	0.0270	0.200	0.0088	1.79
Total	7.400	0.9998	22.800	1.0002	100.0

Shrub density – 923.1/acre
* = planted species
Planted species density (including *Acer*, *Fraxinus*, and *Betula*) – 713/acre

Table 2. Shrub layer species composition of Emergent Wetland (Site 1). Freq., Rel. Freq., Density (indiv./100 m^2), Rel. Density, Importance Value (%), N=4.

Species	Freq.	Rel. Freq.	Density	Rel. Dens.	I.V.
Salix nigra	1.000	0.1739	13.000	0.4685	32.12
Ulmus americana	0.750	0.1304	4.000	0.1441	13.72
Acer rubrum	0.750	0.1304	3.750	0.1351	13.27
**Taxodium distichum*	0.750	0.1304	2.000	0.0721	10.12
Populus deltoides	0.750	0.1304	0.750	0.0270	7.87
**Callicarpa dichotoma*	0.500	0.0870	1.500	0.0540	7.05
Fraxinus pennsylvanica	0.250	0.0435	1.750	0.0631	5.33
**Crateagus phaenopyrum*	0.250	0.0435	0.250	0.0090	2.63
Salix amygdaloides	0.250	0.0435	0.250	0.0090	2.63
Betula nigra	0.250	0.0435	0.250	0.0090	2.63
**Quercus lyrata*	0.250	0.0435	0.250	0.0090	2.63
Total	5.750	1.0000	27.750	0.9999	100.00

Shrub density – 1123.5/acre
* = planted species
Planted species density (including *Fraxinus* and *Betula*) – 243/acre

Table 3. Status of Planting Pods–2000. cell, species, aerial extent (ft^2), percent cover, rating

Cell	Species	Aerial Extent (ft^2)	Percent Cover	Qualitative Rating
1-A	*Eleocharis erythropoda*	160	100	very good and spreading
1-B	*Scirpus americanus*	300	100	very good and spreading
1-C	*Sagittaria latifolia*	120	40	fair but spreading
1-D	*Scirpus validus*	80	75	good
2-A	**Sparganium eurycarpum*	200	100	very good and spreading
2-B	**Iris shrevii*	50	75	fair
2-C	***Scirpus atrovirens*	100	100	very good and spreading
2-D	**Sagittaria latifolia*	0	0	very poor
2-E	**Scirpus validus*	100	100	good
2-F	**Scirpus americanus*	160	80	very good
2-G	*Alisma plantago aquatica*	36	50	good
3-A	*Scirpus atrovirens*	100	60	good
3-B	**Iris shrevii*	80	40	fair
3-C	**Sparganium eurycarpum*	450	75	very good and spreading
3-D	*Scirpus americanus*	250	80	very good and spreading
3-E	**Iris shrevii*	80	40	fair
3-F	**Sagittaria latifolia*	0	0	very poor
3-G	*Scirpus americanus*	125	60	good
4-A	*Sparganium eurycarpum*	600	80	very good and spreading
4-B	***Scirpus atrovirens*	150	75	very good and spreading
4-C	*Scirpus validus*	600	100	very good and spreading
4-D	*Pontederia cordata*	375	75	very good and spreading
4-E	*Sagittaria latifolia*	1000	60	very good and spreading
4-F	**Pontederia cordata*	250	90	very good
4-G	*Iris shrevii*	60	50	fair
5-A	*Sparganium eurycarpum*	400	60	good
5-B	**Sagittaria latifolia*	0	0	very poor
6-A	**Sparganium eurycarpum*	0	0	very poor
6-B	*Sagittaria latifolia*	1200	50	fair but spreading
6-C	**Pontederia cordata*	150	75	fair
6-D	***Scirpus atrovirens*	140	90	very good
6-E	*Sparganium eurycarpum*	600	90	very good and spreading
6-F	*Scirpus atrovirens*	60	90	good
6-G	**Pontederia cordata*	150	75	good
6-H	**Sagittaria latifolia*	360	30	fair
	Total	8486	Wt. Mn=72.0	

* - coverage decreased since 1999
** - coverage increased since 1999

Since 1999, woody species have increased in density and planted woody species have increased in height in both the emergent and oak-hickory wetlands, although neither community yet supports a dominant shrub layer. In the emergent wetland, most planted herbaceous species have spread beyond their planting boxes to the point where they are difficult to distinguish from components of the naturally occurring plant community.

The emergent wetland is dominated by the same four species as last year: *Ludwigia palustris, Panicum rigidulum, Juncus acuminatus* and *Sagittaria latifolia,* although *P. rigidulum* has increased greatly in aerial coverage. Other changes in this community are that planted *Scirpus americanus* and *Pontederia cordata* have measurably increased in both frequency and aerial coverage beyond the planting boxes since last year. The exotic *Phragmites communis* and *Typha angustifolia* are still present. (Table 4, Appendix 1).

In the wet meadow (oak–hickory wetland) five of the six dominant species were also dominant last year: *Juncus interior, Lespedeza cuneata, Panicum acuminatum, Pycnanthemum tenuifolium* and *Eupatorium serotinum.* Community changes are that *L. cuneata* has increased greatly in aerial coverage and moved from fourth to second most dominant and *Andropogon virginicus* has increased as well. Both are weedy species. *Lycopus americanus* has decreased in abundance, while the weedy *Solidago canadensis* and *Eupatorium serotinum* remain stable (Table 5).

Beyond the excavated area, plant communities have changed little since last year. The weedy *Festuca pratensis* and *Solidago canadensis* are still among the dominant species in the non-wet shrubland in the western portion of the site. The non-native *Eleagnus angustifolia* and *Rosa multiflora* are fairly abundant here. The wet shrubland in the eastern half of the site still contains the exotic *Lonicera japonica* and *Lysimachia nummularia.*

As was the case last year, two of the plant communities at this site have dominant species that are weedy or exotic. In the unmanaged nonwet shrubland, *Solidago canadensis* and *Festuca pratensis* are among the three most dominant understory species. *Lespedeza cuneata* has increased to second most dominant in the excavated and planted oak-hickory wetland, and *Eupatorium serotinum* and *Solidago canadensis* are fifth and sixth most dominant. All of the communities have less than 50% exotic or weedy species. A number of the annual species present may be considered desirable. The Floristic Quality (Taft et al., 1997) appears to be improving in both the emergent and oak-hickory wetlands. In the emergent wetland, percent nonnative or weedy species has decreased from 19.4% to 14.8%, while the total number of species has increased from 67 to 72. Native Floristic Quality has increased from 25.9 to 26.3. In the oak-hickory wetland, percent nonnative or weedy species has decreased from 27.5% to 23.1%, while total number of species has increased from 69 to 87. Native Floristic Quality has increased from 22.4 to 26.4 (Plocher et al., 1999; Appendix 1). In both the emergent wetland and the ditch bank community the State listed species, *Eryngium prostratum* (Endangered), has increased in abundance. In the emergent wetland, the number of clumps has increaesed from 11 to 15 and mean clump size has increased from 0.2 m^2 to 0.7 m^2. In the ditch bank community, the 12 clumps present in 1999 have merged to form five clumps. Mean clump size has increased from 0.2 m^2 to 2.2 m^2.

Table 4. Understory species composition of Emergent Wetland (Site 1). Freq., Rel. Freq., Dominance (m^2/m^2), Rel. Dom., Importance Value (%), N=15.

Species	Freq.	Rel. Freq.	Dom.	Rel. Dom	I.V.
Ludwigia palustris	1.0000	0.1442	0.2600	0.2061	17.52
Panicum rigidulum	0.6667	0.0962	0.2067	0.1638	13.00
Juncus acuminatus	0.5333	0.0769	0.1913	0.1516	11.42
Sagittaria latifolia	0.8000	0.1154	0.0753	0.0597	8.76
Eleocharis obtusa	0.4667	0.0673	0.0500	0.0396	5.34
**Pontederia cordata*	0.2000	0.0288	0.0700	0.0555	4.21
Echinochloa muricata	0.2000	0.0288	0.0467	0.0370	3.29
Cyperus pseudovegetus	0.2667	0.0385	0.0247	0.0196	2.91
**Scirpus americanus*	0.1333	0.0192	0.0420	0.0333	2.63
Scirpus atrovirens	0.2000	0.0288	0.0267	0.0212	2.50
Eupatorium serotinum	0.2000	0.0288	0.0113	0.0090	1.89
Juncus marginatus	0.2000	0.0288	0.0107	0.0085	1.87
Juncus interior	0.1333	0.0192	0.0200	0.0159	1.75
Mimulus alatus	0.1333	0.0192	0.0200	0.0159	1.75
Carex normalis	0.1333	0.0192	0.0167	0.0132	1.62
Polygonum punctatum	0.1333	0.0192	0.0133	0.0105	1.48
Polygonum hydropiperoides	0.1333	0.0192	0.0113	0.0090	1.41
Ludwigia polycarpa	0.1333	0.0192	0.0087	0.0069	1.30
Leersia oryzoides	0.0667	0.0096	0.0200	0.0159	1.27
Carex lupulina	0.0667	0.0096	0.0200	0.0159	1.27
Andropogon virginicus	0.1333	0.0192	0.0067	0.0053	1.23
Ulmus americana	0.1333	0.0192	0.0053	0.0042	1.17
**Eleocharis erythropoda*	0.0667	0.0096	0.0167	0.0132	1.14
Polygonum amphibium	0.0667	0.0096	0.0167	0.0132	1.14
Scirpus cyperinus	0.0667	0.0096	0.0133	0.0105	1.01
Acer rubrum	0.0667	0.0096	0.0133	0.0105	1.01
Alisma plantago aquatica	0.0667	0.0096	0.0080	0.0063	0.79
Penthorum sedoides	0.0667	0.0096	0.0067	0.0053	0.74
Ludwigia alterniflora	0.0667	0.0096	0.0067	0.0053	0.74
Populus deltoides	0.0667	0.0096	0.0067	0.0053	0.74
Phyla lanceolata	0.0667	0.0096	0.0047	0.0037	0.67
Hypericum mutilum	0.0667	0.0096	0.0033	0.0026	0.61
Paspalum laeve	0.0667	0.0096	0.0033	0.0026	0.61
**Taxodium distichum*	0.0667	0.0096	0.0027	0.0021	0.59
Bidens frondosa	0.0667	0.0096	0.0020	0.0016	0.56
Total	6.9336	0.9993	1.2615	0.9998	99.94

* = planted species

Table 5. Understory species composition of Wet Meadow (Site 2). Freq., Rel. Freq., Dominance (m^2/m^2), Rel. Dom., Importance Value (%), N=9.

Species	Freq.	Rel. Freq.	Dom.	Rel. Dom.	I.V.
Juncus interior	1.0000	0.0732	0.2500	0.1553	11.43
Lespedeza cuneata	0.7778	0.0569	0.1911	0.1187	8.78
Panicum acuminatum	0.8889	0.0650	0.1555	0.0966	8.08
Pycnanthemum tenuifolium	0.8889	0.0650	0.1322	0.0821	7.36
Eupatorium serotinum	0.7778	0.0569	0.1144	0.0711	6.40
Solidago canadensis	0.7778	0.0569	0.0867	0.0539	5.54
Ulmus americana	0.7778	0.0569	0.0611	0.0380	4.75
Andropogon virginicus	0.5555	0.0406	0.0722	0.0448	4.27
Carex normalis	0.6667	0.0488	0.0533	0.0331	4.09
Acalypha rhomboidea	0.6667	0.0488	0.0533	0.0331	4.09
Scirpus atrovirens	0.3333	0.0244	0.0500	0.0311	2.77
Lycopus americanus	0.5555	0.0406	0.0222	0.0138	2.72
Rubus pensylvanicus	0.3333	0.0244	0.0444	0.0276	2.60
Ludwigia polycarpa	0.4444	0.0325	0.0300	0.0186	2.55
Panicum rigidulum	0.3333	0.0244	0.0356	0.0221	2.32
Setaria glauca	0.3333	0.0244	0.0244	0.0152	1.98
Panicum anceps	0.3333	0.0244	0.0200	0.0124	1.84
Panicum clandestinum	0.2222	0.0163	0.0278	0.0173	1.68
Helenium autumnale	0.2222	0.0163	0.0200	0.0124	1.44
Echinochloa muricata	0.2222	0.0163	0.0189	0.0117	1.40
Leersia oryzoides	0.2222	0.0163	0.0144	0.0089	1.26
Polygonum punctatum	0.2222	0.0163	0.0089	0.0055	1.09
Hypericum mutilum	0.2222	0.0163	0.0089	0.0055	1.09
Acer rubrum	0.2222	0.0163	0.0089	0.0055	1.09
Juncus brachycarpus	0.2222	0.0163	0.0067	0.0042	1.03
Verbena hastata	0.1111	0.0081	0.0167	0.0104	0.93
Boehmeria cylindrica	0.1111	0.0081	0.0133	0.0083	0.82
Eleocharis obtusa	0.1111	0.0081	0.0111	0.0069	0.75
Euthamia graminifolia	0.1111	0.0081	0.0089	0.0055	0.68
Cyperus strigosus	0.1111	0.0081	0.0089	0.0055	0.68
**Itea virginica*	0.1111	0.0081	0.0078	0.0048	0.65
**Quercus lyrata*	0.1111	0.0081	0.0078	0.0048	0.65
Ipomea lacunosa	0.1111	0.0081	0.0056	0.0035	0.58
Eupatorium perfoliatum	0.1111	0.0081	0.0056	0.0035	0.58
Juncus marginatus	0.1111	0.0081	0.0033	0.0020	0.50
Fraxinus pennsylvanica	0.1111	0.0081	0.0033	0.0020	0.50
**Crateagus phaenopyrum*	0.1111	0.0081	0.0033	0.0020	0.50
Linum medium	0.1111	0.0081	0.0033	0.0020	0.50
Total	13.6662	0.9998	1.6098	0.9997	99.97

* = planted species

C. Cover Type Report

Little change since last year.

Shrubland – This community is located in the western and north-central parts of the site. *Acer rubrum* dominates the sapling layer, and *Rubus pensylvanicus* the shrub layer, while *Solidago canadensis*, *Festuca pratensis*, and *Vernonia missurica* dominate the understory. Trees appear to be about ten years old.

Wet Shrubland – This community is located in the eastern portion of the site. *Acer rubrum* and *Fraxinus pennsylvanica* dominate the sapling and shrub layers. Due to heavy shade, the understory is sparse. Trees appear to be about fifteen years old.

Wet Meadow – This community is now reduced to small, isolated patches scattered throughout the site, and will eventually succeed to forest. The herb layer is dominated by *Echinochloa muricata, Festuca pratensis, Lysimachia nummularia,* and *Panicum rigidulum.*

Floodplain Forest – Several areas in the southern portion of the site support floodplain forest. The majority of the trees are 40 to 60 years old, with scattered individuals aged about 90 years. *Quercus palustris, Fraxinus pennsylvanica,* and *Betula nigra* dominate the overstory, while *Acer rubrum* and *Fraxinus pennsylvanica* dominate the sapling and shrub layers. The understory is dominated by *Elymus virginicus, Festuca pratensis* and *Impatiens capensis.*

Emergent Wetland – In the central portion of the site, within an excavated area, an emergent wetland has become established. The dominant species are *Juncus acuminatus, Sagittaria latifolia, Ludwigia palustris,* and *Panicum rigidulum.* This community is of good natural quality and harbors a population of the State Endangered *Eryngium prostratum.*

Wet Meadow (oak-hickory wetland) – Within the excavated area, adjacent to the emergent wetland, a wet meadow has become established. The dominant species are *Juncus interior, Panicum acuminatum, Eupatorium serotinum, Lespedeza cuneata, Pycnanthemum tenuifolium,* and *Solidago canadensis*. The site is of good natural quality. Seedling and shrub stage trees are common and this area will succeed to forest without management.

Ditch – This community has been recently created (1996) at the southeast border of the site. We mention this somewhat artificial community here because it has good natural quality and harbors several very uncommon species, including *Rhexia virginica* (FQI=10) and the State Endangered *Eryngium prostratum.* The dominant species are *Ludwigia palustris* and *Lycopus americanus*(Table 6).

Grass Strip – A 14 m (45 ft) wide grass strip was established on disturbed land adjacent to the ditch in the southeast part of the site. *Andropogon gerardii* and *Agrostis alba* are the dominant species.

Table 6. Plant Communities Present

A. Emergent Wetland

Understory – dominant - *Ludwigia palustris, Panicum rigidulum, Juncus acuminatus Sagittaria latifolia*

Understory - occasional –*Eleocharis obtusa, Eupatorium serotinum, Lycopus americanus, Polygonum setaceum, Ludwigia alternifolia, Eryngium prostratum*

B. Wet Meadow (oak-hickory wetland)

Understory – dominant – *Juncus interior, Lespedeza cuneata, Panicum acuminatum, Pycnanthemum tenuifolium, Eupatorium serotinum, Solidago canadensis*

Understory – occasional – *Lycopus americanus, Acalypha rhomboidea, Fraxinus pennsylvanica, Panicum rigidulum, Andropogon virginicus*

C. Floodplain Forest

Overstory- dominant – *Quercus palustris, Betula nigra, Fraxinus pennsylvanica*
Sapling/Shrub – dominant – *Fraxinus pennsylvanica, Acer rubrum*
Understory – dominant – *Elymus virginicus, Festuca pratensis, Impatiens capensis*

Overstory – occasional – *Acer rubrum, Ulmus americana, Gleditsia triacanthos*
Sapling/Shrub–occasional– *Quercus palustris, Acer negundo, Symphoricarpos orbiculatus*
Understory – occasional – *Cinna arundinacea, Glyceria striata, Lysimachia nummularia*

D. Wet Shrubland

Sapling/Shrub– dominant – *Acer rubrum, Fraxinus pennsylvanica*

Sapling – occasional – *Betula nigra, Ulmus americana, Diospyros virginiana,*
Shrub – occasional – *Ulmus americana, Rubus occidentalis, Rosa multiflora*
Understory – occasional – *Festuca pratensis, Lysimachia nummularia, Lonicera japonica*

E. Shrubland

Sapling – dominant – *Acer rubrum*
Shrub – dominant – *Rubus pensylvanicus*
Understory – dominant – *Solidago canadensis, Festuca pratensis, Vernonia missurica*

Sapling – occasional – *Fraxinus pennsylvanica, Gleditsia triacanthos, Acer negundo*
Shrub – occasional – *Rosa multiflora, Symphoricarpos orbiculatus, Eleagnus angustifolia*
Understory – occasional – *Apocynum cannabinum, Euthamia graminifolia, Aster pilosus*

F. Ditch

Understory – dominant – *Ludwigia palustris, Lycopus americanus*

Understory–occasional– *Lobelia cardinalis, Eryngium prostratum, Leersia oryzoides*

Faunal Surveys

Amphibians and Reptiles

Amphibians:
1. Blanchard's Cricket Frog (*Acris crepitans blanchardi*) - 1999, 2000
2. Gray Treefrog complex (*Hyla versicolor-chrysoscelis*) - 1999, 2000
3. Spring Peeper (*Pseudacris crucifer*) - 1999, 2000
4. Western Chorus Frog (*Pseudacris triseriata*) -1999, 2000
5. Southern Leopard Frog (*Rana sphenocephala*) – 1999, 2000
6. Smallmouth Salamander (*Ambystoma texanum*) – 2000

Reptiles:
1. Eastern Box Turtle (*Terrepene carolina*) - 2000

Species Observations

Blanchard's Cricket Frog
Three Blanchard's cricket frogs were observed in the ditch at the eastern edge of the site on 15 March. One tadpole was dipnetted from the emergent wetland on 20 July.

Gray Treefrog Complex
On 20 July, hundreds of gray treefrog tadpoles were observed in the east ditch and 10 were dipnetted from the emergent wetland. One metamorph was observed in the floodplain forest.

Spring Peeper
On 14 March, several spring peepers were heard calling, and one was observed, in the emergent wetland..

Chorus Frog
In the emergent wetland, five chorus frogs were heard calling on 4 March and several were heard calling on 14 March. More than 50 egg masses were observed on 4 March and all had hatched by 14 March with tadpoles observed. One new egg mass was observed on 14 March. A full chorus of western chorus frogs was heard on 15 March. Three near metamorphic chorus frogs were dipnetted from the wooded pond on 26 May and, on 20 July, four metamorphs were observed near the pond. Several chorus frog metamorphs were observed in the floodplain forest on 20 July.

Southern Leopard Frog
In the emergent wetland, two southern leopard frogs were heard calling on 4 March and also on 15 May. One egg mass was observed on 4 March and three were observed on 14 March. On 26 May, ten tadpoles were dipnetted.

Smallmouth Salamander
In the wooded pond, smallmouth salamander egg masses were observed on 15 March. Ten larvae were dipnetted on 26 May.

Eastern Box Turtle
The remains of an eastern box turtle were observed on the shoulder of IL 13 near the southern boundary of the site.

Six amphibian species and one reptile were observed in 2000. Five of the six amphibian species were observed in 1999 as well. Eggs of western chorus frogs, southern leopard frogs and smallmouth salamanders were observed. Larvae of leopard frogs, gray treefrogs, Blanchard's cricket frogs, chorus frogs and smallmouth salamanders were observed (larval leopard frogs, chorus frogs and spring peepers were observed in 1999). Metamorphic gray tree frogs and western chorus frogs were observed in 1999 and 2000. Leopard frog metemorphs were observed in 1999. Adults of all species except smallmouth salamanders and gray tree frogs were observed this year (gray tree frog adults were observed in 1999).

Thus, evidence of recruitment is apparent for all amphibian species listed above. The compensation site is potential habitat or dispersal corridor for a large number of amphibians and reptiles. It is especially suitable as breeding habitat for pond-breeding amphibians that require fishless wetlands. It must be noted, however, that two species of fish (*Gambusia affinis* and one *Lepomis* sp.) were found in the emergent wetland and black bullheads (*Ameiurus melas*) occur in the east ditch. *Lepomis* are known to prey on all stages of pond-breeding amphibians and can completely eliminate pond-breeding amphibians from wetlands. Night surveys for gray treefrogs are planned for the 2001 field season. Drift fence/pitfall trap arrays may be considered.

Birds

A total of 276 individuals of 47 species were detected during our censuses, compared to 201 individuals of 44 species in 1999. No Illinois endangered, threatened or watch list species were observed. We found a good number of common forest, grassland and scrub habitat birds at the site. Consistent with the small size of habitat fragments present, no resident area sensitive species (e.g. tanagers, warblers) were found in the area. We encountered many more migrant species than in 1999, probably due to sampling earlier in the season.

Table 7. Description of habitat surrounding the four census points.

Census Point	Habitat Description
1	wet forest, second growth, stream, pond
2	mostly wet meadow, scrub, small trees, wet forest
3	scrub, some wet forest
4	scrub

Table 8. Breeding census results. The values represent the sum of the two censuses conducted at each census point. Counts for each point are presented as well as the total count for each species.

Species	1	2	3	4	Total
Wood Duck	0	0	1		1
Red-tailed Hawk	0	1	2	1	4
Northern Bobwhite	2	0	6	0	8
Solitary Sandpiper [M]	1	0	0	0	1
Mourning Dove	2	1	1	3	7
Yellow-billed Cuckoo	1	0	0	0	1
Chimney Swift	3	2	1	0	6
Yellow-bellied Sapsucker [M]	0	0	2	0	2
Red-bellied Woodpecker	0	1	1	2	4
Downy Woodpecker	1	0	0	1	2
Eastern Wood-Pewee	0	0	0	2	2
Eastern Kingbird	0	0	0	3	3
Great Crested Flycatcher	0	0	1	2	3
Blue Jay	3	1	1	4	9
American Crow	1	1	2	2	6
Carolina Chickadee	4	1	3	5	13
Eastern Tufted Titmouse	3	0	0	8	11
White-breasted Nuthatch	0	0		1	1
Carolina Wren	1	2	0	2	5
House Wren	0	0	0	1	1
Blue-gray Gnatcatcher	0	0	3		3
Eastern Bluebird	0	0	2	0	2
American Robin	1	6	5	8	20

Gray Catbird	1	1	3	1	**6**
Northern Mockingbird	0	2	0	0	**2**
Brown Thrasher	1	0	0	2	**3**
European Starling	5	27	3	50	**85**
White-eyed Vireo	2	0	3	1	**6**
Blue-headed Vireo [M]	0	0	0	1	**1**
Warbling Vireo	0	2	1	0	**3**
Golden-winged Warbler [M]	1	0	0	0	**1**
Tennessee Warbler [M]	0	0	1	0	**3**
Magnolia Warbler [M]	0	0	2	1	**3**
Common Yellowthroat	0	0	7	0	**7**
Yellow-breasted Chat	2	2	0	0	**4**
Northern Cardinal	4	3	1	2	**10**
Indigo Bunting	2	1	1	1	**5**
Rufous-sided Towhee	0	1	0	2	**3**
Field Sparrow	3	1	3	1	**8**
Swamp Sparrow [M]	0	2	0	0	**2**
Song Sparrow	1	2	2	1	**6**
Red-winged Blackbird	4	5	8	3	**20**
Eastern Meadowlark	1	0	0	0	**1**
Common Grackle	2	0	0	5	**7**
Brown-headed Cowbird	0	1	0	1	**2**
Baltimore Oriole	1	0	0	2	**3**
American Goldfinch	1	0	4	0	**5**
House Sparrow	0	0	0	1	**1**
Number of individuals	**54**	**36**	**68**	**118**	**276**
Number of species	**27**	**21**	**27**	**31**	**47**

Summary and Recommendations

Overall, this site is still developing quite well. Revised estimates of acreage with wetland hydrology indicate that the requirement for acreage of wetland restoration and creation (9.15 acres) either has been or is close to being met. All plant communities are of fair to good natural quality, with less than 50% of the plant species weedy or exotic. Only the nonwet shrubland and the wet meadow (oak-hickory wetland) have dominant species that are weedy or exotic. This may not be of serious concern in the nonwet shrubland. The emergent wetland and the ditch bank community support thriving populations of the State Endangered *Eryngium prostratum.*

In the wet meadow (oak-hickory wetland) floristic quality is good, and species richness and floristic quality have increased since last year. Shrub stage woody species are more abundant and planted tree and shrub species appear well represented by healthy individuals (13 species observed). This site will naturally regenerate to forest. Problems in this community are the continued dominance of *Solidago canadensis* and *Eupatorium serotinum*, and the dominance and increase in abundance of the noxious weed, *Lespedeza cuneata.* Although *Lespedeza, Solidago* and *Eupatorium* will greatly decrease when the young forest achieves canopy closure at about 10 years, these weeds will certainly remain dominant throughout the five year monitoring period. Another point to consider is that floristic quality and species richness will decrease substantially as the young forest begins to shade the understory. All in all, it may be best to occasionally mow or prescribe burn this site and subject the *Lespedeza* to herbicide treatment according to the following schedule:

Sericea Lespedeza Control:

Sericea lespedeza, *Lespedeza cuneata,* has a negative impact on food and cover for wildlife and on biological diversity (Vermeire *et al.*, no date). Once established, sericea lespedeza will reduce or eliminate competing vegetation. In addition to competing for light, water, and nutrients, *Lespedeza cuneata* produces allelopathic chemicals that inhibit seed germination and growth of other plants (Vermeire *et al.*, no date). Grazing, burning, and applying 2,4-D do not control sericea lespedeza. Fire probably increases seed germination and promotes establishment of new plants. Probably the best way to control sericea lespedeza involves a combination of multiple mowing and application of the herbicides Ally and Remedy. Multiple mowing reduces the vigor of plants. The plants should be mowed whenever they reach 12-18 inches in height. Vermeire *et al.* (no date) claim excellent results from application of Remedy in June and July (at 1 pint/acre) and Ally in September (0.3 oz/acre). The Kansas Forage Task Force (no date) recommend Escort (0.5 oz/acre) or Ally. Follow-up treatments will be necessary since sericea lespedeza produces abundant seed, and a seed bank undoubtedly exists in the soil. Burning in the spring before mowing and application of herbicide will encourage seed germination and depletion of the seed bank.

In the emergent wetland floristic quality also remains quite good, with species richness and floristic quality increasing since last year. Planted herbaceous species (9 species observed) are vigorous and have spread well beyond their planting boxes. The population of State Endangered *Eryngium prostratum* is healthy. This site has several potentially serious problems, however. Clumps of the weedy and/or exotic *Phragmites communis* and *Typha angustifolia* will spread and should be eliminated through herbicide application. In 2000, abundant natural shrub stage tree regeneration was noted, along with numerous planted *Taxodium, Fraxinus* and *Betula* within the emergent wetland. Without management, the site will rapidly develop into forest. Forest canopy is not compatible with the planted emergent wetland vegetation or with continued persistence of the State Endangered *Eryngium prostratum* and will result in the eventual loss of these species. We recommend winter or

early spring mowing or hand clipping of this site. In 2000, a previously unidentified planted shrub was determined to be the exotic *Callicarpa dichotoma* (Chinese beauty berry). Quite a few individuals were noted. This species is known to escape and persist in wetlands in the southeastern United States. When wetland restoration or creation at a site is intended to mitigate for wetland impacts, the intentional establishment of a persistent exotic species is not compatible with this goal.

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Appendix 1: Wetland Determinations

and Species Lists

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 1 of 4)

Field Investigators: Placher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Emergent Wetland
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: eastern part of the central portion of the site (adjacent to Site 2)

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. *Ludwigia palustris*	herb	OBL
2. *Panicum rigidulum*	herb	FACW
3. *Juncus acuminatus*	herb	OBL
4. *Sagittaria latifolia*	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
On Saline 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: Redox depletions: Yes: X No:
Matrix color: 5Y 7/1
Other indicators: This soil is found in a level to depressional area on a floodplain.

Hydric soils: Yes: X No:
Rationale: Bonnie silt loam is a poorly drained soil that meets the requirements of the Natural Resource Conservation Service hydric soil indicator F3, depleted matrix.

ROUTINE ON-SITE WETLAND DETERMINATION

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Emergent Wetland
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4
Location: eastern part of the central portion of the site (adjacent to Site 2)

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA
Depth to saturated soil: greater than 1.2 m (48 inches)
Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation and runoff from the surrounding uplands. Evapotranspiration and sheetflow are the major outputs.
Size of watershed: 2.59 km^2 (1 mi^2)
Other field evidence observed: wetland drainage pattern, bare soil areas, the site is an excavated depression.

Wetland hydrology: Yes: X No:
Rationale: The eveidence cited above indicates that this 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 present. Therefore the site is a wetland. The site is not coded by the NWI.

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

Site 1 (page 3 of 4)

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Emergent Wetland
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: eastern part of the central portion of the site (adjacent to Site 2)

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	FQI*
Acer rubrum	red maple	seedl	FAC	5
Alisma plantago aquatica	water plantain	herb	OBL	2
**Andropogon virginicus*	broomsedge	herb	FAC-	1
Asclepias incarnata	swamp milkweed	herb	OBL	4
Aster vimineus	frost flower	herb	FACW-	3
Betula nigra	river birch	shrub	FACW	4
***Bidens connata*	beggar's ticks	herb	OBL	2
***Bidens frondosa*	beggar's ticks	herb	FACW	1
Boehmeria cylindrica	false nettle	herb	OBL	3
**Callicarpa dichotoma*	Chinese beautyberry	herb	(planted)	
Carex lupulina	hop sedge	herb	OBL	5
Carex normalis	sedge	herb	FACW	4
Cephalanthus occidentalis	button bush	seedl	OBL	4
Cicuta maculata	water hemlock	herb	OBL	4
Cyperus pseudovegatus	flat sedge	herb	FACW	5
**Cyperus strigosus*	straw colored flat sedge	herb	FACW	0
**Echinochloa muricata*	barnyard grass	herb	OBL	0
Eleocharis erythropoda	spike rush	herb	(planted)	3
***Eleocharis obtusa*	spike rush	herb	OBL	2
***Erechtites hieracifolia*	fireweed	herb	FACU	2
Eryngium prostratum	eryngo	herb	OBL	5
Eupatorium perfoliatum	boneset	herb	FACW+	4
**Eupatorium serotinum*	late flowering thoroughwort	herb	FAC+	1
Fraxinus pennsylvanica	green ash	shrub/seedl	FACW	2
Helenium autumnale	sneezeweed	herb	FACW+	3
Hypericum mutilum	dwarf St. John's wort	herb	FACW	5
Iris shrevei	blue flag iris	herb	(planted)	5
Itea virginica	sweet spires	shrub	(planted)	10
Juncus acuminatus	knotty leaf rush	herb	OBL	4
Juncus brachycarpus	rush	herb	FACW	5
Juncus interior	inland rush	herb	FAC+	3
Juncus marginatus	grass leaved rush	herb	FACW	5
Leersia oryzoides	rice cutgrass	herb	OBL	3
Linum medium	small yellow flax	herb	FACU	7
Ludwigia alternifolia	seedbox	herb	OBL	5
Ludwigia palustris	marsh purslane	herb	OBL	4
Ludwigia polycarpa	many fruited seedbox	herb	OBL	5
Lycopus americanus	horehound	herb	OBL	3

*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

(continued on following page)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 1 (page 4 of 4)

Field Investigators: Plocher, Larimore , Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Emergent Wetland
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: eastern part of the central portion of the site (adjacent to Site 2)

SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland indicator status	*FQI*
Mimulus altatus	winged monkey flower	herb	OBL	6
Panicum rigidulum	Munro grass	herb	FACW	6
Paspalum laeve	smooth bead grass	herb	FACW-	2
Penthorum sedoides	ditch stonecrop	herb	FACW-	2
**Phragmites communis*	giant reed	herb	FACW+	1
**Phyla lanceolata*	fog fruit	herb	OBL	1
Pluchea camphorata	camphor weed	herb	FACW	8
Platanus occidentalis	sycamore	shrub	FACW	3
Polygonum amphibium	water smartweed	herb	OBL	3
**Polygonum cespitosum*	black bindweed	herb	UPL	
Polygonum hydropiperoides	water pepper	herb	OBL	4
***Polygonum pensylvanicum*	giant smartweed	herb	FACW+	1
Polygonum punctatum	dotted smartweed	herb	OBL	3
Pontederia cordata	pickeralweed	herb	(planted)	8
Populus deltoides	cottonwood	shrub/seedl	FAC+	2
Pycnanthemum tenuifolium	mountain mint	herb	FAC	4
Quercus lyrata	overcup oak	shrub	(planted)	7
Quercus palustris	pin oak	shrub	(planted)	4
Rumex altissimus	pale dock	herb	FACW-	2
Sagittaria latifolia	arrowhead	herb	OBL	4
Salix amygdaloides	peach leaf willow	shrub	FACW	4
Salix nigra	black willow	shrub/seedl	OBL	3
Scirpus americanus	American bulrush	herb	(planted)	3
Scirpus atrovirens	green bulrush	herb	OBL	4
Scirpus cyperinus	wool grass	herb	OBL	5
Scirpus validus	great bulrush	herb	(planted)	4
Sium suave	water parsnip	herb	OBL	5
Sparganium eurycarpum	burreed	herb	(planted)	5
Taxodium distichum	bald cypress	shrub	(planted)	7
**Typha angustifolia*	narrow leaf cattail	herb	OBL	
**Typha latifolia*	common cattail	herb	OBL	1
Ulmus americana	American elm	seedl	FACW-	5
Verbena hastata	blue vervain	herb	FACW+	3
Vernonia missurica	Missouri ironweed	herb	FAC+	5

*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

*=non-native or weedy (14.8%), **=annual, but desirable
FQI=R/√N=202/√59=26.3, mean C=R/N=202/59= 3.4
FQI (including planted species) = 258/√69= 31.1, mean C=R/N=258/69=3.7

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 1 of 4)

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.:(7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet Meadow (oak, - hickory wetland)
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: central portion of site (adjacent to Site 1)

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. *Juncus interior*	herb	FAC+
2. *Lespedeza cuneata*	herb	NI
3. *Panicum acuminatum*	herb	FAC
4. *Pycnanthemum tenuifolium*	herb	FAC
5. *Eupatorium serotinum*	herb	FAC+
6. *Solidago canadensis*	herb	FACU

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 80%

Hydrophytic vegetation: Yes: X No:
Rationale: More than 50% of dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Bonnie silt loam
On Saline 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: Redox depletions: Yes: X No:
Matrix color: 5Y 7/1 and 2.5Y 6/2
Other indicators: This soil is found in a level to depressional area on a floodplain.

Hydric soils: Yes: X No:
Rationale: Bonnie silt loam is a poorly drained soil that meets the requirements of the Natural Resource Conservation Service hydric soil indicator F3, depleted matrix.

ROUTINE ON-SITE WETLAND DETERMINATION

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet Meadow (oak- hickory wetland)
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: central portion of the site (adjacent to Site 1)

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA
Depth to saturated soil: Greater than 1.2 m (48 in)
Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation, runoff from the surrounding uplands and occasional overbank flow. Evapotranspiration and sheetflow are the major outputs.
Size of watershed: 2.59 km^2 (1 mi^2)
Other field evidence observed: The site is level to depressional on the landscape.
Wetland hydrology: Yes: X No:
Rationale: Field evidence indicates that this site is inundated or saturated for a sufficient portion of the growing season to meet the wetland hydrology criterion.

WETLAND DETERMINATION AND RATIONALE:

Is the site a wetland?: Yes: X No:
Rationale: Hydrophytic vegetation, hydric soils and wetland hydrology are present. Therefore the site is a wetland. The site is not coded by the NWI.

Determined by: Allen Plocher (vegetation and hydrology)
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ROUTINE ON-SITE WETLAND DETERMINATION
Site 2 (page 3 of 5)

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet Meadow (oak – hickory wetland)
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: central portion of the site (adjacent to Site 1)

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	FQI*
**Acalypha rhomboidea*	three seeded Mercury	herb	FACU	0
***Acalypha virginica*	three seeded Mercury	herb	FACU	2
Acer rubrum	red maple	shrub/seedl	FAC	5
Agalinus tenuifolia	slender false foxglove	herb	FACW	5
**Ambrosia artemisiifolia*	common ragweed	herb	FACU	0
**Andropogon virginicus*	broomsedge	herb	FAC-	1
Asclepias incarnata	swamp milkweed	herb	OBL	4
**Aster pilosus*	hairy aster	herb	FACU+	0
Aster vimineus	frost flower	herb	FACW-	3
Betula nigra	river birch	shrub/seedl	FACW	4
***Bidens aristosa*	beggar's ticks	herb	FACW	1
Boehmeria cylindrica	false nettle	herb	OBL	3
Boltonia asteroides	false aster	herb	FACW	5
Campsis radicans	trumpet creeper	herb	FAC	2
Carex annectans	sedge	herb	FACW	3
Carex muskingumensis	sedge	herb	OBL	6
Carex normalis	sedge	herb	FACW	4
Carex tribuloides	sedge	herb	FACW+	3
Carpinus caroliniana	iron wood	shrub	(planted)	6
Carya sp.	hickory	shrub	(planted)	–
Cephalanthus occidentalis	button bush	seedl	OBL	4
Cicuta maculata	water hemlock	herb	OBL	4
Crateagus phaenopyrum	Washington thorn	shrub	(planted)	5
Cyperus pseudovegatus	rush	herb	FACW	5
**Cyperus strigosus*	straw colored flat sedge	herb	FACW	0
Desmodium paniculatum	panicled tick trefoil	herb	FACU	2
Diospyros virginiana	persimmon	shrub/seedl	FAC	2
**Echinochloa muricata*	barnyard grass	herb	OBL	0
Eclipta prostrata	yerba de tajo	herb	FACW	2
**Elaeagnus angustifolia*	Russian olive	shrub	FACU-	

*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

(continued on following page)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 2 (page 4 of 5)

Field Investigators: Plocher, Larimore , Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet Meadow (oak – hickory wetland)
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: central portion of the site (adjacent to Site1)

SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland indicator status	FQI*
****Eleocharis obtusa*	spikerush	herb	OBL	2
****Erechtites hieracifolia*	fireweed	herb	FACU	2
Eupatorium coelestinum	mistflower	herb	FAC+	3
Eupatorium perfoliatum	boneset	herb	FACW+	4
**Eupatorium serotinum*	late flowering thoroughwort	herb	FAC+	1
Euthamia graminifolia	grass leaf goldenrod	herb	FACW-	3
Fraxinus pennsylvanica	green ash	shrub/seedl	FACW	2
Helenium autmnale	sneezeweed	herb	FACW+	3
Hypericum mutilum	dwarf St. John's wort	herb	FACW	5
**Ipomea lacunosa*	morning glory	herb	FACW	1
Itea virginica	sweet spires	seedl	(planted)	10
Juncus brachycarpus	rush	herb	FACW	5
Juncus interior	inland rush	herb	FAC+	3
Juncus marginatus	grass leaved rush	herb	FACW	5
**Kummerowia striata*	Japanese lespedeza	herb	FACU	
Leersia oryzoides	rice cutgrass	herb	OBL	3
**Lespedeza cuneata*	Chinese bush clover	herb	NI	
Linum medium	small yellow flax	herb	FACU	7
Liquidambar styraciflua	sweet gum	shrub	(planted)	6
Lobelia inflata	Indian tobacco	herb	FACU-	4
Ludwigia alternifolia	seedbox	herb	OBL	5
Ludwigia polycarpa	many fruited seedbox	herb	OBL	5
Lycopus americanus	horehound	herb	OBL	3
Mimulus altatus	winged monkey flower	herb	OBL	6
Nyssa sylvatica	black gum	shrub	(planted)	7
Panicum acuminatum	panic grass	herb	FAC	2
Panicum anceps	panic grass	herb	FACW	3
Panicum clandestinum	deer tongue grass	herb	FACW	4
Panicum rigidulum	Munro grass	herb	FACW	6
Paspalum laeve	smooth bead grass	herb	FACW-	2

*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

(continued on following page)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 2 (page 5 of 5)

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet Meadow (oak – hickory wetland)
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: central portion of the site (adjacent to Site 1)

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	FQI*
Penthorum sedoides	ditch stonecrop	herb	OBL	2
**Phragmites communis*	giant reed	herb	FACW+	1
**Phyla lanceolata*	fog fruit	herb	OBL	1
***Phyllanthus caroliniensis*	Carolina leaf flower	herb	FAC	5
Platanus occidentalis	sycamore	shrub/seedl	FACW	3
Pluchea camphorata	camphor weed	herb	FACW	8
Polygonum hydropiperoides	water pepper	herb	OBL	4
***Polygonum pensylvanicum*	giant smartweed	herb	FACW+	1
Polygonum punctatum	dotted smartweed	herb	OBL	3
Populus deltoides	cottonwood	shrub/seedl	FAC+	2
Pycnanthemum tenuifolium	mountain mint	herb	FAC	4
Quercus bicolor	swamp white oak	shrub	(planted)	7
Quercus lyrata	overcup oak	shrub/seedl	(planted)	7
Quercus palustris	pin oak	shrub/seedl	(planted)	4
Rubus pensylvanicus	black berry	shrub	FAC-	2
Salix amygdaloides	peach leaf willow	shrub/seedl	FACW	4
Salix nigra	black willow	shrub/seedl	OBL	3
Scirpus atrovirens	green bulrush	herb	OBL	4
Scirpus cyperinus	wool grass	herb	OBL	5
**Setaria glauca*	yellow foxtail	herb	FAC	
**Solanum carolinense*	horse nettle	herb	FACU-	0
**Solidago canadensis*	Canada goldenrod	herb	FACU	1
**Toxicodendron radicans*	poison ivy	seedl	FAC+	1
**Tridens flavus*	false redtop	herb	UPL	1
Ulmus americana	American elm	shrub/seedl	FACW-	5
Verbena hastata	blue vervain	herb	FACW+	3
Vernonia missurica	Missouri ironweed	herb	FAC+	5

*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

*=non-native or weedy (23.1%), **=annual, but desirable
FQI=R/√N=227/√74=26.4, mean C=R/N=227/74= 3.1
FQI (including planted species)= 279/√82= 30.8, mean C= 279/82= 3.4

ROUTINE ON-SITE WETLAND DETERMINATION

Site 3 (page 1 of 4)

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Shrubland
Legal Description: T.9S., R.5 E., Sect. 18, NE/4 SW/4

Location: western 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. *Acer rubrum*	sapling	FAC
2. *Rubus pensylvanicus*	shrub	FAC-
3. *Solidago canadensis*	herb	FACU
4. *Festuca pratensis*	herb	FACU-
5. *Vernonia missurica*	herb	FAC+

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 40%

Hydrophytic vegetation: Yes: No: X
Rationale: Not more than 50% of dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Banlic silt loam
On Saline 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: Redox depletions: Yes: No: X
Matrix color: 10YR 5/3
Other indicators: None

Hydric soils: Yes: No: X
Rationale: Banlic silt loam is a somewhat poorly drained soil that lacks hydric soil characteristics.

ROUTINE ON-SITE WETLAND DETERMINATION

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Shrubland
Legal Description: T.9S., R.5 E., Sect. 18, NE/4 SW/4

Location: western portion of the site

HYDROLOGY

Inundated? Yes: No: X Depth of standing water: NA
Depth to saturated soil: > 1.2 m (48 in)
Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation and runoff from the surrounding uplands. Evapotranspiration and sheetflow are the major outputs.
Size of watershed: 2.59 km^2 (1 mi^2)
Other field evidence observed: none

Wetland hydrology: Yes: No: X
Rationale: Field evidence suggests that this site is not saturated or inundated for a sufficient duration during the growing season to meet the wetland hydrology criterion.

WETLAND DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: No: X
Rationale: Hydrophytic vegetation, hydric soils and wetland hydrology are all absent. Therefore the site is not a wetland. The site is not coded by the NWI.

Determined by: Allen Plocher (vegetation and hydrology)
Rick Larimore (vegetation and hydrology)
Dennis Keene (soils and hydrology)
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ROUTINE ON-SITE WETLAND DETERMINATION
Site 3 (page 3 of 4)

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Shrubland
Legal Description: T.9S., R.5 E., Sect. 18, NE/4 SW/4
Location: western portion of the site

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	FQI*
**Acalypha rhomboidea*	three seeded Mercury	herb	FACU	0
Acer rubrum	red maple	sapling, shrub, seedl	FAC	5
**Acer negundo*	box elder	sapling, shrub, seedl	FACW-	1
Andropogon gerardii	big bluestem	herb	FAC-	5
**Andropogon virginicus*	broomsedge	herb	FAC-	1
Apocynum cannabinum	dogbane	herb	FAC	2
Asclepias hirtella	green milkweed	herb	UPL	6
**Aster pilosus*	hairy aster	herb	FACU+	0
***Bidens aristosa*	beggar's ticks	herb	FACW	1
Boehmeria cylindrica	false nettle	herb	OBL	3
Campsis radicans	trumpet creeper	herb	FAC	2
Catalpa speciosa	catalpa	sapling	FACU	–
**Cirsium discolor*	field thistle	herb	UPL	2
Clematis virginiana	virgin's bower	herb	FAC	3
Crateagus mollis	red haw	sapling, shrub	FACW-	2
Desmodium paniculatum	panicled tick trefoil	herb	FACU	2
Diospyros virginiana	persimmon	sapling, shrub, seedl	FAC	2
**Eleagnus angustifolia*	Russian olive	sapling, shrub	FACU-	
***Erechtites hieracifolia*	fireweed	herb	FACU	2
**Eupatorium serotinum*	late flowering thoroughwort	herb	FAC+	1
Eupatorium perfoliatum	boneset	herb	FACW+	4
Euthamia graminifolia	grass leaved goldenrod	herb	FACW-	3
**Festuca pratensis*	English bluegrass	herb	FACU-	
Fraxinus pennsylvanica	green ash	sapling, shrub, seedl	FACW	2
Gleditsia triacanthos	honey locust	sapling, shrub, seedl	FAC	2

*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

(Species list continued on next page)

ROUTINE ON-SITE WETLAND DETERMINATION
Site 3 (page 4 of 4)

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Shrubland
Legal Description: T.9S., R.5 E., Sect. 18, NE/4 SW/4
Location: western portion of the site

SPECIES LIST (Continued)

Scientific name	Common name	Stratum	Wetland indicator status	FQI*
**Lespedeza cuneata*	Chinese bush clover	herb	NI	
**Lonicera japonica*	Japanese honeysuckle	herb	FACU	
Lycopus americanus	horehound	herb	OBL	3
Lycopus virginicus	bugle weed	herb	OBL	5
Panicum acuminatum	panic grass	herb	FAC	2
Panicum clandestinum	broad leaf panic grass	herb	FACW	4
Panicum rigidulum	Munro grass	herb	FACW	6
Parthenocissus quinquefolia	Virginia creeper	herb	FAC-	2
**Phyla lanceolata*	fog fruit	herb	OBL	1
**Poa pratensis*	Kentucky bluegrass	herb	FAC-	
Pycnanthemum virginianum	mountain mint	herb	FACW+	5
Quercus imbricaria	shingle oak	herb	FAC-	2
Quercus palustris	pin oak	herb	FACW	4
Rhus coppalina	winged sumac	herb	UPL	2
**Rosa multiflora*	multiflora rose	shrub	FACU	
Rubus pensylvanicus	common blackberry	shrub	FAC-	2
Rubus occidentalis	black raspberry	shrub	UPL	2
Rudbeckia hirta	black eyed Susan	sapl/shrub	FACU	2
Scirpus atrovirens	green bulrush	herb	OBL	4
**Solanum carolinense*	horse nettle	herb	FACU-	0
**Solidago canadensis*	Canada goldenrod	herb	FACU	1
**Symphoricarpos orbiculatus*	coralberry	herb	FACU	1
Teucrium canadense	germander	herb	FACW-	3
**Toxicodendron radicans*	poison ivy	herb	FAC+	1
**Tridens flavus*	purple top	herb	UPL	1
Ulmus americana	American elm	sapling, shrub, seedl	FACW-	5
Vernonia missurica	Missouri ironweed	herb	FAC+	5

*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

*=non-native or weedy (34.6%), **=annual, but desirable
FQI=R/√N=114/√46=16.8, mean C=R/N=97/40=2.5

ROUTINE ON-SITE WETLAND DETERMINATION
Site 4 (page 1 of 3)

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet Shrubland
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: eastern 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. *Acer rubrum*	sapling	FAC
2. *Fraxinus pennsylvanica*	sapling	FACW
3. *Acer rubrum*	shrub	FAC
4. *Fraxinus pennsylvanica*	shrub	FACW

Percent of dominant species that are OBL, FACW, FAC+, or FAC: 100%
Hydrophytic vegetation: Yes: X No:
Rationale: Greater than 50% of the dominant species are OBL, FACW, FAC+, or FAC.

SOILS
Series and phase: Bonnie silt loam
On Saline 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: Redox depletions: Yes: X No:
Matrix color: 2.5Y 6/2 and 7/1
Other indicators: This soil is found in a level to depressional area on a floodplain.

Hydric soils: Yes: X No:
Rationale: Bonnie silt loam is a poorly drained soil that meets the requirements of the Natural Resource Conservation Service hydric soil indicator F3, depleted matrix.

ROUTINE ON-SITE WETLAND DETERMINATION

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet Shrubland
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: eastern portion of the site

HYDROLOGY

Inundated? Yes: No: X Depth of standing water: NA
Depth to saturated soil: greater than 1.2 m (48 in)
Overview of hydrological flow through the system: Primary hydrologic inputs to this site are precipitation and runoff from the surrounding uplands. Evapotranspiration and sheetflow are the major outputs.
Size of watershed: 2.59 km^2 (1 mi^2)
Other field evidence observed: The site is a depression. Wetland drainage patterns and water stained leaves were observed.

Wetland hydrology: Yes: X No:
Rationale: Field evidence suggests that this site is saturated or inundated for a sufficient duration during the growing season to meet the wetland hydrology criterion.

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.

Determined by: Allen Plocher (vegetation and hydrology)
Rick Larimore (vegetation and hydrology)
Dennis Keene (soils and hydrology)
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ROUTINE ON-SITE WETLAND DETERMINATION
Site 4 (page 3 of 3)

Field Investigators: Plocher, Larimore, Keene **Date:** 21 September 2000
Sect. No.: (7-3, 8-1-1) A, 8-1 B **Project Name:** FAP 331 (IL 13) Wetland Mitigation
State: Illinois **County:** Saline **Applicant:** IDOT District 9
Site Name: Wet Shrubland
Legal Description: T.9S., R.5 E., Sect. 18, NW/4 SE/4

Location: eastern portion of site

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	FQI*
**Acalypha rhomboidea*	three seeded Mercury	herb	FACU	0
Acer rubrum	red maple	sapling/shrub	FAC	5
Betula nigra	river birch	sapling/shrub	FACW	4
***Bidens aristosa*	beggar's ticks	herb	FACW	1
Boehmeria cylindrica	false nettle	herb	OBL	3
Carex vulpinoidea	fox sedge	herb	OBL	3
Cinna arundinacea	stout woodreed	herb	FACW	5
Diospyros virginiana	persimmon	sapling/shrub	FAC	2
Elymus virginicus	Virginia wild rye	herb	FACW-	4
**Festuca pratensis*	English blue grass	herb	FACU-	
Fraxinus pennsylvanica	green ash	sapling/shrub	FACW	2
Glyceria striata	fowl manna grass	herb	OBL	4
Impatiens capensis	jewel weed	herb	FACW	2
**Lonicera japonica*	Japanese honeysuckle	herb/woody vine	FACU	
**Lysimachia nummularia*	moneywort	herb	FACW+	
Quercus palustris	pin oak	sapling/shrub	FACW	4
**Rosa multiflora*	multiflora rose	shrub	FACU	
Rubus occidentalis	black raspberry	shrub	UPL	2
Rumex altissimus	pale dock	herb	FACW-	2
**Toxicodendron radicans*	poison ivy	herb/woody vine	FAC+	1
Ulmus americana	American elm	sapling/shrub	FACW-	5
Vitis riparia	riverbank grape	herb/woody vine	FACW-	2

*Floristic Quality Index, as developed by J. Taft, D. Ladd, G. Wilhelm and L. Masters (1997)

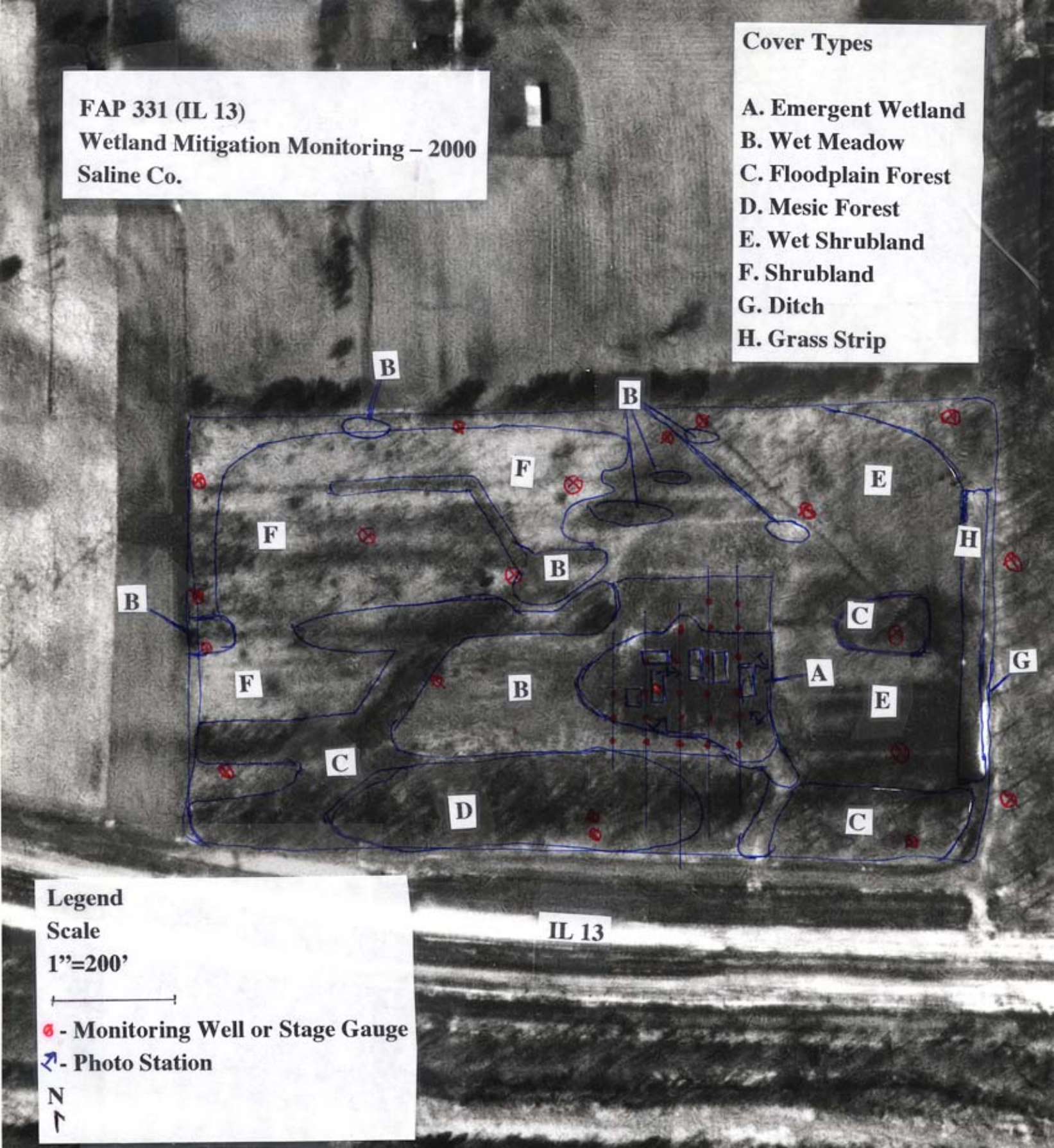
*=non-native or weedy (27.3%), **=annual, but desirable
FQI=R/√N= 51/√18=12.0, mean C=R/N=51/18=2.8

Fig. 3. Photo location 1. Wet Meadow and Emergent Wetland

Fig. 4. Photo location 2. Emergent Wetland

Fig. 5. Photo location 3. Emergent Wetland

Fig. 6 Photo location 4. Emergent Wetland and Wet Meadow


FAP 331 (IL 13)
Wetland Mitigation Monitoring – 2000
Saline Co.
Cover Types
A. Emergent Wetland
B. Wet Meadow
C. Floodplain Forest
D. Mesic Forest
E. Wet Shrubland
F. Shrubland
G. Ditch
H. Grass Strip
B
B
F
E
F
H
B
B
C
G
A
F
B
E
C
D
C
IL 13
Legend
Scale
1"=200'
- Monitoring Well or Stage Gauge
- Photo Station
N