The Champaign County Forest Preserve District

Citizens Advisory Committee

Subcommittee on Point Pleasant

Swamp Milkweed *Asclepias incarnata*

Physiographic and Biotic Resources of the Point Pleasant Wetland

With Recommendations for Habitat Restoration

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Introduction

This report presents a summary description of prominent physiographic and biotic characteristics of the Point Pleasant Wetland, a property of the Champaign County Forest Preserve District (CCFPD) near the southwest corner of the Middle Fork Preserve in northeastern Champaign County (Figure 1A and 1B). The Point Pleasant Wetland, formerly known at the Dust Family Wetland, is an approximately 75 acre property that has been owned and managed by the CCFPD since 2000. Recommendations are made for restoring and monitoring the hydrology and vegetation in the wetland and bordering areas. Two previous plans for the Point Pleasant, prepared by UIUC students and on file at the CCFPD (Caceres et al. 2000; Sines et al. 2000), contain additional background information and historical photos.

Historical Background

Point Pleasant is a reference to the U.S. Post Office that existed for a number of years in the small wooded site on the hillside at the southwest corner of the tract. Point Pleasant was established as an official U. S. post office on September 19, 1853, and was closed in 1862 when the Fort Clark and Chicago-Shelbyville wagon roads were abandoned for all but local traffic. The Point Pleasant Post Office, located in the Middle Fork timber, was one of only five post offices in the county at the time it was opened (Elizabeth Hansen, unpublished report). The post office was transferred to Vermilion County because of the cessation of horse-delivered mail service between towns after the railroads were built through the area (1854).

It has been speculated that the name, Point Pleasant, may have its origins in Pleasant Township, the Ohio home of the first "permanent" land-owning settler in Kerr Township, Samuel Kerr. Mr. Kerr had land holdings just across the river, and as township supervisor had considerable influence in the matter of naming the area (Elizabeth Hansen, unpublished report). The Dust Family farm home was built to take advantage of the mail routes, especially the stagecoach route to Fort Clark, latter renamed Peoria, further west.

Land acquisition for the Middle Fork Preserve began in 1974. The contract for sale of real estate owned by the Dust family stipulated that the CCFPD would maintain a free flowing drainage ditch in accordance with U. S. Soil Conservation Service specifications. This drainage ditch runs from west to east and passes through a natural basin containing a remnant wetland. A concrete headwall was constructed in 1964 west of the wetland to drop surface water from the grassed waterway into the ditch without causing erosion. The structure also provided an outlet for two subsurface drainage tiles. More recently the tiles behind the headwall collapsed. They were repaired and rerouted around the headwall to empty into the ditch about 50 ft downstream.

The ditch through the wetland was cleaned and deepened in 1984 in an attempt to better drain the wetland and the surrounding farmland. The CCFPD prohibited deepening the channel within the Middle Fork Preserve property, where the ditch was shallower. As a result, and in accordance with the land sale contract mentioned above, the Soil Conservation Service was brought in for consultation. A topographical profile (Figure 2) along the middle of the channel showed that the existing channel through the CCFPD boundary permitted sufficient drainage. It further showed that the ditch was over excavated in many areas thus allowing water to pond along the center of the ditch. Extending the excavation would possibly destabilize the bank and would not necessarily improve drainage especially when the Middlefork River was in flood stage. Hence the project was not recommended. As a result, the present ditch within the wetland is essentially a long, narrow pond with little flow during dry periods. The water level in the ditch probably reflects the water table within the neighboring wetland.

The wetland was purchased by the CCFPD in 2000, thus moving a part of the Middle Fork Preserve boundary to the west. This purchase included a conservation easement which prohibits major construction such as buildings or roads.
Lands bordering the wetland, and occasionally the wetland, had been under cultivation through 2001, though for a period of time some of the area was enrolled in a government set-aside program, as the wetland was usually too wet for cultivation.

During flood stage of the Middlefork River, water backs up into the wetland. Beaver dams at times accentuate the impoundment of water. Consequently, large flocks of waterfowl frequently have been observed visiting the wetland during migration (Don Humphrey, site superintendent, personal communication).

Location and Physiographic Characteristics

Major features of the property include interesting glacial geomorphology and a marsh community within a natural basin with an underlying peat deposit. Areas bordering the marsh include cropland and former cropland undergoing rehabilitation. The local landscape can be characterized as gently rolling with two natural basins, the larger basin is approximately 68 acres and contains the marsh; the smaller basin to the southwest has been tiled, drained, and cultivated (Figure 3). These topographic features were shaped predominately by Wisconsin-aged glacial events approximately 15,000 years before present. Topographic variation on site ranges from a maximum of about 728 ft above sea level in the southwestern corner of the property to 695 ft above sea level in the large basin. This basin-shaped depression was probably created by the deposit of a glacial ice fragment; surrounding uplands formed as a result of morainal development. Subsequent to these glacial features, there apparently was no natural drainage outlet and a lake formed in the large depression. Cumulated organic and other deposits eventually filled the basin to near the present elevation. The total watershed is roughly 830 acres.

The property since European settlement has been extensively modified by widespread conversion to row crop agriculture, the development of the dredged stream channel through the wetland, the deposition of dredge materials as a berm bordering the channel, and a system of subsurface tile drains which empty into the ditch. These developments significantly altered the vegetation and hydrological characteristics of the wetland and surrounding lands. Alluvial deposits over the wetland average about 85 cm (ranging from about 50 cm to 1 m). Likely sources of the alluvium are geologic and accelerated erosion delivered to the wetland depression by flowing water from the 830-acre drainage basin, erosion of adjacent side hills, and to some extent loess and

silt deposited from the Middlefork River during flood stages. Because organic deposits are buried by the alluvial deposits in the depression, soil mapping for the wetland area identifies Muskego silty clay loam as the existing soil type, a mineral soil developed in alluvium (Mount 1982). Soil classification typically does not consider buried soils.

Beneath the alluvium, the depression is filled mostly with organic deposits, including peat, that extend to at least 25 ft below the surface and extended over an area of roughly 18 acres (Appendix 1). Peat is primarily incompletely decomposed plant materials and is formed where productivity exceeds rates of decomposition. Conditions that support accumulation of peat deposits include factors that slow decay, such as prevalence of anaerobic conditions and cold temperatures. Such conditions particularly are found where there is a perennial source of cold ground-water discharge. The organic deposits in the Point Pleasant Wetland occur as alternating layers with limnic materials including sand, muck, and coprogenous materials (Appendix 1, Windham 2000). Coprogenous materials are limnic deposits of organic matter modified by aquatic fauna. The occurrence of these strata reinforce interpretations of a lacustrine origin for the deposits, although the upper peat stratum was probably developed from emergent wetland vegetation.

Interpretations of Historic Vegetation

Typically in peatlands occurring in basins in Illinois and the upper Midwest, peat formation commences from limnic origins (i.e., ponds and lakes). In the upper meter or so, there is a transition from limnic peat to sedge peat. In certain circumstances in Illinois peatlands (e.g., Volo Bog [Sheviak and Haney 1973] and Gavin Bog [Taft and Solecki 1990], both in Lake County), and generally in more northern peatlands, sphagnum mosses became established and the uppermost peat deposits are derived from sphagnum (Waterman 1921, 1923, 1926). This is a key phase in the early developmental stages of an acid bog as the sphagnum moss releases hydrogen ions leading to an accumulation of acidity. Minerotrophic peatlands such as fens, found locally in the northern third of Illinois, remain alkaline because continuous

ground-water discharge buffers the acidity, and drainage outlets generally exist that prevent the accumulation of hydrogen ions (Johnson 1985).

The Point Pleasant Wetland may never have been an acid bog or a fen. The vast majority of references to Illinois occurrences of *Sphagnum* species in the literature are from Lake and Cook counties (McKnight 1987) while in east-central Illinois the only references to occurrences of *Sphagnum* species are from local sandstone cliff communities in Coles and Clark counties (Vaughn 1941, Arzeni 1947). There have been no *Sphagnum* species reported from Champaign County despite extensive bryological surveys (McKnight 1986). This does not rule out a local and unreported occurrence but the general pattern for species of sphagnum known from bog habitats is that they largely have been limited in Illinois to the far northeastern counties. Ground-water seepage from bordering areas of calcareous glacial till at the Point Pleasant Wetland may have provided enough cation exchange to maintain a circum-neutral or slightly alkaline reaction leading to development of a seep or fen-like community, but a strongly minerotrophic peatland would not have formed without a drainage outlet and a continuous flow of artesian ground water. The evidence for the past and current importance of ground water seepage in the Point Pleasant Wetland is inconclusive. The presettlement natural community type was probably a marsh, though one that most likely was floristically different from the current species assemblage.

To determine if a viable seed bank resided in the buried peat deposit, key evidence in weighing the merits of removing the alluvial overburden for the purposes of habitat restoration, peat samples were collected from two strata (0 to 40 cm and 40 to 80 cm depth) in the peat deposit and exposed to two moisture treatments in a heated greenhouse at the Illinois Natural History Survey. The methods and results in this study are presented in Appendix 2 with results summarized in Table 1. A total of nine species emerged from the peat samples, most were widespread and common wetland species typical of disturbed habitats and mudflats including two adventive species. No species typical of peatland habitats germinated in the study. Because there does not appear to be a novel peatland flora in the seed bank of the peat deposit, and because

there is an existing cover of mostly perennial native wetland species on site, it is recommended that the alluvium remain in place. Removing and re-locating the alluvium would be expensive, would result in extensive mechanical damage to the wetland, and possibly create opportunities for the invasion of non-native species such as reed canary grass (*Phalaris arundinacea*). The apparent condition and composition of the seed bank in the peat deposit and these other concerns eliminates much of the incentive for this measure. With restoration of the hydrology in the wetland, peat forming processes may once again commence on site.

Contemporary Vegetation

The Point Pleasant Wetland occasionally has been cultivated in the past, but most years is too wet. The last attempt at cultivating the wetland was about 1993. During fallow years, a predominately ruderal wetland flora becomes established on site. A floristic survey was conducted of the wetland on 18 September 2003 and yielded a total of 50 species of vascular plants, including four adventive species (Appendix 3). The wetland survey focused on the zone of the peat deposit but also included the zone immediately bordering the wetland. Dominant species based on relative abundance estimates were water knotweed (*Polygonum amphibium*), bushy knotweed (*Polygonum ramosissimum*), rice cut grass (*Leersia oryzoides*), and sandbar willow (*Salix exigua*). Common to occasional species included side-flowered aster (*Aster lateriflorus*), bristly cattail sedge (*Carex frankii*), Virginia wild rye (*Elymus virginicus*), rough avens (*Geum laciniatum*), curtop lady's thumb (*Polygonum lapathifolium*), smartweed (*Polygonum punctatum*), golden glow (*Rudbeckia laciniata*), pale dock (*Rumex altissimus*), and swamp milkweed (*Asclepias incarnata*). Floristic Quality Assessment (Taft et al. 1997) yielded a mean coefficient of conservatism of 2.2 (2.4 including native species only) and a Floristic Quality Index (FQI) of 15.7 (16.4 using only the native species). In general, sites the size of this wetland scoring an average coefficient of conservatism of 3.5, or with an FQI greater than 35, tend to be at least regionally noteworthy natural areas. The results from Point Pleasant Wetland support the interpretation of a degraded site dominated by relatively

disturbance-tolerant wetland species. Only a single species considered "conservative" to natural communities (species with fidelity to natural areas), northern bugle weed (*Lycopus uniflorus*), was recorded from the site.

The forested gravel hill, possibly a kame, near the southeast corner of the site contains shagbark hickory trees estimated to be 200 years old (Caceres et al., 2000). Otherwise, the vegetation in this small forest suggests a long history of disturbance, including grazing by domestic livestock.

Restoration Strategies

Primary goals of restoring this wetland complex are to rehabilitate the hydrological processes and establish a perennial vegetative cover on the former agricultural lands using native species appropriate for the site conditions. Work on achieving these goals already has been initiated by staff of the Champaign County Forest Preserve District.

Recommended measures for rehabilitating the hydrology within the basin will include locating the drainage tiles and breaking and/or disabling them. This work has nearly been completed. A combination of measures is recommended to ameliorate the drainage of the basin in the dredged channel. These involve: (1) returning most of the excavated berm material back into the channel of the stream, particularly in the area of the wetland basin, consistent with legal drainage requirements, and (2) establishment of a water control structure within the channel just downstream of the wetland (Figure 3). It is expected that springtime precipitation will fill the basin to approximately 1 foot above the surface of the existing wetland, or to an elevation of 96.0 feet in Figure 3 where the 100.0 foot elevation corresponds to a temporary bench mark (a chiseled "X") located on top of the north wing of the concrete headwall. The wetland will dry during the summer months. This is expected to match the natural hydropattern of shallow wetland basins in Illinois, promote the growth of native vegetation, and restrict the growth of adventive plant species. Design of the control structure and associated berms and overflow channel is anticipated to be performed by personnel from the Natural Resources Conservation Service (NRCS). Operation of the water

control structure would be by CCFPD personnel, although the structure should be designed to minimize annual or seasonal adjustments. It is noted that water levels above approximately the 94.5 foot contour will likely require an agreement from a neighboring landowner. Natural flooding by the Middlefork River has been documented to exceed the 100 ft contour.

Restoration efforts in the wetland basin have received support from the Conservation Reserve Program (CRP). The CRP is a program that promotes watershed protection by funding various types of conservation cover. To date, approximately 27.8 acres have been, or soon will be, planted according to CRP standards. One CRP unit includes windbreaks and planted grassed strips established on the western and northern boundary of the property to protect soils from erosion and provide wildlife habitat. These windbreak plantings have utilized native hardwood tree and shrub species. A second planned unit includes filter strips of native grasses and some forbs to be planted in a buffer bordering the wetland basin on the north and south sides. A third CRP unit is a 9.6 acre wetland planting in the southwestern portion of the property centered on a depression (Figure 3) where the natural hydrology will be restored.

Restoration is desired on the acreage not included in the CRP. Public Land Survey records from 1822 reported the area of the Point Pleasant Wetland to be "rolling rich prairie" (Sines et al. 2000); evidently, the wetland was not specifically mentioned in the surveyor's notes. Soil types in the property include three different hydric soils throughout the central and south-central portions of the preserve and six different upland soil types (Mount 1982). The hydric soils mapped for the property include the Ashkum silty clay loam, the Peotone silty clay loam, and the Muskego silty clay loam. The upland soils are the Proctor silt loam, Varna silt loam, Varna silty clay loam, Raub silt loam, and Martinsville silt loam. Public Land Survey mapping (Sines et al. 2000) indicate this general area to have been dominated by prairie vegetation and all but one of these soil types developed under herbaceous vegetation, primarily prairie and marsh (USDA / NRCS soil classification web site: http://soils.usda.gov/soils/technical/classification/osd/index.html). The Martinsville

silt loam, found locally in the northeastern corner of the property, is a woodland or transitional soil type.

It is recommended that native prairie plantings be established outside of the wetland basin using a series of planting mixes and whole-plant plugs, roughly in a concentric pattern from the wetland basin border outward. These plantings, based on suggested species composition (Appendix 4), would represent a wetness gradient from wet prairie/sedge meadow to wet-mesic prairie and in the uplands mesic to dry-mesic prairie. An assemblage combining species from wet prairie and sedge meadow is recommended for the zone immediately bordering the wetland from the 95 foot contour interval to about the 97 foot contour interval; wet to wet-mesic prairie is recommended for the zone between the 97 foot and 99 foot contour intervals; mesic prairie is recommended for the zone between the 99 foot and 110 foot contour intervals; dry-mesic prairie is recommended for any slopes and well-drained areas above the 110 foot contour (Figure 3). Exotic and native adventive species known from Champaign and bordering counties that can become management concerns in prairie plantings are listed in Appendix 5.

For the planting of wet and wet-mesic prairie, it is recommended that plugs of cord grass (*Spartina pectinata*), formerly a dominant species on wet sites, be used in addition to a general seeding of species appropriate for the habitat. Cord grass usually does not become established from seed; however, plugs can readily spread and promote the establishment of this core species.

Once the prairie plantings are established, a program of prescribed fire is recommended to prevent extensive encroachment of woody species and, possibly, adventive cool-season grasses such as reed canary grass (*Phalaris arundinacea*). These burns should avoid igniting the peat especially if it is exposed locally along the banks of the channel and not saturated with ground water.

A major concern for restoration is the area of private property that extends into the southeastern portion of the wetland (Figure 3). The proximity of the private agricultural land places some limitations on water control within the wetland. Most

limitations can be designed around, but at additional cost.

Recommended monitoring and research

1. A system of rapid assessment, particularly for the vegetation, is suggested for adaptive management and for tracking progress of restoration efforts. A photo reference station should be established and a system for archiving photos, preferably taken with a digital camera.

Specific recommendations: In the wetland and prairie communities, record the estimated top ten most common and abundant species using a relative abundance scale (e.g., 1 = rare, 2= occasional, 3 = common, 4 = abundant, 5 = very abundant). A complete inventory of the wetland and prairie communities should be conducted every five years, depending on availability of qualified staff. Ideally, quantitative data from vegetation sampling plots or transects would be established throughout the site in order to identify changing patterns of abundance. Photos taken of the wetland from the photo station should be examined to interpret year-to-year changes.

Schedule: Rapid assessment of vegetation once or twice per year during growing season and quarterly photo station images (each of the four seasons). Quantitative vegetation sampling would ideally be conducted once annually for up to five years, then once every three to five years.

2. Exotic and aggressive species monitoring is needed to identify emerging problems, particularly for species such as *Phalaris arundinacea*. If established on the property, a vigilant program of removal will be needed possibly including local applications of herbicide according to EPA specifications and labeled recommendations for treatment.

Specific recommendations: see Appendix 5.

Schedule: two or three times a year during growing season (April, June, September) to check for emerging problems.

3. A palynological study of peat deposit is recommended to help decipher previous floristic composition. Cores from past investigations of the main wetland, plus the non-peat bearing smaller depression to the southwest, are in storage at the CCFPD.

Schedule: undetermined

4. The water levels in the basin should be monitored with a series of shallow monitoring wells and a staff gauge. The wells and gauges should be used to determine if the future hydropatterns match the planned conditions, which will help refine the operation of the water control structure and identify if the proposed planting regime was appropriate.

Schedule: Wells and the gauges should be read on a weekly to biweekly basis each spring, and monthly thereafter.

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Appendix 1. Peat Coring Summary (from Windham 2000).

Dust Family Site - October 17, 1997
(A grid of transects, and loci of core points, is shown in Caceres, et. al. 2000)

Core I East extreme; first of cores.

First core, overburden, mottled clay (hydric soil) at three feet. On second core, sand lens appeared- gray, white, 50 mesh or finer, appeared. Muck', saturated highly organic soil appeared at about five feet. Stopped at five feet.

Core 2 Moving westerly toward center point, along east-west transect, but on east side.

"Muck" again at two feet; water just below that - saturated layer, then peat at three feet to four feet, R. Windhorn commented on the high quality of the peat. Went to small core (1"), and found in the next section, about two feet of peat, then about one foot of 'coprogenous earth, then a coarse peat layer from about seven to eight feet. Next core, decomposed peat to about twelve feet, with coprogenous earth mixed with lowest deposits.

Core 3 Nearest center, still on east-west transect, east side.

First core revealed almost two feet of overburden, then peat with good fiber showing. Next core same; wet peat on next core at nine feet. Went to twelve feet, same peat; went to sixteen feet. Changed to small core, continued down. Went to twenty five feet, last sections with hand pressure on probe, couldn't get it down any further, and still peat!

Core 4 Return to east to determine slope of peat layer.

First 4' core (3") had three feet of overburden, then one foot of peat; second core (1 "), peat to about seven feet where there was a layer of coprogenous earth, which continued to about eight feet. Next core hit greet sand at about nine feet, Sand layer - we only recovered a few inches -was clean, of say, 50 mesh and below, fairly homogenous.

Core 5 On the north side of the site on north-south transect; first and only bore on north line.

First 4' core (3") was overburden, very dark, organic. Went to 1 " bore - peat now, with what appears to be plant structures, leaf membranes, down to about twelve feet. Stopped at twelve feet.

Core 6 On a westerly radian, xxx (*Note – not specified in original document*) degrees, from datum. Looking for depth toward west slope. Core sunk near clump of sedges.

Peat at two feet to four feet, 3" bore. Went to 1 " bore, another four feet of peat, and another to nine or ten feet. Lost a foot or two on extraction -saturated sample. Cored to twelve feet or so, some peat grading to wet mucky coprogenous earth at the bottom. Stopped at twelve feet.

Core 7 On a westerly radian again, xxx degrees, closer to upslope at west perimeter.

First four feet, 3" core, dark organic soil grading to peat at bottom of core. second core peat to eight feet. Third core to almost twelve feet was peat, then layer of coprogenous earth, then peat again. R. Windhorn remarked that he had observed this layering on other cores. Gray sand appeared at about ten feet.

NOTE: Cores 8 and 9 are in the smaller south pool.

Core 8 Approximated the middle of the smaller pool. Approximately XXX feet south of the east-west datum. This pool is smaller, dryer and higher than the first,

First core, dirt to four feet. Went to small core, found highly organic soil to about eight feet. Eight feet seemed to be the transition to small grain coprogenus soil. Third core, to twelve feet; at bottom was lake-bed like (Windhorn), lots organic matter, but blue, fine grained.

Core 9 South pool again; about 100 feet south of first core, in what approximated the lowest spot of the site.

First bore, at two feet showed new deposition, original lake level? Second core, another foot or so, a subsoil layer (unusual, R. W.), then organic soil (not peat) to about ten feet. Third core, to about twelve feet, graded to fine blue sand/clay.

Core 10 Back to primary pool, south portion of north-south transect. Only core taken on the south portion - we were all pretty tired by this time! Small colony of mature Scirpus validus nearby, relict plant community, not evident in past years to me. (Serves to underscore that relict wetland seeds, propagules and plants are on site!)

First core, two feet of overburden, then grading to dark compact peat. Peat to four feet, second core, peat again. Third core, peat to about ten feet, then fine blue sand right at twelve feet.

Core 10 ended our day, Friday, October 17, 1997.

Appendix 2. Method and results of 2003 seed-bank study.

Introduction

On 10 April 2003 collections of peat from the deposit at Point Pleasant Wetland (40° 13' 22" N latitude, 87° 34" 51" W longitude) were taken for seed bank analysis in a germination study. Peat samples were collected with a soil probe in a stratified grid across the wetland. At each station, peat was collected from two strata, each 40 cm deep (Peat Layer I = 0 - 40 cm, Layer 2 = 40 - 80 cm). All peat was buried by about 85 cm of alluvial deposits and this material was removed from each probe location prior to peat collection. Typically, three samples of each peat layer were combined into individual round plastic basins. Each peat layer sample was placed under two water depth treatments with one set of samples (water depth 1) saturated to about 50% of the peat sample and the other (water depth 2) saturated to the top of the peat samples. A total of three discrete replicates were taken for each treatment yielding a total of 12 basins, each containing about three samples from the respective peat layer. The experimental design is summarized below.

Peat Layer	Water Depth	Replicates	#Samples/Replicate
1	1	3	3
1	2	3	3
2	1	3	3
2	2	3	3

There were a total of about 36 soil probes for this study stratified across the site. The peat samples were placed under these conditions on 11 April 2003 and remained under saturated conditions for the most part through September 2003.

Holes were drilled into each plastic basin to control water depth. However, clogging was common and both water-depth treatments tended to be well saturated at times with draw-down occurring due to evapo-transpiration. Consequently, the water-depth treatments were very similar. By late May, germination had commenced and by August species could be readily identified. Since then, some species, particularly the rice cut grass, have been spreading by vegetative growth, so stem number within a basin no longer related to germination.

Results and Discussion

There was very little difference between treatments with six to eight species occurring under the two main treatments: water depth and peat layer (Table 1). Water depth 2 (most saturated) included only four species compared to five and six for the shallow water treatment; however, this is probably not a biologically significant difference. In all treatments, a total of nine species emerged, including two non-native species. The seven native species are all common wetland plants that in Illinois tend to occur in mud flats and ditches (Table 1). None of the species that emerged are

associated with peatland habitats (e.g., bogs or fens). It is possible that as the soil probe was removed from the ground that there was contamination of the peat sample by seed in surface soils. Based on the soil profile, with about 85 cm of mineral soil above the peat deposit, the peat-forming process may no longer be maintained at this site.

Conclusion

There does not seem to be strong biological justification for removing the surface mineral soil to expose the peat deposit in order to attempt restoring a peatland. Minimizing further accumulation of alluvial sediments may be the best management strategy for this wetland.

Table 1 - Results from seed bank study at Point Pleasant Wetland.

Layer 1 = shallow (85 cm to 125 cm; 2 = deep (125 cm to 165 cm)
Water depth 1 = shallow, 2 = deep (based on holes drilled into plastic pots)

		SCIENTIFIC NAME	% freq.	COMMON NAME
Water Depth 1	**Peat Depth 1**	*Abutilon theophrastii**	33.33	Velvet Leaf
		Ammannia robusta	33.33	Long-leaved Ammannia
		Leersia oryzoides	33.33	Rice Cut Grass
		Oxalis cf. *corniculata**	33.33	Creeping Wood Sorrel
		Rorippa sessilifolia	66.67	Sessile-Flowered Cress
		liverwort (*Riccia*)	33.33	liverwort
		moss	33.33	moss
Water Depth 1	**Peat Depth 2**	*Ammannia robusta*	66.67	Long-leaved Ammannia
		Cyperus strigosus	33.33	Long-Scaled Nut Sedge
		Eleocharis obtusa	33.33	Blunt Spike Rush
		Leersia oryzoides	66.67	Rice Cut Grass
		Lindernia dubia	33.33	False Pimpernel
		Rorippa sessilifolia	33.33	Sessile-Flowered Cress
Water Depth 2	**Peat Depth 1**	*Ammannia robusta*	100.00	Long-leaved Ammannia
		Carex sp (cf. *annectans*)	33.33	sedge
		Leersia oryzoides	66.67	Rice Cut Grass
		Rorippa sessilifolia	33.33	Sessile-Flowered Cress
Water Depth 2	**Peat Depth 2**	*Ammannia robusta*	66.67	Long-leaved Ammannia
		Eleocharis obtusa	33.33	Blunt Spike Rush
		Lindernia dubia	33.33	False Pimpernel
		Rorippa sessilifolia	33.33	Sessile-Flowered Cress

* non-natives

Layer 1 (top 40 cm)	**# Occur.**	**Layer 2 (bottom 40 cm)**	**# Occur.**
*Abutilon theophrastii**	1	*Ammannia robusta*	4
Ammannia robusta	4	*Cyperus strigosus*	1
Carex sp.	1	*Eleocharis obtusa*	2
Leersia oryzoides	3	*Leersia oryzoides*	2
*Oxalis cf. corniculata**	1	*Lindernia dubia*	2
Rorippa sessilifolia	3	*Rorippa sessilifolia*	2
moss	1		
liverwort (Riccia)	1		
6 spp.		**6 spp.**	

Water Depth 1	**# Occur.**	**Water Depth 2**	**# Occur.**
*Abutilon theophrastii**	1	*Ammannia robusta*	5
Ammannia robusta	3	*Carex* sp. (cf. *annectans*)	1
Cyperus strigosus	1	*Eleocharis obtusa*	1
Eleocharis obtusa	1	*Leersia oryzoides*	2
Leersia oryzoides	3	*Lindernia dubia*	1
Lindernia dubia	1	*Rorippa sessilifolia*	2
Oxalis cf. *corniculata*	1		
Rorippa sessilifolia	3		
moss	1		
Riccia	1		
8 spp		**6 spp.**	

Appendix 3. VASCULAR FLORA OF PT. PLEASANT WETLAND

Site: Pt. Pleasant Wetland
Locale: CCFPD
Date: 18 Sept 03 2 hours
By: John Taft, Allen Plocher
File: c:\FQA\studies\PtPleasant.inv

FLORISTIC QUALITY DATA

	Native	46	92.0%	Adventive	4	8.0%
46 NATIVE SPECIES	Tree	2	4.0%	Tree	0	0.0%
50 Total Species	Shrub	1	2.0%	Shrub	0	0.0%
2.4 NATIVE MEAN C	W-Vine	1	2.0%	W-Vine	0	0.0%
2.2 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
16.4 NATIVE FQI	P-Forb	19	38.0%	P-Forb	2	4.0%
15.7 W/Adventives	B-Forb	1	2.0%	B-Forb	0	0.0%
-2.6 NATIVE MEAN W	A-Forb	9	18.0%	A-Forb	0	0.0%
-2.7 W/Adventives	P-Gras	3	6.0%	P-Grass	1	2.0%
AVG: Fac. Wetland	A-Grass	1	2.0%	A-Grass	1	2.0%
	P-Sedge	8	16.0%	P-Sedge	0	0.0%
	A-Sedge	1	2.0%	A-Sedge	0	0.0%
	Fern	0	0.0%			

RA	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
3	0	Ambrosia trifida	-1	FAC+	Nt A-Forb	GIANT RAGWEED
2	5	Ammannia coccinea	-5	OBL	Nt A-Forb	LONG-LEAVED AMMANNIA
3	4	Asclepias incarnata	-5	OBL	Nt P-Forb	SWAMP MILKWEED
1-2	0	Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED

RA	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
2-3	2	Aster lateriflorus	-2	FACW-	Nt P-Forb	SIDE-FLOWERING ASTER
2	0	Aster pilosus	4	FACU-	Nt P-Forb	HAIRY ASTER
2-3	3	Aster simplex	-5	OBL	Nt P-Forb	PANICLED ASTER
2	2	Bidens cernua	-5	OBL	Nt A-Forb	NODDING BUR MARIGOLD
2	3	Carex annectens	-3	FACW	Nt P-Sedge	LARGE YELLOW FOX SEDGE
2	3	Carex cristatella	-4	FACW+	Nt P-Sedge	CRESTED OVAL SEDGE
3	4	Carex frankii	-5	OBL	Nt P-Sedge	BRISTLY CATTAIL SEDGE
2	5	Cinna arundinacea	-3	FACW	Nt P-Grass	COMMON WOOD REED
1	3	Cirsium discolor	5	UPL	Nt B-Forb	PASTURE THISTLE
1	2	Crataegus mollis	-2	FACW-	Nt Tree	DOWNY HAWTHORN
2	1	Cynanchum leave	0	FAC	Nt W-Vine	BLUE VINE
2	0	Cyperus esculentus	-3	FACW	Nt P-Sedge	FIELD NUT SEDGE
2	0	Cyperus strigosus	-3	FACW	Nt P-Sedge	LONGL-SCALED NUT SEDGE
2	0	ECHINOCHLOA CRUSGALLI	-3	FACW	Ad A-Grass	BARNYARD GRASS
2	3	Eleocharis erythropoda	-5	OBL	Nt P-Sedge	RED-ROOTED SPIKE RUSH
2	2	Eleocharis obtuse	-5	OBL	Nt A-Sedge	BLUNT SPIKE RUSH
2-3	4	Elymus virginicus	-2	FACW-	Nt P-Grass	VIRGINIA WILD RYE
1	2	Fragaria virginiana	1	FAC-	Nt P-Forb	WILD STRAWBERRY
3	2	Geum laciniatum	-3	FACW	Nt P-Forb	ROUGH AVENS
2	2	Laportea Canadensis	-3	FACW	Nt P-Forb	CANADA WOOD NETTLE
4	3	Leersia oryzoides	-5	OBL	Nt P-Grass	RICE CUT GRASS
2	7	Lycopus uniflorus	-5	OBL	Nt P-Forb	NOTHERN BUGLE WEED
2	5	Lycopus virginicus	-5	OBL	Nt P-Forb	BUGLE WEED
2	0	LYSIMACHIA NUMMULARIA	-4	FACW+	Ad P-Forb	MONEYWORT
2-3	0	Panicum dichotomiflorum	-2	FACW-	Nt A-Grass	FALL PANICUM
2	2	Penthorum sedoides	-5	OBL	Nt P-Forb	DITCH STONECROP
1	0	PHALARIS ARUNDINACEA	-4	FACW+	Ad P-Grass	REED CANARY GRASS
4	3	Polygonum amphibium	-5	OBL	Nt P-Forb	WATER KNOTWEED
2-3	4	Polygonum hydropiperoides	-5	OBL	Nt P-Forb	MILD WATER PEPPER
3	0	Polygonum lapathifolium	-4	FACW+	Nt A-Forb	CURTTOP LADY'S THUMB
3	1	Polygonum pensylvanicum	-4	FACW+	Nt A-Forb	PINKWEED
2-3	3	Polygonum punctatum	-5	OBL	Nt A-Forb	SMARTWEED
3-4	3	Polygonum ramosissimum	1	FAC-	Nt A-Forb	BUSHY KNOTWEED
1	0	Potentilla norvegica	0	FAC	Nt A-Forb	ROUGH CINQUEFOIL
2	3	Rorippa sessiliflora	-5	OBL	Nt A-Forb	SESSILE-FLOWERED CRESS
2-3	3	Rudbeckia laciniata	-4	FACW+	Nt P-Forb	WILD GOLDEN GLOW
2-3	2	Rumex altissimus	4	FACU-	Nt P-Forb	PALE DOCK
2	0	RUMEX CRISPUS	-1	FAC+	Ad P-Forb	CURLY DOCK
2	4	Sagittaria latifolia	-5	OBL	Nt P-Forb	COMMON ARROWHEAD
3-4	1	Salix exigua	-5	OBL	Nt Shrub	SANDBAR WILLOW
2	3	Salix nigra	-5	OBL	Nt Tree	BLACK WILLOW
2	4	Scirpus atrovirens	-5	OBL	Nt P-Sedge	DARK GREEN RUSH
2	4	Scirpus tabernaemontanii	-5	OBL	Nt P-Sedge	GREAT BULRUSH

RA	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
2	1	Solidago Canadensis	3	FACU	Nt P-Forb	CANADA GOLDENROD
2	2	Urtica dioica	-1	FAC+	Nt P-Forb	TALL NETTLE
2	1	Viola pratincola	0	FAC	Nt P-Forb	COMMON BLUE VIOLET

The Floristic Quality Index is derived from the formula:
$r/\bar{n}/(n)$, where:

r = sum of the coefficients of conservatism, n = number of recorded taxa, CC = Coefficient of Conservatism, CW = Coefficient of Wetness, A = Adventive, N = Native, Physiog = Physiognomy, RA = relative abundance.

Appendix 4. Prairie species known from Headwaters Ecosystem Partnership area with habitat of likely occurrence indicated. X = dominant, X = dominant and strongly recommended for restoration, x = common to occasional, p = already present in wetland, but not recommended for planting.

	Natural Community	Prairie				Sedge Meadow
Latin Name	**Common Name**	**dm**	**m**	**wm**	**w**	
Acalypha gracilens	slender three seeded mercury	x				
Allium canadense	wild garlic		x			
Ambrosia artemisiifolia	common ragweed	p	p			
Ambrosia trifida	Giant ragweed	p	p			
Ammannia coccinea	long-leaved ammannia				p	
Amorpha canescens	leadplant	X	X			
Amphicarpa bracteata	hog peanut	x	x			
Andropogon gerardii	big bluestem	x	X	x		
Anemone canadensis	meadow anenome			x		
Anemone cylindrica	candle anemone		X			
Antennaria neglecta	little pussy toes	x				
Antennaria plantaginifolia	everlasting	x				
Apocynum sibiricum	Indian hemp			x	x	x
Asclepias incarnata	swamp milkweed				x	x
Asclepias sullivantii	prairie milkeed		X			
Asclepias syriaca	common milkweed		p			
Asclepias tuberosa	butterfly weed	x	x			
Asclepias verticillata	horsetail milkweed	p	p			
Asclepias viridiflora	green milkweed	x				
Aster azureus	sky-blue aster	x	x			
Aster ericoides	heath aster	X	X			
Aster laevis	smooth blue aster		x			
Aster lateriflorus	Side-flowering aster				x	x
Aster novae-angliae	New England aster		x			
Aster pilosus	Hairy aster			p	p	
Aster simplex	Panicled aster				x	x
Baptisia lactea	white wild indigo	x	x			
Baptisia leucophaea	cream wild indigo		x			
Bidens cernua	Nodding bur marigold				p	p
Cacalia plantaginea	prairie Indian plantain		x	x		
Calamagrostis canadensis	blue joint grass			X	X	X
Calystegia sepium	American bindweed		p			
Camassia scilloides	wild hyacinth		X			
Campsis radicans	trumpet creeper		p			
Carex annectens	Large yellow fox sedge				x	x
Carex bebbii	Bebb's oval sedge		x	x		
Carex bicknellii	copper shouldered oval sedge		X	x		
Carex brevior	plains oval sedge		x			
Carex cristatella	sedge			x	x	x
Carex frankii	Bristly cattail sedge				x	x
Carex gravida	long awned bracted sedge		x	x		

Natural Community		Prairie				Sedge Meadow
Latin Name	**Common Name**	**dm**	**m**	**wm**	**w**	
Carex meadii	Mead's stiff sedge		X			
Carex molesta	sedge		x			
Carex normalis	spreading oval sedge		x	x		
Carex pellita	sedge			x	x	X
Carex stricta	hummock sedge				x	X
Carex tenera	narrow leaved oval sedge		x	x		
Carex vulpinoidea	fox sedge			x	x	
Ceanothus americanus	New Jersey tea	x	X			
Celastrus scandens	bittersweet		p			
Cinna arundinacea	Common wood reed			X		
Cirsium discolor	field thistle		p			
Comandra umbellata	bastard toadflax	X	X			
Coreopsis tripteris	tall coreopsis		X	x		
Cornus racemosa	gray dogwood	p	p			
Corylus americana	hazelnut		x			
Crataegus crus-galli	cockspur thorn		p			
Crataegus mollis	Downy hawthorn			p		
Cynanchum laeve	Blue vine			p		
Cyperus esculentus	Field nut sedge			p	p	
Cyperus strigosus	Longl-scaled nut sedge			p	p	
Dalea candida	white prairie clover	x	X			
Dalea purpurea	purple prairie clover	X	X			
Desmodium canadense	showy tick trefoil	x	x			
Desmodium illinoense	Illinois tick trefoil		x			
Desmodium sessifolium	sessile leaved tick trefoil	x				
Dichanthelium acuminatum var. fasciculatum	hairy panic grass	x	x			
Dichanthelium leibergii	prairie panic grass	x	x			
Dichanthelium oligosanthes	panic grass	x	x			
Dichanthelium oligosanthes var. scribnerianum	Scribner's panic grass	X	X			
Dichanthelium villosissimum	long haired panic grass	x	x			
Dodecatheon meadia	shooting star		X			
Echinacea pallida	pale purple coneflower	X	X			
Eleocharis erythropoda	Red-rooted spike rush				x	x
Eleocharis obtusa	Blunt spike rush				x	x
Elymus canadensis	Canada wild rye		x			
Elymus virginicus	Virginia wild rye				p	
Erigeron annuus	fleabane daisy		p			
Erigeron strigosus	daisy fleabane		p			
Eryngium yuccifolium	rattlesnake master	x	X			
Eupatorium altissimum	tall boneset		x	x		
Euphorbia corollata	flowering spurge	X	X			
Euthamia graminifolia	grass leaf golderod		x	x		
Fragaria virginiana	wild strawberry		x			
Fragaria virginiana	Wild strawberry		x			

	Natural Community	Prairie				Sedge Meadow
Latin Name	Common Name	dm	m	wm	w	
Gaura biennis	biennial gaura		x			
Gentiana andrewsii	closed gentian			x	x	x
Gentiana puberulenta	downy gentian		X			
Geum canadense	white avens		p	p		
Geum laciniatum	Rough avens				x	x
Helianthus grosseserratus	saw-toothed sunflower			X	x	
Helianthus mollis	downy sunflower		x			
Helianthus rigidus	prairie sunflower		X			
Helianthus strumosus	pale leaved sunflower		x	x		
Helianthus tuberosus	Jerusalum artichoke			x		
Heliopsis helianthoides	false sunflower		x			
Heuchera richardsonii	prairie alumroot		x			
Hypoxis hirsuta	yellow star grass		x			
Juncus dudleyi	Dudley's rush		x	x		
Juncus interior	inland rush		x	x		
Koeleria macrantha	crested hair grass	X				
Lactuca canadensis	wild lettuce		p			
Laportea canadensis	Canada wood nettle				p	
Leersia oryzoides	Rice cut grass				x	x
Lespedeza capitata	bush clover		x			
Liatris aspera	rough blazing star	x	x			
Liatris pycnostachya	prairie blazing star		X			
Lilium philadelphicum	prairie lily		x			
Lithospermum canescens	hoary puccoon	x	x			
Lobelia spicata	spike lobelia	x	x			
Lycopus uniflorus	Nothern bugle weed				x	x
Lycopus virginicus	Bugle weed				x	x
Lysimachia lanceolata	lance-leaved loosestrife		x	x		
Lythrum alatum	winged loosestrife			x	x	
Monarda fistulosa	wild bergamont		x			
Oenothera biennis	evening primrose		p			
Oxalis stricta	wood sorrel		p			
Oxalis violacea	purple oxalis		x			
Panicum dichotomiflorum	Fall panicum			p		
Panicum virgatum	prairie switchgrass		x			
Parthenium integrifolium	feverfew	x	X			
Pedicularis canadensis	lousewort	x	x			
Penstemon digitalis	foxglove beard tongue		x			
Penstemon pallidus	pale beard tongue	x	x			
Penthorum sedoides	Ditch stonecrop			p	p	
Perideridia americana	thicket parsley		x			
Phlox glabberima	smooth phlox			x	x	x
Phlox pilosa	prairie phlox		X			
Physalis heterophylla	clammy ground cherry		p			
Physalis virginiana	ground cherry		p			
Physostegia virginiana	false dragonhead		X	x		

	Natural Community	Prairie				Sedge Meadow
Latin Name	**Common Name**	**dm**	**m**	**wm**	**w**	
Polygala sanguinea	field milkroot	x	x			
Polygala verticillata	whorled milkwort		x			
Polygonum amphibium	Water knotweed				X	x
Polygonum hydropiperoides	Mild water pepper				p	
Polygonum lapathifolium	Curttop lady's thumb				p	
Polygonum pensylvanicum	Pinkweed				p	
Polygonum punctatum	Smartweed				p	
Polygonum ramosissimum	Bushy knotweed				p	
Polytaenia nuttallii	prairie parsley		x			
Potentilla arguta	prairie cinquefoil	x	X			
Potentilla simplex	common cinquefoil	x	x			
Prenanthes aspera	rough wild lettuce		X			
Pycnanthemum tenuifolium	slender monutain mint	X	X			
Pycnanthemum virginianum	common mountain mint		X	X	x	x
Quercus velutina	black oak	x				
Ratibida pinnata	drooping coneflower		X			
Rorippa sessiliflora	Sessile-flowered cress				p	
Rosa carolina	pasture rose	X	X			
Rubus allegheniensis	common blackberry		p			
Rubus occidentalis	black raspberry		p			
Rudbeckia hirta	black-eyed Susan	X	X			
Rudbeckia laciniata	Wild golden glow				X	
Ruellia humilis	wild petunia		x			
Rumex altissimus	Pale dock				p	
Sagittaria latifolia	Common arrowhead				p	
Salix exigua	sandbar willow			x	x	
Salix exigua	Sandbar willow				p	
Salix humilis	prairie willow	x	x			
Salix nigra	Black willow				p	
Schizachyrium scoparium	little blue stem	X	X			
Scirpus atrovirens	Dark green rush				p	
Scirpus pendulus	red bulrush				x	
Scirpus tabernaemontanii	Great bulrush				X	X
Scutellaria leonardii	small skullcap		x			
Silphium integrifolium	rosinweed	x	X			
Silphium laciniatum	compass plant		X			
Silphium terebinthinaceum	prairie dock	x	X			
Sisyrinchium albidum	blue-eyed grass	x	x			
Solidago canadensis	tall golden rod		p			
Solidago canadensis	Canada goldenrod	p	p	p		
Solidago gigantea	late golden rod			x	x	
Solidago juncea	early goldenrod	x	x			
Solidago missouriensis	Missouri goldenrod	x	x			
Solidago nemoralis	field goldenrod	x				
Solidago rigida	rigid golden rod		x			
Solidago speciosa	showy goldenrod	x	x			

Natural Community		Prairie				Sedge Meadow
Latin Name	**Common Name**	dm	m	wm	w	
Sorghastrum nutans	Indian grass		X			
Spartina pectinata	prairie cord grass			X	X	
Sphenopholis obtusata var. major	wedge grass		x			
Sporobolus asper	rough dropseed		p			
Sporobolus heterolepis	prairie dropseed		X			
Stachys palustris	woundwort			x		
Stipa spartea	porcupine grass	x	X			
Tradescantia ohiensis	Ohio spiderwort	x	x			
Urtica dioica	Tall nettle			p	p	p
Vernonia missurica	Missouri ironweed		x			
Veronicastrum virginicum	culver's root		X			
Viola pedatifida	prairie violet		x			
Viola pratincola	common blue violet		p			
Viola pratincola	common blue violet			p		
Vitis riparia	riverbank grape		p	p		
Zizia aurea	golden Alexanders		X			

Appendix 5. Exotic and native adventive plant species known from prairie habitats in region of Headwaters Ecosystem Partnership.
* indicates non-native species, ** = photo-toxic to skin, **X** = species that can become dominant in prairie plantings.

		HABITAT				CONTROL MEASURES						
		Prairie										
Scientific Name	**Common Name**	**dm**	**m**	**wm**	**w**	**Basal Bark Herbicide**	**Cut & Apply Stump-Treatmt Herbicide**	**Foliar Herbicide Application**	**Prescribed Fire**	**Cut &/or Hand Pull (get root)**	**Dig Root**	**Bio-Control**
*Achillea millefolium**	yarrow	**X**	x					X		X		
*Asparagus officinalis**	asparagus		x				X				X	
*Bromus inermis**	awnless brome grass	x	**X**					X				
*Cirsium arvense**	Canada thistle							X		X	X	
*Cerastium vulgatum**	common mouse ear		x					X				
*Convallaria majalis**	lily of the valley		x							X	X	
*Daucus carota**	Queen Anne's lace	x	x					X				
*Euphorbia cyparissias**	cyprus spurge		x					?		X	X	
*Festuca pratensis**	meadow fescue		x					X	X		X	
*Hemerocallis fulva**	orange day lily		x					X			X	
*Lonicera maackii**	honeysuckle		x				X					
*Lythrum salicaria**	purple loosestrife							X		X		X
*Melilotus alba**	white sweet clover		**X**				X	X	X	X		
*Melilotus officinalis**	yellow sweet clover		**X**				X	X	X	X		
*Morus alba**	white mulberry		x			X	X					
*Pastinaca sativa**	parsnip		**X**					X		X	X**	
Phalaris arundinacea	reed canary grass		**X**	**X**	**X**			X	X			
*Phragmites australis**	common reed			**X**	**X**			X	X			
*Poa compressa**	Canada bluegrass	x	x						X			
*Poa pratensis**	Kentucky bluegrass		x						X			
*Populus alba**	white poplar		x			X	X		X			
*Prunella vulgaris**	self heal		x	x				X				
*Rosa multiflora**	multiflora rose		x			X	X					
*Sedum purpureum**	live-forever		x							X	X	
Solidago canadensis	Canada goldenrod	**X**	**X**					X		X		
*Spiraea prunifolia**	bridal wreath		x									

		HABITAT				CONTROL MEASURES						
		Prairie				Basal Bark Herbicide	Cut & Apply Stump-Treatmt Herbicide	Foliar Herbicide Application	Prescribed Fire	Cut &/or Hand Pull (get root)	Dig Root	Bio-Control
Scientific Name	**Common Name**	**dm**	**m**	**wm**	**w**							
*Syringa vulgaris**	common lilac		x			X	X					
*Trifolium campestre**	low hop clover		x					X				
*Trifolium pratense**	red clover		x					X				
*Vinca minor**	common periwinkle		x					X		X		
*Yucca flaccida**	yucca*		x					?	?		X	
Selected species from forested habitats		Forest										
Scientific Name	**Common Name**	**dm**	**m**	**wm**	**w**							
*Alliaria petiolata**	garlic mustard	x	x	x				X	X	X		
*Glechoma hederacea**	creeping Charlie			x	x			X	?	X		
*Lonicera japonica**	Japanese honeysuckle		x					X				
*Lonicera maackii**	bush honeysuckle	x	x	x			X					
*Lysimachia nummularia**	moneywort			x	x			X	?			
*Maclura pomifera**	Osage orange		x	x		X						
*Rhamnus frangula**	glossy buckthorn			x	x	X	X					
*Robinia pseudoacacia**	black locust		x	x		X						
*Viburnum opulus**	European high bush cranberry		x	x			X					

Figure 1 A – Plat map location of the Middle Fork River Forest Preserve in Champaign County Illinois.

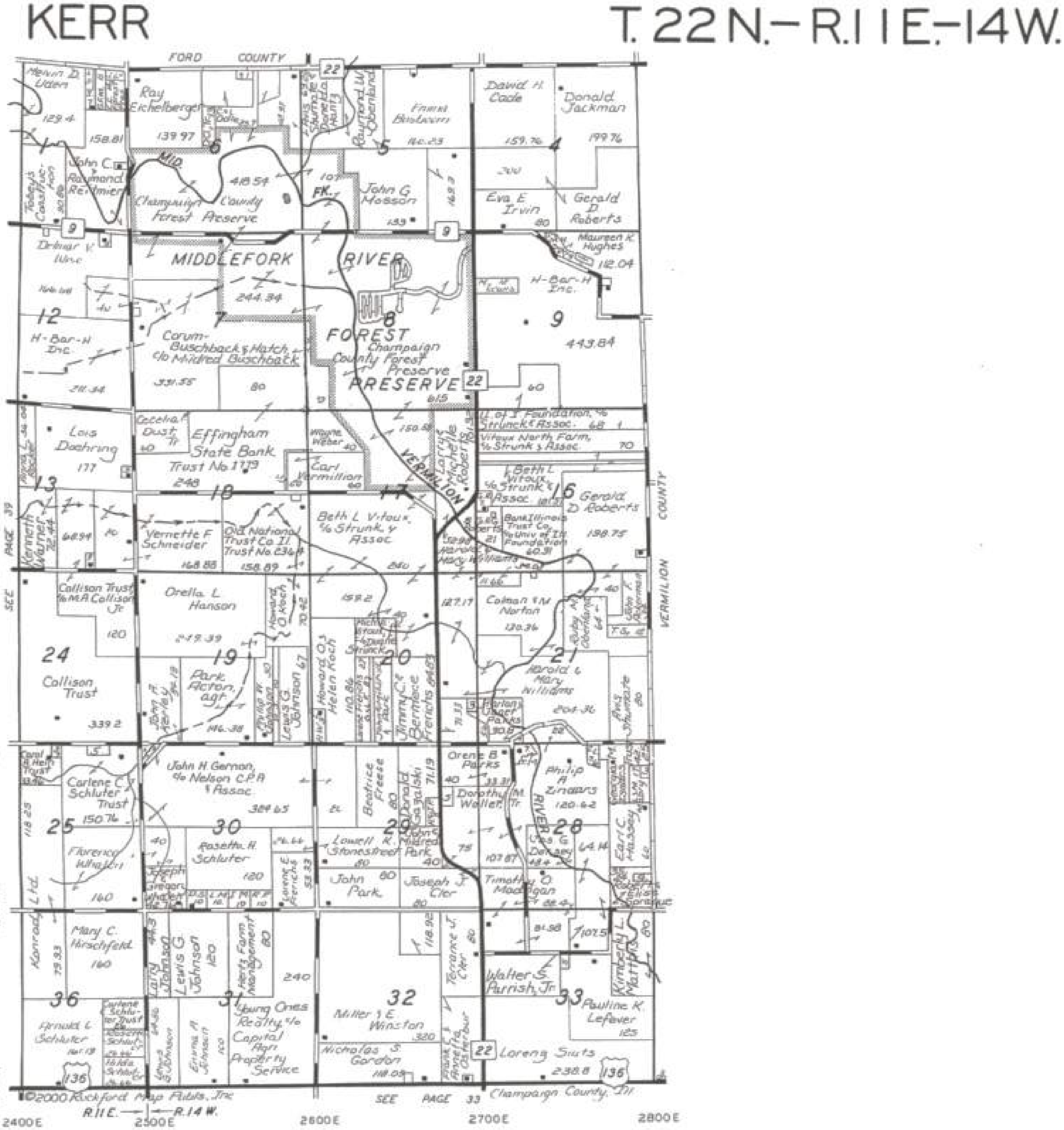


Figure 1 B – Aerial photograph of the Middle Fork River Forest Preserve area. White lines are preserve boundaries. Inset enlargement: Pt. Pleasant area with boundary.

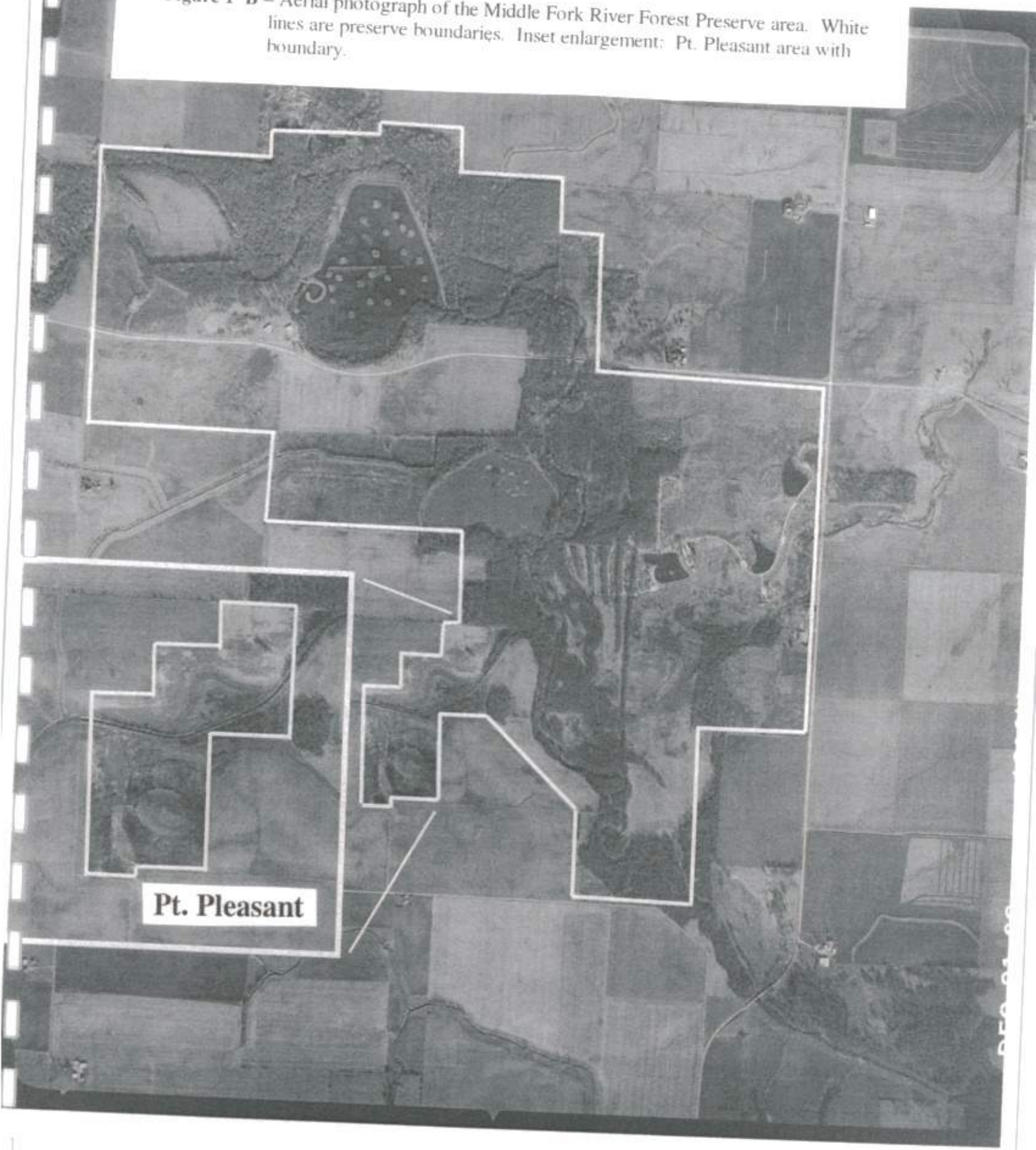
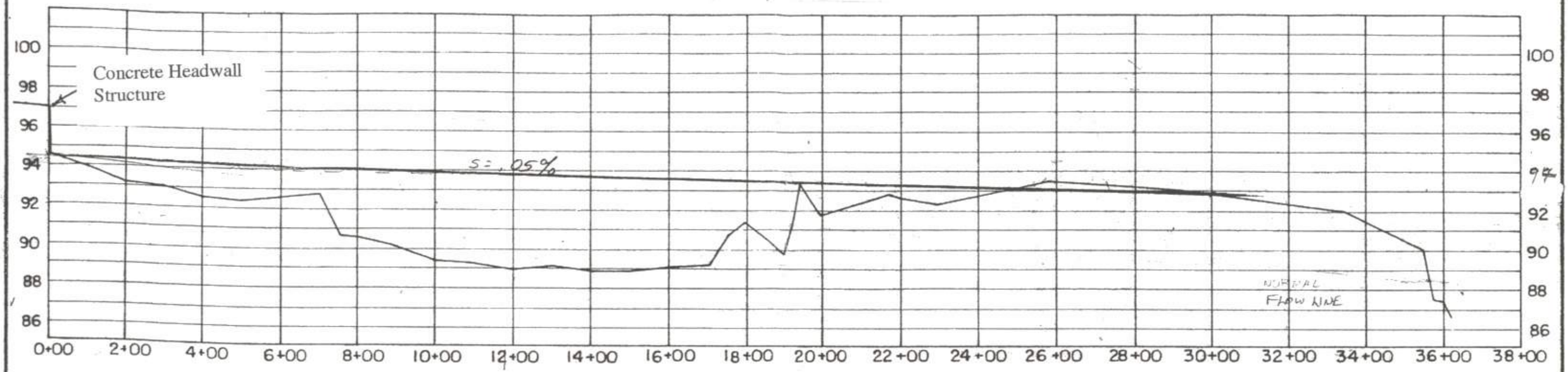


Figure 2 – Centerline elevation profile of main channel running through the Pt. Pleasant wetland at the Middle Fork River Forest Preserve, Champaign County, Illinois.

B.M. # 1: Chiseled "+" on top of south end of North part of concrete headwall; assumes elev. 100.00

B.M. # 2: 20 - penny nail on west side of hedge end post near base at SW corner of grove south of ditch; elev. 100.79

B.M. # 3: 20 – penny on north side of 36" bur oak near base 75 ft ± right of sta. 35 + 00; elev. 104.90



1984 excavation

Former excavation

93.5 minute outflow at 26 + 00

Concrete apron below headwall; elev. 94.52

Date on structure 1964
Notch = 3' X 16'
Top headwall is elev. 100.00
Overfall = 30"
(See storage file for structure – Dust)

36 + 00 = Edge of Middlefork, Vermillion River; elev. 87.4

Confluence of centerline of drainage ditch& centerline of Middlefork of Vermillion River = Sta. 36 + 20@ elev. 86.6

PROFILE SCALE
HORIZONTAL 1" = 300'
VERTICAL 1" = 6'

Note: Centerline of channel in concrete
Headwall = Station 0 + 00 @ elevation 97.02

PROFILE OF ℄ DITCH
IN SEC. 7 & 8 T22N R14W OF 2ND P.M.
FOR
CHAMPAIGN COUNTY FOREST PRESERVE
NOV. 1984

MOORE ENGINEERING
PAXTON, ILLINOIS

Figure 3 – Topographical map of the Point Pleasant Wetland, Champaign County Forest Preserve District. The line through the center of the lowland is a ditch, which flows to the east. The one-foot contour lines are referenced to a 100 ft benchmark located on top of the concrete headwall near the west edge of the site.