Mitigation Site Assessment for FAP 14 (IL 3) in Madison County

Date Investigated: 1 April 1997

Site References

This is a mitigation survey conducted for the proposed FAP 14 (IL 3) project in Madison County. The following sources were examined while surveying locations and boundaries: United States Geological Survey topographic map and National Wetland Inventory (NWI) map (Monks Mound 7.5 minute quadrangle); *Soil Survey of Madison County, Illinois;* aerial photographs; *National List of Plant Species That Occur In Wetlands: Illinois;* the 1987 *Corps of Engineers Wetlands Delineation Manual;* and onsite vegetation, soils, topographic and hydrologic indicators. There were no wetlands in this project area.

Site Description

A wetland mitigation site assessment was completed on the Bischoff property, a 7.7 ha (19 acre) tract in Madison Couny, Illinois. (Legal location: W/2, NE/4 Sec. 25, T. 3N., R. 9W.) This site occurs on the Mississippi River floodplain. Presettlement environment consisted of sloughs and backwater marshes with small areas of floodplain forests. This tract, up to last year, was an agricultural field. This field, now fallow, has sparse weedy vegetation. There were no wetlands mapped by the NWI at this site. The project area is bordered on the south by Schneider ditch and its associated berms, and a wet floodplain forest. Cahokia Canal and its associated berm exists to the west of the project area. The recently restored Eckmann wetland exists to the east of the Bischoff property. Northeast of the project area is an agricultural field.

Hydrology

The hydrologic inputs at this site include backflow/overflow from the Mississippi River via the Cahokia Canel-Schneider ditch, precipitation, and runoff from nearby higher areas. Water leaves the site by evapotranspiration, groundwater recharge, and sheetflow to the Schneider ditch. At the time of field investigation no drainage tile was located. The water table depth in the project area varied from greater than 1.3 m below the the soil surface in the north to 0.5 m in the south. The Mississippi has a watershed greater than 25,920 km^2 (10,000 mi^2). Its hydrologic basin unit code is 07140101, Mississippi River-Upper.

Soils

Soils cores were taken throughout the site. The NRCS mapped Wakeland silt loam, Birds silt loam, and Beaucoup silty clay loam. After investigating the site it was found to contain Wakeland silt loam and Beaucoup silty clay loam. Wakeland silt loam occupies a small portion in the north part of the project area while Beaucoup silty clay loam is found at the remainder of the site.

Wakeland silt loam is a floodplain forest soil with a surface and C horizon matrix color of 10YR 4/2. There were no hydric field indicators present in the A-horizon, but there was evidence of wetness in the C-horizon as iron masses were observed. Thus, this soil is somewhat poorly drained. This soil has a seasonal high water table 0.3 to 0.9 m (1 to 3 ft) below the surface from January to April. There was no evidence of a water table or saturated soil zone during the field investigation. Wakeland has a moderate soil permeability and a moderately low organic matter content. Wakeland is rated fair for both wetland wildlife and plants. The soil pH ranges from slightly acid to neutral throughout the profile. Wakeland silt loam occupies an area of 0.8 ha (2 acres).

Beaucoup silty clay loam is a floodplain prairie soil with a surface matrix color of 10YR 3/1 with iron masses of 10YR 5/6. The B-horizon has a 2.5Y 4/1 and 6/1 matrix color and iron masses of 10YR 5/6, 7.5YR 4/6 and 4/4. Thus, there is evidence of wetness in the A and B-horizons supporting its hydric soil classification. This soil has a seasonal high water table varying from 0.15 m (0.5 ft) above the surface to 0.6 m (2 ft) below the surface from March to June. The water table varied from 0.5 to 1.3 m (1.6 to 4.2 ft) below the surface at the time of field investigation. Beaucoup has a moderately slow permeability and a high organic matter content. Beaucoup is rated good for both wetland wildlife and plants. The soil pH ranges from slightly acid to neutral throughout the profile. Beaucoup silty clay loam occupies an area of 6.9 ha (17 acres).

Vegetation

On the day of the field survey, this site was fallow cropland that was planted the previous year. Vegetation consisted of a low cover of herbaceous species, most of which are annuals. No woody species were present. Dominants were *Capsella bursa-pastoris*, *Myosurus minimus*, *Sibara virginica*, and *Veronica peregrina*. All are winter annuals commonly found in fallow fields early in the spring. These species flower and set fruit early, dispersing their seeds before (or during) plowing and planting. Most of these annuals are poor competitors with taller perennial species, and will not persist past early stages of succession. Many of the species found at this site are exotic (approximately 50 %). The mean C value for this site is 1.3 and the FQI is 4.5. These values are indicative of very poor natural quality.

The successional field that borders this site to the east is dominated by *Populus deltoides* in the shrub layer, with *Ambrosia trifida*, *Aster simplex*, *Setaria faberi*, and *Xanthium strumarium* in the herbaceous layer. The levee which runs the length of this site to the west is dominated by *Ambrosia trifida*, *Humulus japonicus*, and *Urtica dioica*. The floodplain forest to the south of this site is dominated by *Acer saccharinum*, *Fraxinus pennsylvanica*, and *Salix nigra* in the tree layer, *Acer saccharinum* in the sapling layer, *Acer negundo*, *Cornus drummondii*, and *Toxicodendron radicans* in the shrub layer, and *Corydalis flavula* and *Lamium purpureum* in the herbaceous layer.

SPECIES LIST AT MITIGATION SITE

Scientific name	Common name	Stratum	Wetland indicator status	C*
Allium vineale	field garlic	herb	FACU	**
Alopecurus carolinianus	annual foxtail	herb	FACW	0
Capsella bursa-pastoris	sheperd's-purse	herb	FAC-	**
Carduus nutans	nodding thistle	herb	UPL	**
Cerastium vulgatum	mouse-ear chickweed	herb	FACU	**
Chaerophyllum procumbens	wild chervil	herb	FAC+	1
Corydalis flavula	pale corydalis	herb	FACU+	5
Descurainia sp.	tansy mustard	herb	UPL	–
Erysimum repandum	treacle mustard	herb	UPL	**
Geranium carolinianum	wild cranesbill	herb	UPL	2
Lamium amplexicaule	henbit	herb	UPL	**
Matricaria matricarioides	pineapple weed	herb	FACU	**
Myosotis sp.	scorpion grass	herb	——	–
Myosurus minimus	mousetail	herb	FACW	0
Oenothera biennis	evening primrose	herb	FACU	1
Ranunculus abortivus	little-leaf buttercup	herb	FACW-	1
Ranunculus sceleratus	cursed crowfoot	herb	OBL	3
Rumex altissimus	pale dock	herb	FACW-	2
Rumex crispus	curly dock	herb	FAC+	**
Setaria faberi	giant foxtail	herb	FACU+	**
Sibara virginica	Virginia rock cress	herb	FACU-	0
Sonchus sp.	sow thistle	herb	——	**
Stellaria media	common chickweed	herb	FACU	**
Thlaspi arvense	field penny cress	herb	UPL	**
Valerianella radiata	corn salad	herb	FAC+	1
Veronica peregrina	purslane speedwell	herb	FACW+	0
Viola rafinesquii	Johnny-jump-up	herb	UPL	**

*Coefficient of Conservatism (Taft *et al.* 1993)
**Non-native species

mean C value (mCv) = $\sum C/N = 16/12 = 1.3$
FQI = mCv ($\sqrt{N}$) = 1.3 ($\sqrt{12}$) = 4.5

The Floristic Quality Index (FQI), developed by Swink and Wilhelm (1979) and modified by J. Taft, D. Ladd, G.S. Wilhelm, and L.A. Wetstein (*Floristic quality assessment database for the state of Illinois,* unpublished data, 1993), was applied to the vegetation of each wetland. This index should not be used as a substitute for quantitative vegetation analysis in assessing plant communities, but it does provide a measure of the floristic integrity of each site. The FQI was calculated as follows: $I = R/\sqrt{N}$, where R represents the sum of the numerical ratings for all species native to Illinois recorded in the area, and N represents the number of recorded native species. The numerical rating for each species is shown in the species list for the site. The mean-rated quality also was determined by dividing the sum of numerical ratings for all native taxa by the number of recorded native taxa. FQI values of ten or less indicate low natural quality. Sites with FQI values of 20 or more possess some evidence of native character and may be considered environmental assets.

Natural Areas

Bohm Nature Preserve, a 4 ha (10 acre) mesic upland forest on the bluffs of the Mississippi River, is located 16 km (10 mi) north of the site.

Wildlife Use and Habitat for Threatened and Endangered Species

This tract and adjacent lands may provide habitat for waterfowl and aquatic mammals, reptiles, amphibians, and fish. The waterways and floodplain forest south of the project area may provide suitable foraging and nesting habitat for the great egret (*Casmerodius albus*), snowy egret (*Egretta thula*), black crowned night heron (*Nycticorax nycticorax*), yellow crowned night heron (*Nyctanassa violacea*), little blue heron (*Egretta caerulea*) and moorhen (*Gallinula chloropus*), which are known to occur in Madison County. The snowy egret, black crowned night heron and little blue heron are endangered in Illinois. The great egret, moorhen and yellow crowned night heron are threatened in Illinois. No threatened or endangered plant species were located or are likely to occur onsite.

Potential for Wetland Creation or Restoration

Most of this site was a wetland at one time. Only the northernmost 2 acres was probably drier and not considered as a wetland. The NRCS did not recognize any part of this site as a wetland. This project area may function as a wetland again, if the presettlement non-wetland area (2 acres) was excavated approximately 0.3 to 0.5 m (12 to 18 inches) and wetland hydrology reintroduced to the whole site. Hydrology could be restored by lowering the berm around Schneider Ditch and raising the water level by installing a weir before it empties into the Cahokia Canal. Additionally, a break in the berm that runs alongs Cahokia Canal may supply water to the site. Lastly, plug or destoy any tile that may exist on the site. Tree seedlings should be planted at the site if a floodplain forest is desirable. If a herbaceous-shrub vegetation is welcomed, a wetland seed bank probably already exists and no plantings are needed.

If restored this area may provide the opportunity for water purification of contaminants from any nearby farming practices. This site also would provide a floodwater storage and wildlife habitat area.

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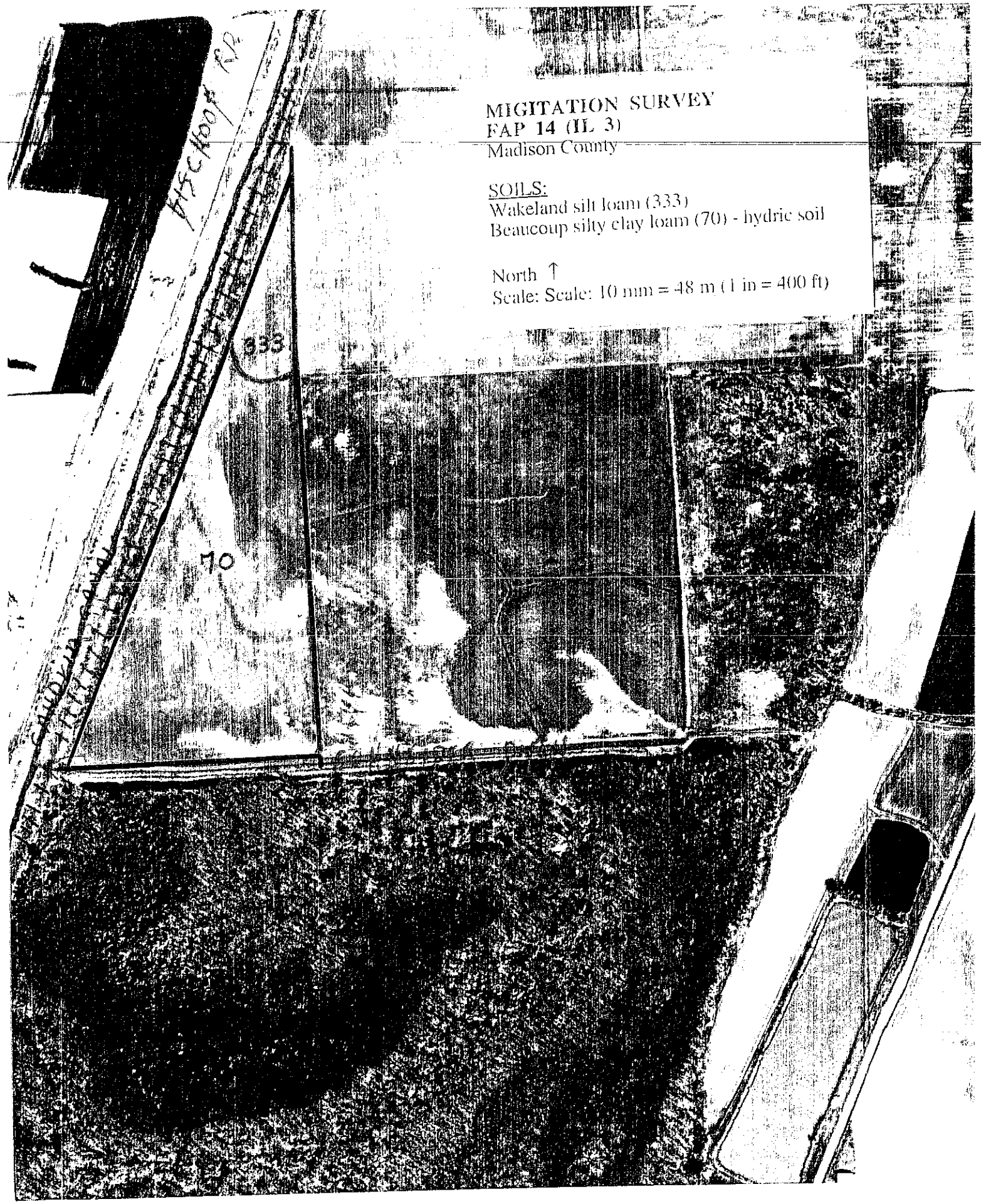
MIGITATION SURVEY
FAP 14 (IL 3)
Madison County
SOILS:
Wakeland silt loam (333)
Beaucoup silty clay loam (70) - hydric soil
North ↑
Scale: Scale: 10 mm = 48 m (1 in = 400 ft)
333
70