

FIELD SUMMARY REPORT
FOR
MIDLAND SE AND GRAND RAPIDS SW MICHIGAN

I. Introduction

This mapping project covers two areas in the lower peninsula of Michigan: the Alma - St. Johns area south of Midland and the Battle Creek - Kalamazoo area south of Grand Rapids.

A. 1:100,000 Maps

Midland SE (western half)
Grand Rapids SW

B. List of 7.5' quads with check sites

1. Midland SE (Sites 1 - 17 were visited in July 1988)

St. Johns North #18, 19a, 19b, 19c
Maple Rapids 20
Hubbardston 21
Alma North 22, 23a, 23b
Riverdale 24, 25
Vestaburg 26, 27, 28a, 28b
Butternut 29a, 29b
Palo 30a, 30b, 31

2. Grand Rapids SW

Bedford 1
Bellevue 2a, 2b, 2c
Banfield 3, 4
Augusta 5a, 5b, 6
Climax 7
Gobles West 8, 9a, 9b
Bloomington 10
Merson 11, 13
Otsego 12a, 12b
Gobles East 14
Decatur 15a, 15b
Schoolcraft NW 16a, 16b
Adams Park 17
Portage 18
Vicksburg 19a, 19b
Mendon 20, 21
Leonidas 22, 23
Union City 24

C. Personnel

John Anderson (ARWC, Region 3, NWI, USFWS)
 David Byron Foulis (Wetland Mapping Unit - Resource Mapping)
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D. Field Trip Date: 05/01/89 - 05/05/89E. Photography

1a. Midland SE

| | |
|----------|----------------|
| 11/03/81 | 50% coverage |
| 11/04/83 | 12.5% coverage |
| 04/25/83 | 37.5% coverage |

b. Grand Rapids SW

| | |
|----------|----------------|
| 05/02/81 | 96.9% coverage |
| 05/07/81 | 3.1% coverage |

2. Scale: 1:58,0003. Type: C.I.R. (Color Infrared)F. Collateral Data

1. USGS 7.5' quads

2. USDA SCS Soil surveys for the following counties:

Allegan, Barry, Branch, Clinton, Eaton, Gratiot,
 Ionia, Isabella, Kalamazoo, Midland, Montcalm
 St. Joseph, Van Buren

3. Bailey, R.G., 1978, Description of the ecoregions of the United States: USDA Forest Service, Ogden Utah, 77p.

4. Albert, D.A., Denton, S.R., and Barnes, B.V, 1986, Regional landscape ecosystems of Michigan: School of Natural Resources, University of Michigan, 32p.

II. Overview

According to Bailey (1978) the areas studied straddle the boundary between the Northern Hardwoods Forest Section (2113) of the Laurentian Mixed Forest Province (2110) and the Beech-Maple Forest Section (2212) of the Eastern Deciduous Forest Province (2210). The landforms in the work areas are typical

of those resulting from Pleistocene continental glaciation. In the Midland SE area ground moraine, end moraine, and lake plains produce an irregular topography with moderate to low relief (Albert et al., 1986). In the Grand Rapids SW area glacial outwash, ice-contact terrain, ground moraine and end moraine combine to produce a rolling topography with moderate relief (Albert et al., 1986). The soils in both areas are dominantly alfisols, inceptisols, mollisols and histosols. Both areas are characterized by a humid temperate climate. At Alma in northwestern Gratiot County the average annual precipitation is 29.7 inches, the average daily maximum temperature is 58°F and the average daily minimum temperature is 37.4°F (Soil Survey of Gratiot County, 1979). At Kalamazoo the average annual precipitation is 34.4 inches, the average daily maximum temperature is 59.9°F and the average daily minimum is 39.7°F (Soil Survey of Kalamazoo County, 1979).

III. Biological Characteristics of Wetland Habitats

- A. Marine: not present
- B. Estuarine: not present
- C. Lacustrine: Both natural and man-made lakes occur in both work areas . These will be classified as L1UBH and L1UBHh or L1UBHx respectively (Lacustrine, limnetic, unconsolidated bottom, permanently flooded, with an impounded or excavated special modifier for man-made lakes). Some lakes in the Grand Rapids SW work area supported communities of yellow pond lily (Nuphar luteum [Nuphar advena]). These areas will be classified as L2EM2H (Lacustrine, littoral, emergent, non-persistent, permanently flooded), when the corresponding smooth, scarlet signature is seen on the photograph. These signatures will often reveal the clonal nature of this species, and this will prove helpful in delineating these wetlands. A special modifier will be added if there is evidence that the lake in question is artificial.
- D. Riverine: All observed streams were either lower perennial or intermittent, with unconsolidated bottoms. Thus, streams in these two work areas will be classified as R2UBH (Riverine, lower perennial, unconsolidated bottom, permanently flooded) or R4SBF (Riverine, intermittent, stream bed, semipermanently flooded) based on USGS topographic quadrangle symbols. Many drainage ditches and channelized streams were encountered during field work. Those at or greater than pen width will be classified as above with the "x" special modifier (excavated) to indicate their origin.

Major rivers in the Midland SE work area include the Maple River, Pine River, Fish Creek and Pine Creek.

Major rivers in the Grand Rapids SW work area are the Kalamazoo River, Battle Creek, Paw Paw River, Rocky River, St. Joseph River, Gun River, Portage River, Coldwater River, and Nottawa Creek.

- E. Palustrine: Many ponds and small water bodies less than 20 acres in size are visible. Natural ponds will be classified as PUBG (Palustrine, unconsolidated bottom, intermittently exposed). Farm ponds will be classified as PUBG with either the "h" (diked or impounded) or "x" (excavated) modifier.

The "K" water regime (artificially flooded) and the "h" or "x" modifier will be used for sewage treatment ponds that do not have aerator or sprinkler devices visible on the photography. Those that have the above devices, or that exhibit evidence of chemical treatment (copper green signatures for example) will not be mapped as wetland.

Occasionally, ponds were found to have mats of duckweed or green algae growing on the surface or suspended in the water column. When these mats are dominant over the open water zones, they exhibit the typical aquatic bed signature (a solid pink color with a slight sheen). These will be classified as PABG (Palustrine, aquatic bed, intermittently exposed).

Many ponds in the Grand Rapids SW work area show a scarlet red signature, which was found in the field to be due to Nuphar luteum. These will be classified as PEM2 (Palustrine, emergent, non-persistent) with either the "F" (semipermanently flooded) or "G" (intermittently exposed) water regimes.

Forested wetlands were very common in both work areas, occurring in river floodplains and isolated woodlots scattered among the agricultural tracts. Acer rubrum, Acer saccharinum, Ulmus americana, and Fraxinus pennsylvanica often dominated these sites, and in most cases it appeared that surface water was present for extended periods during the growing season. These areas will be classified as PF01C (Palustrine, forested, broad-leaved deciduous, seasonally flooded) when the signature exhibits signs of inundation. Occasionally, temporarily flooded, forested, broad-leaved deciduous, Palustrine wetlands were encountered (PF01A's). Often they were situated on river floodplain terraces or had been partially drained or ditched. In the latter case a "d" modifier will be added when drains are visible on the photography (PF01Ad). The vegetative community was not significantly different from that of PF01C's.

Palustrine, forested, broad-leaved deciduous, saturated wetlands (PFO1B) were a rare but important component of the Grand Rapids SW work area (sites #14 and 17). The signatures for these sites have several distinguishing features. Most importantly, the understory is very light in color, and the canopy structure is even. Also, the edges of these wetlands have open water areas, or "moats", and there are usually PFO1C's with flooded understories bordering these moat ponds. Acer rubrum dominated these sites with Vaccinium corymbosum and Maianthemum canadense common in the understory, which was very open and "park-like" in both check sites. The soils were either sapric or hemic peats with water tables very near the surface of the duff layer. These areas are bogs that have succeeded to forest.

Thuja occidentalis was found only in Midland SE. Though the stands were small and scattered, it was encountered fairly often, and these will be classified as Palustrine, forested, needle-leaved evergreen, saturated (PFO4B). In all cases where F04 occurs, the B water regime will be used.

Larix laricina occurred uncommonly and sporadically in Midland SE and with more regularity in Grand Rapids SW. Signatures on the 11/03/81 and 11/04/83 photography for Midland SE clearly show Larix laricina with white "popcorn" crowns. Therefore Palustrine, forested, needle-leaved deciduous, saturated wetlands (PFO2B) can accurately be mapped for these dates of photography.

In the Grand Rapids SW work area, Larix laricina was the only conifer found in wetlands. On both dates of photography (05/02/81 and 05/07/81), crown signatures are clearly distinguishable from other wetland forest types. These areas will also be classified as PFO2B.

Checksite 24 of Midland SE was a saturated wetland dominated by Betula papyrifera and Thuja occidentalis. Betula papyrifera is classified as "facultative upland +" in the Region 3 Wetland Plant List (May, 1988). This community was seen in the field only once. It was classified as Palustrine, forested, broad-leaved deciduous mixed with needled-leaved evergreen, saturated (PFO1/4B).

Bogs were present in limited numbers in the Midland SE work area, and were very common in Grand Rapids SW. Chamaedaphne calyculata almost always dominated these sites in Midland SE, and often shared dominance in Grand Rapids SW with Woodwardia virginica and Vaccinium corymbosum (Palustrine, scrub-shrub, broad-leaved evergreen, saturated). Because of the late date of photography in Grand Rapids SW (05/02/81 and 05/07/81) the usually rusty signature associated with leatherleaf is replaced by a

reddish orange signature. Nevertheless, it is quite distinct from other signatures.

Scrub-shrub wetlands occur in both work areas in association with river floodplains and as isolated blocks in farmland. Based on our field work most of these will be classed as PSS1C (Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded). The temporarily flooded water regime ("A") will be used sparingly in the drier-looking sites. Site #25, Midland SE is an example of a PSS1C dominated by Salix sp. with Cornus stolonifera, C. amomum and Populus tremula common. On the 11/03/81 photograph the signature is dark blue. Checksites 9a and 9b, Grand Rapids SW are dominated by Salix sp. and Populus tremula respectively and both were classified as PSS1C. The signatures are pale red on the 05/02/81 photograph.

Scrub-shrub areas dominated by Cephalanthus occidentalis occurred on the margins of lakes and ponds in both areas (site #30, Midland SE; site #18, Grand Rapids SW), and in old oxbows in river floodplains. They will be classified as PSS1F (Palustrine, scrub-shrub, broad-leaved deciduous, semipermanently flooded).

Emergent wetlands were common throughout both work areas. A special effort was made during this trip to visit a number of sites subject to intensive cultivation which nevertheless may still have the capability of supporting hydrophytic vegetation. Those which had pale photo signatures and diffuse edges and which lacked hydric soil indicators or traces of hydrophytic vegetation, were classed as upland during field checking. However, there were also a number of sites with distinct boundaries and dark moist-soil signatures. These sites are located in obvious topographic basins or swales which are underlain by hydric mineral soils. Therefore, despite the absence of hydrophytic vegetation (due to plowing), these sites will be considered wetlands based on soils and hydrology. They will be classified as PEMA (Palustrine, emergent, temporarily flooded) with the ditched modifier ("d") being used if evidence of draining is discernible on the photos. Site #21, Grand Rapids SW has a bluish signature with diffuse edges and is located in an upland basin in a tilled field. Despite the favorable topographic position the soil was well-drained with no hydric indicators and there was no evidence of hydrophytic vegetation. Thus the site was classified as upland. In contrast, site #11 Grand Rapids SW was classified as PEMAd (Palustrine, emergent, temporarily flooded, ditched) since even though there was no evidence of actual hydrophytic vegetation there was a dark signature with a sharp boundary and it was located in a topographic basin underlain by a hydric mineral soil. Wetter spots which support hydrophytic vegetation and are

avoided by the farmers during plowing will be classified as PEMC (Palustrine, emergent, seasonally flooded.)

Emergent areas dominated by Typha spp. or Phalaris arundinacea are common in the Grand Rapids SW area but are less common in the Midland SE area. Marshes dominated by Phalaris arundinacea typically have a smooth white or greenish white signature and will be classified as PEMC (Palustrine, emergent, seasonally flooded). Some of the sites with these strong emergent signatures actually contained a significant amount of scrub-shrub vegetation. For example, although site #6, Grand Rapids SW is dominated by Phalaris arundinacea, Cornus racemosa is scattered throughout the polygon. There is no sign of any scrub-shrub zone showing through the strong emergent signature.

Marshes dominated by Typha latifolia and/or T. angustifolia were common in the Grand Rapids SW area. On both the 05/02/81 and the 05/07/81 photography these often have a distinctive light pink signature. They will be classified as PEMF (Palustrine, emergent, semipermanently flooded).