

National Wetlands Inventory
User Notes for the Williamsport NE (Toxanda)
and Williamsport SE (Williamsport East)
1:100,000 Map Areas-
Pennsylvania

October, 1986

U.S. Fish and Wildlife Service
Region 5
Fish and Wildlife Enhancement
One Gateway Center, Suite 700
Newton Corner, MA 02158

INTRODUCTION

The U.S. Fish and Wildlife Service is conducting an inventory of the wetlands of the United States. All wetlands are classified according to the Service's new system - Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979). The National Wetlands Inventory (NWI) is establishing a wetland data base, in both map and computer forms for the entire country. The present emphasis is on map production and in the future, wetland data will be digitized to create an automated wetland data base, as funding becomes available. The NWI information will serve to identify the current status of U.S. wetlands and can be used as a reference point from which future changes in wetlands can be evaluated. Final wetland maps and other information, including a topical brief about the NWI program can be obtained by contacting the Regional Wetland Coordinator, U.S. Fish and Wildlife Service, One Gateway Center, Newton Corner, MA 02158.

SUBJECT AREA

The Williamsport NE and SE map areas encompass Bradford and Sullivan counties and portions of Susquehanna, Tioga, Wyoming, Lycoming, Luzerne, Columbia, Montour, Northumberland, and Union.

MAP PREPARATION

Outlined below are the relevant data about the wetlands inventory, including photography used, extent of field checking, photointerpretation contractor and collateral data used.

Photography used:

Emulsion/Scale - Color Infra-red/1:58,000
Date - May 1981
Percent Coverage - 25%, Williamsport NE (western portion)
20%, Williamsport SE (NW portion)

Emulsion/Scale - Color Infra-red/1:58,000
Date - April 1982
Percent Coverage - 12%, Williamsport NE (NW portion)

Emulsion/Scale - Black and White Panchromatic/1:60,000
Date - April 1977
Percent Coverage - 25%, Williamsport NE (western portion)
35%, Williamsport SE (western portion)

Emulsion/Scale - Black and White Panchromatic/1:80,000
Date - October 1976
Percent Coverage - 35%, Williamsport NE (eastern portion)
35%, Williamsport SE (eastern portion)

Emulsion/Scale - black and white Panchromatic/1:80,000
Date - May 1977
Percent Coverage - 6%, Williamsport SE

Field Checking:

Dates - August 2-6, 1982
September 20-24, 1982

Contractor for Photo Interpretation:

University of Massachusetts
Department of Forestry and Wildlife Management
Amherst, MA

Collateral Data Used:

U.S. Geological Survey Topographic Maps
U.S.D.A. Soil Conservation Service Soil Surveys

Minimum Mapping Unit:

3-5 acres in general, where black and white photography was used and 1-3 acres where color infrared photography was used, although smaller wetlands may be delineated.

Special Mapping Problems:

1. Mapping of forested wetland subclasses. The October 12, 1976 B & W photography (Williamsport NE, SE-eastern portion) was flown prior to leaf fall, making it difficult to distinguish evergreen from deciduous species in some cases. On the other hand, spring-flown CIR photography allowed accurate distinctions to be made in all situations. Larch (Larix laricina), mapped as PF02, was easily distinguished on B & W fall imagery, but not on spring CIR.
2. Identification of freshwater aquatic beds. Due to use of spring photography in many areas, aquatic beds in freshwater ponds and lakes were not identifiable. These wetlands were, therefore, included as part of the open water class. Maps, however, do show some aquatic beds, usually where observed during field investigations. The eastern portions of Williamsport NE and SE were mapped with black and white photography taken in the fall. In this case, the date of photography allowed the mapping of many non-persistent emergent marshes and aquatic beds.
3. Inclusion of small upland areas within wetland boundaries. Small islands of higher elevations and better drained upland areas naturally exist in many wetlands. Due to minimum mapping units, small upland areas may be included within designated wetlands. Field inspections and/or use of larger scale photography can be used to refine wetland boundaries when necessary.
4. Mapping of wetland along the Susquehanna River. At the time the October 12, 1976 photography was flown, the Susquehanna was in flood stage. Therefore, Beach/Bar and Emergent wetlands, and some Scrub/Shrub wetlands along the river, were obscured and thus not mapped.

Special Mapping Conventions:

EM1 subclass was used to identify solid stands of Common Reed (Phragmites australis).

AREA DESCRIPTION

The Williamsport 1:100,000 work areas are located in the northeastern corner of Pennsylvania, longitude 76 W to 77 W and latitude 41 N to 42 N. The major watersheds within the work areas are those of the Susquehanna, Loyalsock, Lycoming and Tioga rivers.

The subject area is described below in terms of Bailey's Ecoregions and Hammond's Land-Surface Forms. The 1978 report by Dr. Robert G. Bailey entitled Description of the Ecoregions of the United States divides the country into "ecoregions" based on regional variations in climate, vegetation and land form. As such, these ecoregions serve as natural subdivisions of the United States. For describing the topography of the subject area, Hammond's land-surface form classification was used. Descriptions are based on data from the Fish and Wildlife Service's 1:250,000 Ecoregion Maps and the Bailey publication.

According to Bailey's (1978) system, this mapping area falls within the humid temperate domain ranging from a warm continental to a hot continental climate. The majority of Williamsport NE is classified as part of the Laurentian Mixed Forest Province - Northern Hardwoods Section, with the Williamsport SE 1:100,000 area classified as Eastern Deciduous Forest Province - Appalachian Oak Forest Section.

Most of the Laurentian Mixed Forest province has low relief, but rolling hills and low mountains occur in many places. Lakes, poorly drained depressions, morainic hills, drumlins, eskers, outwash plains, and other glacial features are characteristic, for glaciers covered the entire area during parts of the Pleistocene.

Winters are moderately long and somewhat severe, but more than 120 days have temperatures above 50°F. (10°C). Snow usually stays on the ground all winter. The moderate precipitation ranges from 24 to 45 in. (600 to 1,150 mm.); maximum precipitation comes in summer. A short growing season imposes severe restrictions on agriculture; the frost-free season lasts from 100 to 140 days.

This province lies between the boreal forest and the deciduous forest zones and therefore, is transitional. It consists of either mixed stands of a few coniferous species (mainly pine) and a few deciduous species, or of a macromosaic-like arrangement with pure deciduous forest on favorable habitats with good soil, and pure coniferous forest on less favorable habitats that have poor soils.

Most of the Eastern Deciduous Forest Province is rolling, but some parts are nearly flat and in the Appalachian Mountains the relief is high (up to 3,000 ft. [900m.]). The northern parts of the province have been glaciated.

The vegetation represents a response to a continental climatic regime that receives adequate precipitation in all months. Average annual precipitation is from 35 to 60 in. (900-1,500 mm.). Precipitation is markedly greater in the summer months when evapotranspiration is great and moisture demands are high. Only a small water deficit is incurred in the summer, whereas a large surplus normally develops in spring. A strong annual temperature cycle brings cold winters and warm summers. The average annual temperature is 40°-60°F (4°-15°C.).

Winter deciduous forest, sometimes called temperate deciduous forest, is characteristic of this province. It is dominated by tall, broadleaf trees that

provide a continuous and dense canopy in summer but shed their leaves completely in winter. In spring, a luxuriant low layer of herbs quickly develops, but this is greatly reduced after the trees reach full foliage and shade the ground.

Common trees of the deciduous forests of eastern North America are oak, beech, birch, hickory, walnut, maple, basswood, elm, ash, tulip tree, sweet chestnut, and hornbeam. In poorly drained habitats, the deciduous forest consists of alder, willow, ash, elm, and many hydrophytic shrubs. Where forests have been cleared by logging, pines develop readily as second-growth vegetation.

SOILS

Soil is an important element of wetlands. It is a major criterion used to define wetlands: "The substrate [of wetlands] is predominantly undrained hydric soil" (Cowardin, et al., 1979). The National Wetlands Inventory, in cooperation with the U.S. Soil Conservation Service, has prepared a list of hydric soils of the United States to accompany the Fish and Wildlife Service's wetland classification system. For specific information regarding wetland soils in your area, contact the State Soil Scientist, U.S.D.A. Soil Conservation Service.

WETLAND COMMUNITIES

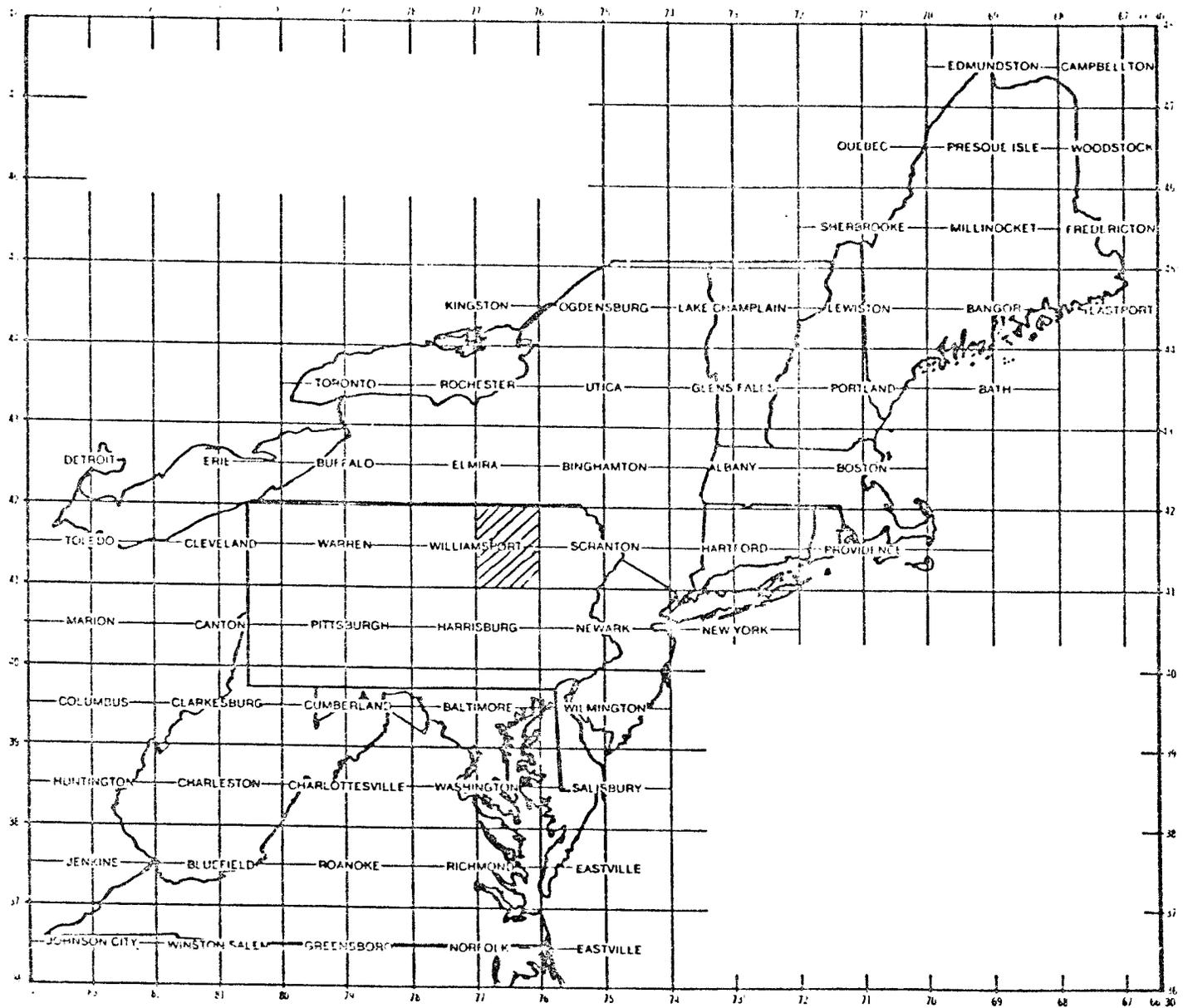
The Fish and Wildlife Service has prepared a list of wetland plants to accompany the wetland classification system. In addition to this list, the Service plans to prepare a list of wetland communities for the country, however, such a list is not currently available. The following table lists the wetland communities that were observed in the field during the course of this inventory. This community list correlates map symbols, which appear on the NWI maps, with the dominant wetland vegetation observed in the field and also specifically identifies the water regime or amount of flooding/degree of wetness of these communities.

WETLAND COMMUNITIES*

<u>MAP SYMBOLS</u>	<u>LOCAL NAMES</u>	<u>DOMINANT VEGETATION</u>	<u>WATER REGIME</u>
PABH and PABF	Deep Marsh Yellow Pond Lily	Pondweeds - <u>Potamogeton</u> spp. White Water Lily - <u>Nuphar</u> sp. Duckweeds - <u>Lemna</u> spp., <u>Wolffia</u> sp.	Permanently & Semi- permanently flooded
PEM2F	Deep Marsh	Bur-reed - <u>Sparganium americanum</u> Pickerelweed - <u>Portedaria cordata</u> Arrowhead - <u>Sagittaria latifolia</u>	Semipermanently flooded
PEM5F	Marsh	Broad-leaved Cattail - <u>Typha latifolia</u> Sedges - <u>Carex</u> spp. Bur-reeds - <u>Sparganium</u> spp. Spike-rushes - <u>Eleocharis</u> spp. Broad-leaved Cattail Burbushes - <u>Scirpus</u> spp.	Semipermanently flooded
PEM5E and PEM5C	Wet Meadow	Bluejoint grass - <u>Calamagrostis canadensis</u> Soft Rush - <u>Juncus effusus</u> Sweetflag - <u>Acorus calamus</u> Reed canary grass - <u>Phalaris arundinacea</u> Sedges	Seasonally flooded
FEM5B	Hillside Seep	Soft Rush Sedges Bluejoint grass	Saturated
PSS1/EM5E and PSS1/EM5C	Marsh/Swamp	Red-osier Dogwood - <u>Cornus stolonifera</u> Southern Arrowwood - <u>Viburnum dentatum</u> Broad-leaved Cattail Willow (shrubs) - <u>Salix</u> spp. Alder - <u>Alnus</u> sp. Sedges	Seasonally flooded
PSS1E and PSS1C	Shrub Swamp	Alder Steeplebush - <u>Spiraea tomentosa</u> Willow (shrubs) Southern Arrowwood Red Maple (shrubs) - <u>Acer rubrum</u>	Seasonally flooded
PSS3B	Shrub Bog	Leatherleaf - <u>Chamaedaphne calyculata</u> Sweetgale - <u>Myrica gale</u> Peat mosses - <u>Sphagnum</u> spp. Sedges	Saturated

<u>MAP SYMBOLS</u>	<u>LOCAL NAME</u>	<u>DOMINANT VEGETATION</u>	<u>WATER REGIME</u>
PF01E and PF01C	Wooded Swamp	Red Maple Yellow Birch - <u>Betula alleghaniensis</u> (<u>lutea</u>) Black Gum - <u>Nyssa sylvatica</u> Highbush Blueberry - <u>Vaccinium corymbosum</u> Great Rhododendron - <u>Rhododendron</u> <u>maximum</u>	Seasonally flooded
PF01A	Forested Floodplain	Silver Maple - <u>Acer saccharinum</u> Tuliptree - <u>Liriodendron tulipifera</u> Sycamore - <u>Fraxinus occidentalis</u> Butternut - <u>Juglans cinerea</u> Poison Ivy - <u>Toxicodendron radicans</u>	Temporarily flooded
PF04E and PF04C	Wooded Swamp	Eastern Hemlock - <u>Tsuga canadensis</u> Fir - <u>Abies</u> sp.	Seasonally flooded
PF04/2B	Forested Bog	Black Spruce - <u>Picea mariana</u> Larch - <u>Larix laricina</u> Leatherleaf Peat mosses Sedges	Saturated
PSS7ABF	Marsh/Swamp	Elderberry - <u>Sambucus canadensis</u> Yellow Pond Lily Pondweeds Red-osier Dogwood	Semipermanently flooded
PF057ABF	Dead Swamp	Dead trees Yellow Pond Lily Pondweeds	Semipermanently flooded

* Examples of common plant communities, based on field observations.



USER CAUTION

The wetland map was prepared primarily by stereoscopic analysis of high-altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with Classification of Wetlands and Deepwater Habitats of the United States by L. M. Cowardin and others (1979). The aerial photographs typically reflect conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of aerial photographs. Thus, a detailed on-the-ground survey and historical analysis of a single site may result in revision of wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be shown on this wetland map.

Federal, State and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either design or products of this inventory, to define limits of proprietary jurisdiction of any Federal, State or local government or to establish the geographical scope of regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should contact the appropriate Federal, State and local agencies concerning specific agency regulatory programs and proprietary jurisdiction that may affect such activities.

Additional information regarding this map or other National Wetlands Inventory activities may be obtained by contacting Regional Wetland Coordinator, U.S. Fish and Wildlife Service, Region Five, One Gateway Center, Newton Corner, MA 02158 (617-965-5100 ext. 379 or FTS 829-9379).

PRIMARY REFERENCES

Bailey, R.G., 1978. Ecoregions of the United States. Forest Service.
U.S. Department of Agriculture. 77 pp.

Cowardin, L.W., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification
of Wetlands and Deepwater Habitats of the United States. Fish and
Wildlife Service, Office of Biological Services, U.S. Department of the
Interior. FWS/OBS Publication 79/31. 103 pp.