

# NATIONAL WETLAND INVENTORY USER REPORT 1:100,000 MAP AREA

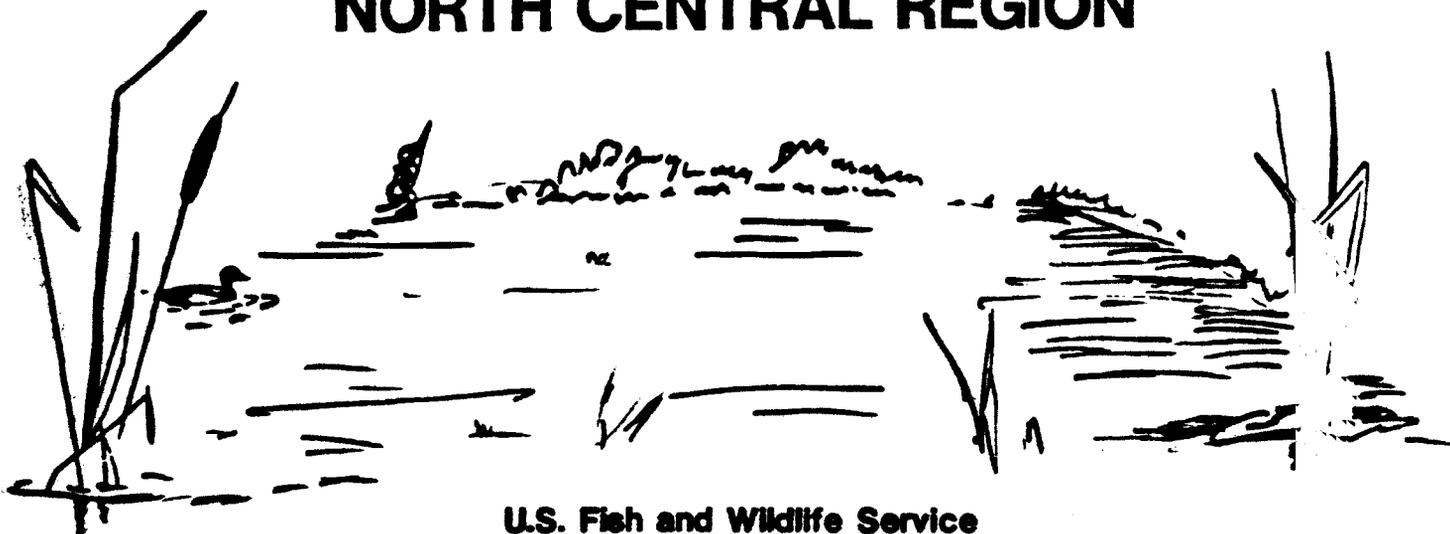
**MAP AREA:** FORT WAYNE SE

**1:100,000 NAME:** DEFIANCE

**STATE:** OHIO



## NORTH CENTRAL REGION



**U.S. Fish and Wildlife Service**

**Federal Building, Fort Snelling Twin Cities, Minnesota 55111**

**USER REPORT  
NATIONAL WETLAND INVENTORY  
U.S. FISH AND WILDLIFE SERVICE  
REGION 3**



PREPARED BY

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### USER CAUTION

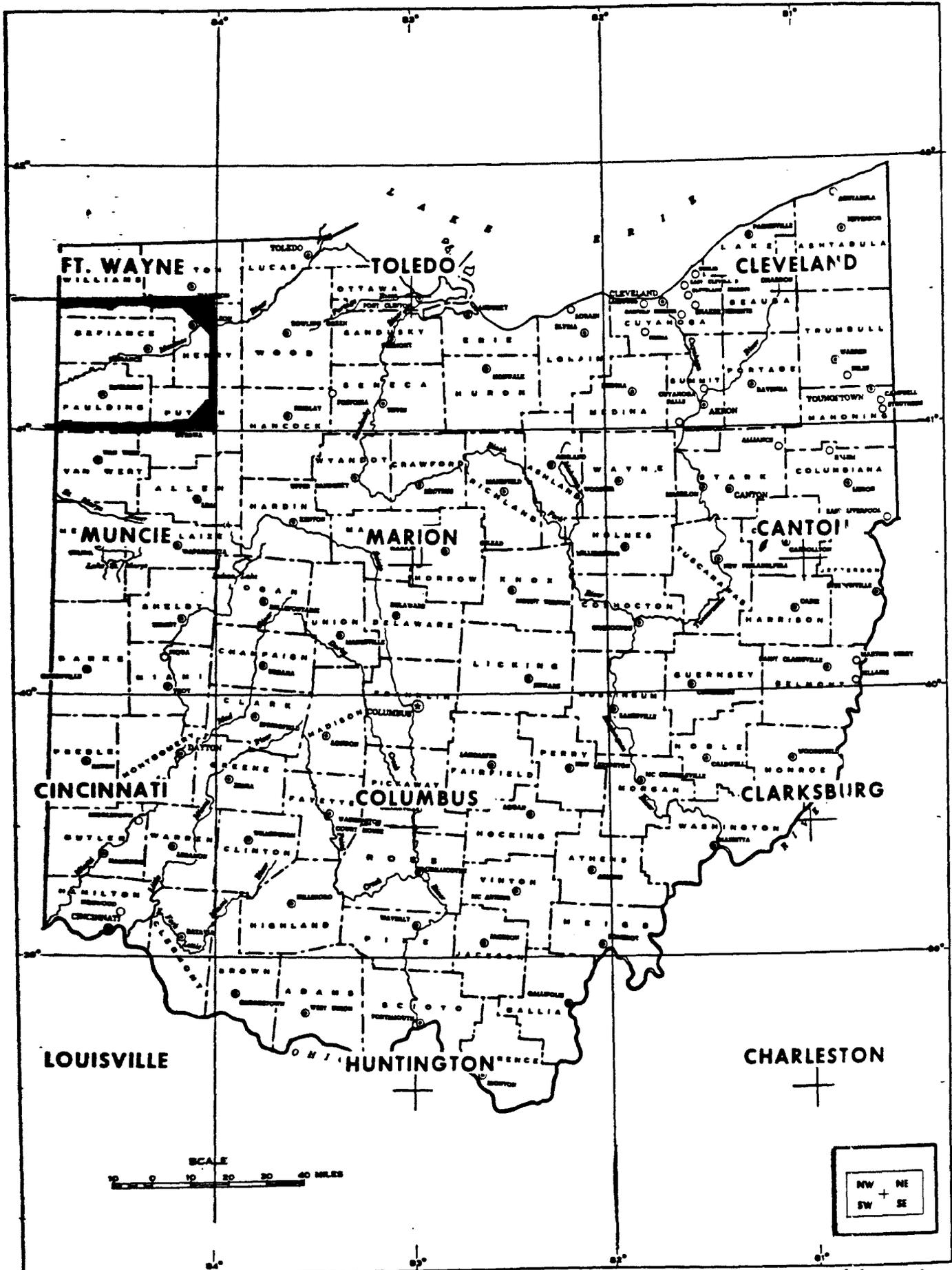
Maps for this 1:100,000 scale map were prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with Classification of Wetlands and Deepwater Habitats of the United States, Cowardin, et al., 1979. The aerial photographs reflect conditions during the specific year and season when they were taken. Some small wetlands and those obscured by dense forest cover may not be included on the map document. In addition, there is a margin of error inherent in the use and interpretation of aerial photographs. Thus a detailed on-the-ground and historical analysis of a single site may result in revision of the wetland boundaries established through photographic interpretation.

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 local, State, or Federal 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 seek the advice of appropriate Federal, State, or local agencies concerning specific agency regulatory programs and propriety jurisdictions that may affect such activities.

Additional information regarding this map or other National Wetland Inventory activities may be obtained by contacting:

Regional Director, Region 3 (AH/TS)  
Attn: Regional Wetlands Coordinator  
United States Fish and Wildlife Service  
Federal Building, Fort Snelling  
Twin Cities, Minnesota 55111

LOCATION OF REPORT  
STATE OF OHIO



DATE: December 1983

MAP PREPARATION

Basic Data

Photography Used:

<u>Emulsion</u>	<u>Scale</u>	<u>Date</u>	<u>Percent Coverage</u>
1. Black and white	1:80,000	April, 1977	84%
2. Black and white	1:80,000	September, 1977	3%
3. (INDIANA)			13%

Field Check Dates:

1. April 20 - May 2, 1980
2. December 2 - 4, 1981

Contractor(s) for Photo Interpretation:

1. Earth Satellite Corporation
2. Revised in-house (FWS)

Collateral Data Used:

1. USGS topographic quad sheets
2. USDA Soil Surveys

Mapping Legend: (See Appendix D)

Farmed Wetlands

It is the policy of the Fish and Wildlife Service to not map farmed wetlands in the National Wetlands Inventory unless the wetland is a pothole-like depression, such as those found in the Prairie Pothole Region. Therefore this map area may contain various amounts of non-depression type wetlands which were farmed on the date of the photography and intentionally not included in the inventory. Many of these omitted wetlands commonly occur in floodplains.

## GEOGRAPHY

### A. General Location

Degrees Longitude: 84° 0' to 85° 0' West

Degrees Latitude : 41° 0' to 41° 30' North

Largest City : Defiance, Ohio

Ft. Wayne SE lies primarily in northwestern Ohio, with the western edge of the map extending into northeastern Indiana. This map covers portions of Defiance, Williams, Henry, Fulton, Paulding and Putnam Counties in Ohio, and portions of DeKalb and Allen Counties in Indiana. The map area encompasses a portion of the Maumee River drainage basin.

### B. Ecoregion

#### Bailey's Ecoregion Classification and Description (Bailey 1978):

Code: 2212L

#### Humid Temperate Domain (2000)

The entire Ft. Wayne SE map is in this Domain.

The climate of this Domain has strong seasonal temperatures and precipitation cycles, and a distinctive winter season. The Humid Temperate Domain comprises the humid midlatitude forests of broadleaf deciduous and needleleaf evergreen trees.

#### Hot Continental Division (2200)

All of the Ft. Wayne SE map area lies within this Division.

This Division characteristically has hot summers and cool winters. The natural vegetation is winter deciduous forest, where tall broadleaf trees dominate. These trees form a dense canopy in the summer, but lose their leaves in the winter. The shrub layer is weakly developed. A lush herbaceous layer develops in early spring, but diminishes as the dense tree canopy forms and shades the ground. Soils are primarily Alfisols, Inceptisols and Ultisols which are rich in humus and moderately leached.

#### Eastern Deciduous Forest Province (2210)

The entire Ft. Wayne SE map falls within this Province.

The vegetation of this Province represents a response to a climate that receives adequate precipitation all year long. Common tree species of the deciduous forests include beech (Fagus grandifolia), oak (Quercus spp.), birch (Betula spp.), basswood (Tilia americana), elm (Ulmus sp.), maple (Acer spp.) and ash (Fraxinus spp.). Pines (Pinus spp.) develop quickly in forests cleared for logging.

Tree species of poorly drained forests consist of alder (Alnus spp.), willow (Salix spp.), ash and elm.

Beech-Maple Forest Section (2212L)

This Section occurs in lowlands areas and covers all of the Ft. Wayne SE map area.

Beech and maple trees form the principal plant association of this Section.

C. Topography and Land Forms

Hammond's Land Surface Form and Physical Subdivision (Hammond 1955, 1969):

Codes: (III-2) A1, (III-2) A2c

Interior Physical Division (III) - The entire Ft. Wayne SE map lies within this Physical Division.

East Central Drift and Lake-bed Flats Subdivision (2) - All of the Ft. Wayne SE map area is in this Subdivision.

Flat Plains Class (A1) - All but the northwestern 20% of the Ft. Wayne SE map area is in this Class, where over 80% of the land is in gentle slopes of less than 100 feet.

Smooth Plains Class (A2c) - This Class covers the northwestern 20% of the Ft. Wayne SE map area. Greater than 80% of the land is in gentle slopes. Fifty to 75% of these slopes are in upland areas. Local relief ranges from 100 to 300 feet.

GEOLOGY

Ft. Wayne SE is underlain by bedrock from the Ordovician, Silurian, Devonian and Mississippian ages. These bedrock layers are covered by glacial deposits from a more recent era.

Terminal moraines formed in the northwestern and southeastern portions of Ft. Wayne SE where once-stagnant glaciers deposited a mixture of clay, sand, rubble and boulders. During glacial recession, clay-rich till was deposited by ice sheets and outwash was left behind by meltwater streams. Much of this till and outwash material is interbedded, due to repeated glacial advances and retreats.

In the central portion of Ft. Wayne SE, glacial lakes melted to form flat lake plains. These former lake bottoms are commonly lined with heavy clay and have sandy edges (Burgess and Niple 1967).

## CLIMATE

The climate of Ft. Wayne SE is rather mild, with average temperatures ranging from 20°F to 36°F in January and from 62°F to 87°F in July. The average annual precipitation ranges from 32 - 34 inches, of which 16 - 17 inches falls during the growing season. Snowfall averages 20 - 30 inches per year and the ground is usually frost-free from May 5 - October 10 (Collins 1975). Intense rainstorms can occur during the spring and summer months, sometimes causing damage (Great Lakes Basin Commission 1975c).

## LAND USE

The presettlement vegetation of Ft. Wayne SE consisted largely of oak, sugar maple and elm-ash swampland in the south and beech forests in the north. A small area of beech forests existed in the extreme southeast as well (Collins 1975).

As the area was settled during the early to mid-1800's, swamplands were drained through the construction of drainage ditches. The forests were cleared for agricultural crops and building construction. Additional drainage and clearing took place as roads and railroads were built and mineral resources were mined (Burgess and Niple 1967).

## RESOURCES

### A. Wetlands

No wetland acreage figure is available for the Ft. Wayne SE area at the present time.

Most of the wetlands in the Ft. Wayne SE region have been drained for agricultural purposes. The wetlands which remain are primarily seasonally flooded woodlots in uplands and in river flood plains. Tree species present in the woodlots include elm (Ulmus sp.), red maple (Acer rubrum), sugar maple (A. saccharum) and some oak (Quercus sp.). Tree species found in the river flood plain wetlands include willow (Salix sp.), red maple, American sycamore (Platanus occidentalis), elm (Ulmus sp.) and eastern cottonwood (Populus deltoides). The understory vegetation of these flood plain wetlands consists of crowfoot (Ranunculus sp.), violet (Viola sp.), sedge (Carex sp.), skunk cabbage (Symplocarpus foetidus) and horsetail (Equisetum sp.). A list of plant species for wetland types can be found in Appendix C.

### B. Wildlife and Fish

Intense land use practices over the years have had a detrimental effect on the wildlife of the Ft. Wayne SE map area, causing populations of many species to decline. Populations of farm species, such as bobwhite quail (Colinus virginianus), cottontail rabbits

(Sylvilagus floridanus), ring-necked pheasants (Phasianus colchicus) and squirrels (Sciurus sp.) have declined in number largely because of changes in agricultural practices toward clean cultivation, larger equipment and larger fields. Cover, where found, is usually brushy and consists of idle land, small woodlots and stream bottoms (Great Lakes Basin Commission 1975d). Raptor populations have also decreased, both from a decline in numbers of their prey species due to habitat loss and from reproductive failure attributed to the use of agricultural pesticides (Great Lakes Basin Commission 1975d). The only farm species to show a population increase in recent years is the white-tailed deer (Odocoileus virginianus), due to management and migration into the area (Great Lakes Basin Commission 1975a).

Populations of furbearers, including muskrat (Ondatra zibethica), mink (Mustela vison) and raccoon (Procyon lotor) have also declined from earlier years. Large scale destruction of marshes and degradation of water quality have been responsible for much of this decline (Great Lakes Basin Commission 1975d). The artificial drainage ditches constructed to drain the area provide some habitat. However, the habitat quality of these ditches does not compare to that of the stream bottoms and marshes which they replace.

Several species of waterfowl inhabit the area, particularly Lake Hamilton in Indiana and along the Maumee and St. Joseph Rivers. These species include the wood duck (Aix sponsa), mallard (Anas platyrhynchos), scaup (Aythya spp.), ring-necked ducks (A. collaris), pintail (Anas acuta), black duck (A. rubripes), common goldeneye (Bucephala clangula), gadwall (Anas strepera), merganser (Mergus spp.) American wigeon (Anas americana), Canada goose (Branta canadensis), and snow goose (Chen caerulescens), (Rounds 1956, U.S. Fish and Wildlife Service 1957).

Other wildlife species of Ft. Wayne SE include the bald eagle (Haliaeetus leucocephalus), Kirtland's warbler (Dendroica kirtlandii), Indiana bat (Myotis sodalis) and peregrine falcon (Falco peregrinus), all of which are on the Threatened and Endangered list.

The inland ponds, lakes and reservoirs of Ft. Wayne SE are generally small, but provide many fishing opportunities. Sport fishing predominates and some of the most commonly fished species include yellow perch (Perca flavescens), crappies (Pomoxis sp.), sunfish (Lepomis spp.), bass (Micropterus spp.) and channel catfish (Ictalurus punctatus). Stream fishing opportunities are also available (Great Lakes Basin Commission 1975b).

### C. Soils\*

The soils of Ft. Wayne SE are typically clay-rich soils which are slowly permeable. Those soils which formed over glacial till, outwash and lake plains include the somewhat poorly to very poorly drained Hoytville, Latty and Nappanee clays. The somewhat poorly to very poorly drained clays of the Paulding-Roselms association also formed over the lake plains. Important soils of the river flood plains

include the very poorly to well drained silty clays and silty clay loams of the Defiance, Sloan, Wabasha and Eel series (Baker et al. 1960, Brock et al. 1964, Flesher et al. 1974, Stone et al. 1978).

\*USDA Soil surveys of Defiance County in Ohio, and Dekalb and Allen Counties in Indiana were not available at the time of this report.

D. Agriculture

Agriculture in the Ft. Wayne SE region is very significant, with over 90% of the land used for agricultural purposes (Burgess and Niple 1967). The most important agricultural commodities of the area are soybeans and corn. Other important commodities include hogs, beef cattle and poultry (Collins 1975).

E. Minerals

Active mining operations take place in several locations throughout the Ft. Wayne SE region. Clay is the most commonly mined resource, although sand, gravel, limestone and dolomite are extracted as well. Petroleum and natural gas fields were once found in underlying bedrock; however, supplies of these resources have been largely exhausted (Burgess and Niple 1967).

Appendix A

REFERENCES

- Bailey, R.G. 1978. Descriptions of the Ecoregions of the United States. USDA For. Serv. Intermtn. Reg. Ogden, Utah. 77 p.
- Baker, F.J., R.L. Meeker, and N. Holowaychuck. 1960. Soil Survey of Paulding County, Ohio. USDA Soil Cons. Service. Washington, D.C. 95 p.
- Brock, A.R. and D.R. Urban. 1964. Soil Survey of Putnam County, Ohio. USDA Soil Conservation Service. Washington, D.C. 112 p.
- Burgess and Niple, Limited. 1967. The Northwest Ohio Water Development Plan. Ohio Department of Natural Resources, Columbus. 299 p.
- Collins, C.W. 1975. Atlas of Ohio. Amer. Printing and Publishing, Inc. Madison, Wis. 310 p.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U. S. Fish and Wildlife Service, Washington, D. C. FWS/OBS-79/31. 103 p.
- Flesher, E.C. Jr., K.L. Stone, L.K. Young, and D.R. Urban. 1974. Soil Survey of Henry County, Ohio. USDA Soil Cons. Service. Wash., D.C. 128 p.
- Great Lakes Basin Commission. 1975a. Alternative frameworks: Great Lakes Basin Commission. Great Lakes Basin Framework Study, App. 6. Ann Arbor, Mich. 266 p.
- 1975b. Fish: Great Lakes Basin Commission. Great Lakes Basin Framework Study, App. 8. Ann Arbor, Mich. 290 p.
- 1975c. Flood plains: Great Lakes Basin Commission. Great Lakes Basin Framework Study, App. 14. Ann Arbor, Mich. 327 p.
- 1975d. Wildlife: Great Lakes Basin Commission. Great Lakes Basin Framework Study App. 17. Ann Arbor, Mich. 140 p.
- Hammond, E.H. 1965. 1:17,000,000 scale Physical Subdivisions. 1 map. p. 61. In Gerlach, A.C., ed. 1970. National Atlas of the United States of America. USDI Geol. Surv. Washington, D.C. 417 p.
- 1969. 1:7,500,000 scale Classes of Land Surface Form. USDI Geol. Surv. 1 map. p. 62-63. In Gerlach, A.C., ed. 1970. National Atlas of the United States of America. USDI Geol. Surv. Washington, D.C. 417 p.
- Rounds, B.W. 1956. Inventory of Permanent Water Habitat Significant to Waterfowl in Michigan. U.S. Fish and Wildlife Service, Office of River Basin Studies. Minneapolis, Minn. 10 p.

Stone, K.L. Jr., E.C. Flesher, D.R. Urban, J.C. Gerkew, P.C. Jenny, and G.W. Borton. 1978. Soil Survey of Williams County, Ohio. USDA Soil Conservation Service. Washington, D.C. 139 p.

U.S. Fish and Wildlife Service. 1957. Inventory of Permanent Water Habitat Significant to Waterfowl in Ohio. U.S. Fish and Wildlife Service, Office of River Basin Studies. Minneapolis, Minn. 10 p.

#### ADDITIONAL INFORMATION

The purpose of this report is to provide general information regarding the production of the map and the wetlands found within the area of this map. It does not include descriptions of all wetlands found in the area nor complete species information. For additional information, the following references are recommended:

Snell Environmental Group. 1977. Critical Wetlands Areas. Ohio Department of Natural Resources. Columbus. 83 p.

Herdendorf, C.E., S.M. Hartley, and M.D. Barnes, eds. 1981. Fish and Wildlife Resources of the Great Lakes Coastal Wetlands Within the United States. Volume three: Lake Erie. U.S. Fish and Wildlife Service, Washington, D.C. FWS/OBS-81/02-v3. 505 p.

Hammond, E. H. 1964. Analysis of Properties in Land Form Geography: An Application to Broad-scale Land Form Mapping. Annals, Assoc. Amer. Geog. v. 54. pp. 11-23.

Appendix B

SPECIAL MAPPING PROBLEMS

Problem 1: Extensive drainage for agriculture in the area made the distinction between wetland and upland forested woodlots difficult.

Resolution: USGS Topographic quad sheets used for collateral data.

Problem 2: Some upland woodlands may be temporarily flooded by high water but not included in the inventory.

Resolution: Some field checking was done to determine plant species; difference in signature between upland and wetland woodlands were noted.

Problem 3: Photography was generally poor for wetland inventory purpose.

Resolution: Inventory conducted from this photography due to availability, scale and reduced costs.

Problem 4: It was often difficult to accurately identify specific water regimes from the 1:80,000 black and white photography.

Resolution: Combined water regimes (Z, W, Y) were used where necessary.

Appendix C

## WETLAND COMMUNITIES\*

<u>MAP SYMBOLS</u>	<u>LOCAL NAME</u>	<u>DOMINANT VEGETATION</u>	<u>WATER REGIME</u>
PFO1W PFO1A	Inundated woodland	<u>Ulmus spp.</u> <u>Quercus spp.</u> <u>Populus deltoides</u> <u>Acer saccharum</u>	Intermittently flooded Temporary
PFO1/SS1J	Woodland	<u>Quercus spp.</u> <u>Ulmus spp.</u> <u>Populus deltoides</u>	Intermittently flooded
PFO1Y PFO1/SS1Y	Swamp	<u>Ulmus spp.</u> <u>Acer rubrum</u> <u>Quercus spp.</u> <u>Salix spp.</u>	Saturated Seasonal Semi-permanent
PFO1/EMY	Swamp	<u>Acer rubrum</u> <u>Salix spp.</u> <u>Ulmus spp.</u> <u>Carex spp.</u>	Saturated Seasonal Semi-permanent
PFO5/EMY	Swamp	<u>Typha latifolia</u> <u>Carex spp.</u> Dead trees	Saturated Seasonal Semi-permanent
PFO5/OWF	Swamp	Dead trees Open water	Semi-permanent
PSS1Y	Swamp	<u>Ulmus spp.</u> <u>Acer rubrum</u> <u>Salix spp.</u>	Saturated Seasonal Semi-permanent
PSS1/EMY	Swamp	<u>Ulmus spp.</u> <u>Salix spp.</u> <u>Acer rubrum</u> <u>Typha latifolia</u> <u>Carex spp.</u>	Saturated Seasonal Semi-permanent
PEMW	Swale	Misc. grasses and sedges	Intermittently flooded
PEMYd	Partially drained marsh	Mixed grasses and sedges ?	Saturated Seasonal Semi-permanent Partially ditched/ drained

<u>MAP SYMBOLS</u>	<u>LOCAL NAME</u>	<u>DOMINANT VEGETATION</u>	<u>WATER REGIME</u>
PEMY	Marsh	<u>Carex spp.</u> <u>Typha latifolia</u>	Saturated Seasonal Semi-permanent
PFLK	Flat	Lacking vegetation	Controlled water regime Seasonal Semi-permanent
Pf	Swale	Tilled wetland	Unknown
POWKZ	Controlled lagoon	Open water	Controlled water regime
POWKZh	Impoundment	Open water	Controlled water regime
POWZx	Excavated pond	Open water	Intermittently exposed
POWZ	Pond	Open water	Intermittently exposed Permanent
R2OWZ	River	Unknown perennial Open water	Intermittently exposed Permanent
R4SBY	River	Intermittent stream bed	Seasonal Semi-permanent
R5OWZ	River	Unknown perennial Open water	Intermittently exposed Permanent
L10WKZ	Controlled lagoon	Limnetic open water	Controlled water regime
L10WZx	Excavated lake	Limnetic open water	Intermittently exposed
L10WZ	Lake	Limnetic open water	Intermittently exposed Permanent

\*Some plant species listed here were found in adjacent 1:100,000 map areas and therefore are believed to be representative of those species also found in the Ft. Wayne SE map area.

Appendix D

NATIONAL WETLAND INVENTORY  
Information and Legend  
For Map Products

Classification System: The U.S. Fish and Wildlife Service uses the "Classification of Wetlands and Deepwater Habitats of the United States", December, 1979, by L. M. Cowardin, et al., to delineate and identify wetlands. This system is hierarchical and structured around a combination of ecological, biological, hydrological and substrate characteristics which permits universal use across the United States, its territories and possessions. It consists of five systems: Marine, Estuarine, Riverine, Lacustrine (lake) and Palustrine (swamps, bogs, marshes) and proceeds in a hierarchical manner through subsystem, class, and subclass. It also contains provisions to use water regime, water chemistry, soil, and special modifiers to provide additional levels of detail.

Figure 1 is an illustration of the classification system to the class level.

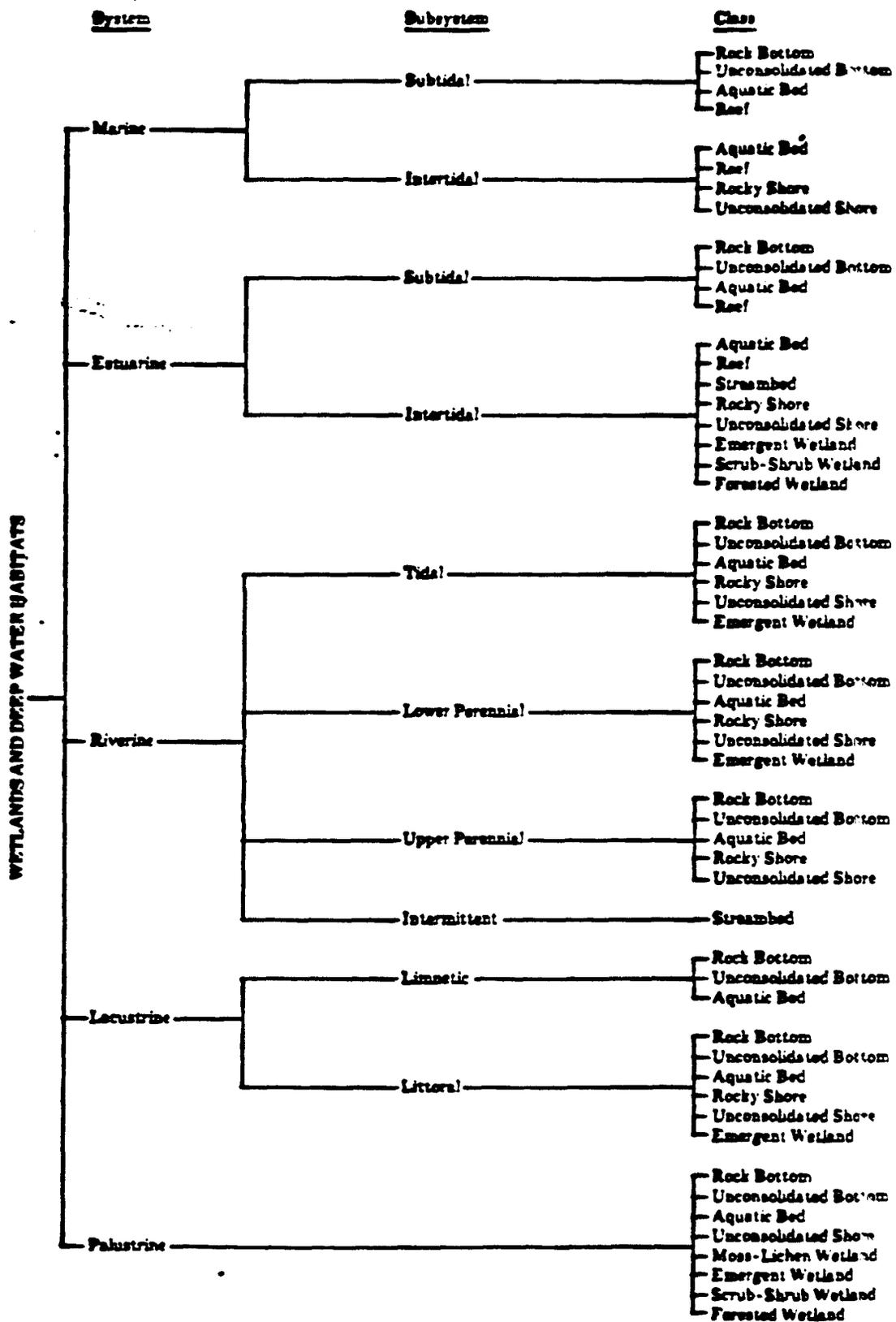


Fig 1. Classification hierarchy of wetlands and deepwater habitats, showing systems, subsystems, and classes. The Palustrine System does not include deepwater habitats

**Use of Wetland Legend:** Wetland data are displayed on overlays or maps by a series of letters and numbers (alpha numerics) with the first letter representing the system and subsequent alpha numerics representing, in a sequential manner, the subordinate levels of detail down to the modifiers. Where classes and subclasses have been mixed, they are separated by a diagonal line.

**Examples**

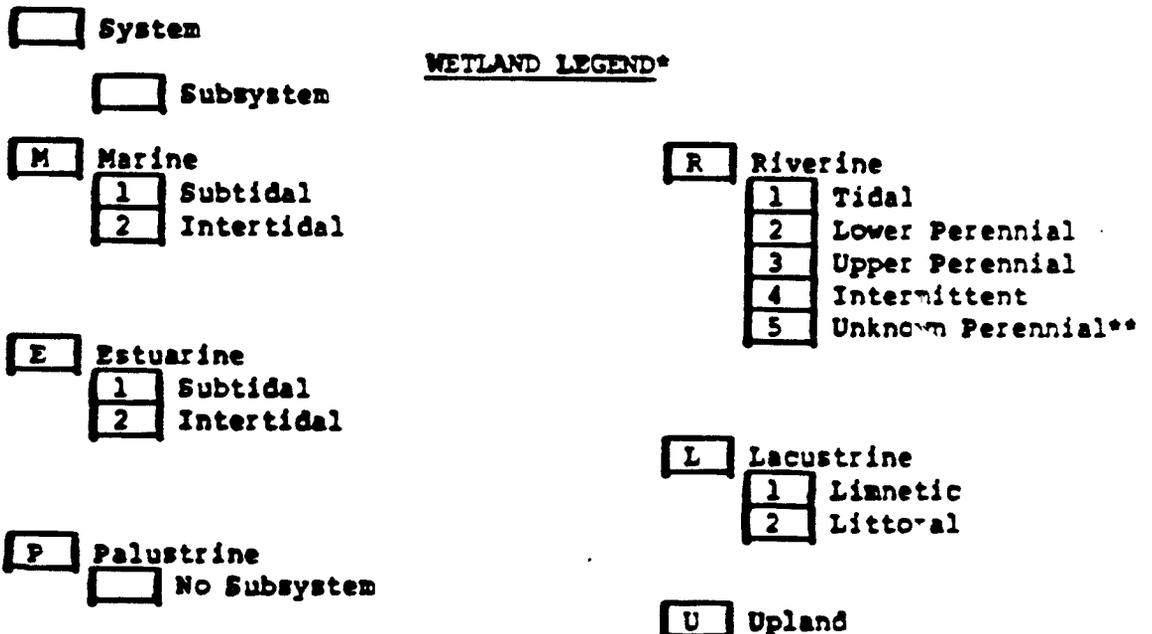
**a. Classification of wetlands to water regime and special modifier:**

System:	Lacustrine
Subsystem:	Limnetic
Class:	Unconsolidated Bottom
Subclass:	Mud
Water Regime:	Intermittently Exposed
Special Modifier:	Diked/Impounded

**L 1 UB 3 G h**

**b. Mixing of wetland classes and subclasses:**

**PFO2/EM1F** = Palustrine, Forested, Needle-leaved deciduous (F<sup>NO2</sup>) mixed with Palustrine, Emergent, Persistent (PEM1) with semipermanent water regime (P).



\*Should be used in conjunction with "Classification of Wetlands and Deepwater Habitats of the United States," by L. M. Cowardin et al.

\*\*Not included in "Classification of Wetlands and Deepwater Habitats of the United States." Created specifically for National Wetland Inventory mapping effort.

Wetland Legend (continued)

Class

Subclass

CLASSES AND SUBCLASSES

- AB** Aquatic Bed
- 1 Algal
  - 2 Aquatic Moss
  - 3 Rooted Vascular
  - 4 Floating Vascular
  - 5 Unknown Submergent\*\*
  - 6 Unknown Surface\*\*

- EM** Emergent
- 1 Persistent
  - 2 Nonpersistent

- FO** Forested
- 1 Broad-Leaved Deciduous
  - 2 Needle-Leaved Deciduous
  - 3 Broad-Leaved Evergreen
  - 4 Needle-Leaved Evergreen
  - 5 Dead
  - 6 Deciduous\*\*
  - 7 Evergreen\*\*

- ML** Moss/Lichen
- 1 Moss
  - 2 Lichen

- OW** Open Water/  
Unknown Bottom\*\*

- RB** Rock Bottom
- 1 Bedrock
  - 2 Rubble

- RF** Reef
- 1 Coral
  - 2 Mollusk
  - 3 Worm

- RS** Rocky Shore
- 1 Bedrock
  - 2 Rubble

- SB** Streambed
- 1 Bedrock
  - 2 Rubble
  - 3 Cobble/Gravel
  - 4 Sand
  - 5 Mud
  - 6 Organic
  - 7 Vegetated

- SS** Scrub/Shrub
- 1 Broad-Leaved Deciduous
  - 2 Needle-Leaved Deciduous
  - 3 Broad-Leaved Evergreen
  - 4 Needle-Leaved Evergreen
  - 5 Dead
  - 6 Deciduous\*\*
  - 7 Evergreen\*\*

- UB** Unconsolidated Bottom
- 1 Cobble/Gravel
  - 2 Sand
  - 3 Mud
  - 4 Organic

- US** Unconsolidated Shore
- 1 Cobble/Gravel
  - 2 Sand
  - 3 Mud
  - 4 Organic
  - 5 Vegetated

\*\*Not included in "Classification of Wetlands and Deepwater Habitats of the United States." Created specifically for National Wetland Inventory mapping efforts.

## MODIFIERS TO WETLAND CLASSIFICATION

### WATER REGIME MODIFIERS

#### Nontidal

<b>A</b>	Temporary
<b>B</b>	Saturated
<b>C</b>	Seasonal
<b>D</b>	Seasonally Flooded-Well Drained
<b>E</b>	Seasonally Flooded-Saturated
<b>F</b>	Semipermanent
<b>G</b>	Intermittently Exposed
<b>H</b>	Permanent
<b>J</b>	Intermittently Flooded

#### Nontidal Combined

<b>Z</b>	Intermittently Exposed/ Permanent (G,H above)**
<b>W</b>	Intermittently Flooded/ Temporary (A,J above)**
<b>Y</b>	Saturated Semipermanent/ All Seasonals (B,C,D,E F above)**

#### Nontidal and Tidal

<b>U</b>	Unknown**
<b>K</b>	Artificial

#### Tidal

<b>L</b>	Subtidal
<b>M</b>	Irregularly Exposed
<b>N</b>	Regularly Flooded
<b>P</b>	Irregularly Flooded
<b>R</b>	Seasonal - Tidal
<b>S</b>	Temporary - Tidal
<b>T</b>	Semipermanent - Tidal
<b>V</b>	Permanent - Tidal

### WATER CHEMISTRY MODIFIERS

#### Coastal Salinity

<b>1</b>	Hyperhaline
<b>2</b>	Euhaline
<b>3</b>	Mixohaline (Brackish)
<b>4</b>	Polyhaline
<b>5</b>	Mesohaline
<b>6</b>	Oligohaline
<b>0</b>	Fresh

#### Inland Salinity

<b>7</b>	Hypersaline
<b>8</b>	Eusaline
<b>9</b>	Mixosaline
<b>0</b>	Fresh

#### pH Freshwater

<b>a</b>	Acid
<b>t</b>	Circumneutral
<b>l</b>	Alkaline

\*\*Not included in "Classification of Wetlands and Deepwater Habitats of the United States." Created specifically for National Wetland Inventory mapping effort.

## OTHER MODIFIERS

### Special

<b>b</b>	Beaver
<b>d</b>	Partially Drained/ Ditched
<b>f</b>	Farmed
<b>h</b>	Diked/Impounded
<b>r</b>	Artificial
<b>s</b>	Spoil
<b>x</b>	Excavated

### Soils

<b>o</b>	Organic
<b>n</b>	Mineral

**Statement to Users:** The overlays/maps were 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." 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 and historical analysis of a single site may result in a revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included on this map. Federal, State, and local regulatory agencies with jurisdictions over wetlands may define and describe wetlands in a different manner than that used in this Inventory. There is no attempt, in either the design or products of this Inventory, to define the limits of proprietary jurisdiction of any Federal, State, or local government or to establish the geographical scope of the regulatory programs and proprietary jurisdictions that may affect such activities.

**To Order NWI Topical Wetland Overlays/Maps:** A National Wetland Inventory Order Form is required and can be obtained by writing to the address on the letterhead.

