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

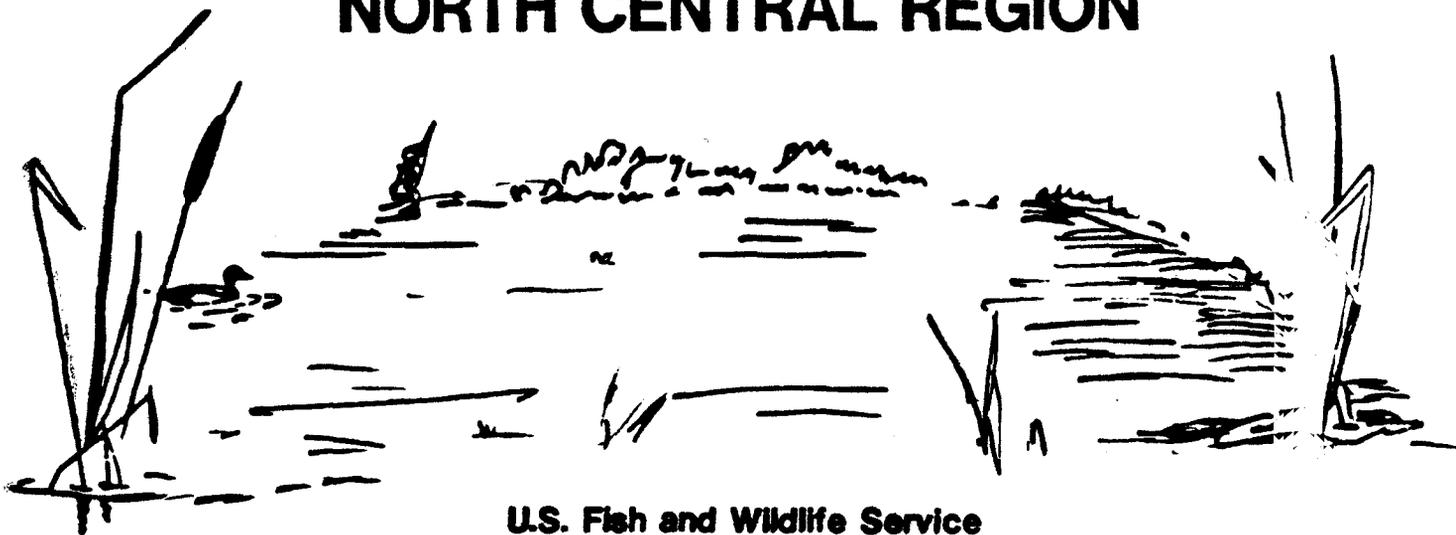
MAP AREA: CLEVELAND SE

1:100,000 NAME: YOUNGSTOWN

STATE: OHIO



NORTH CENTRAL REGION



U.S. Fish and Wildlife Service

Federal Building, Fort Snelling Twin Cities, Minnesota 55111

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



PREPARED BY

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REGIONAL WETLAND INVENTORY COORDINATOR
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USER CAUTION

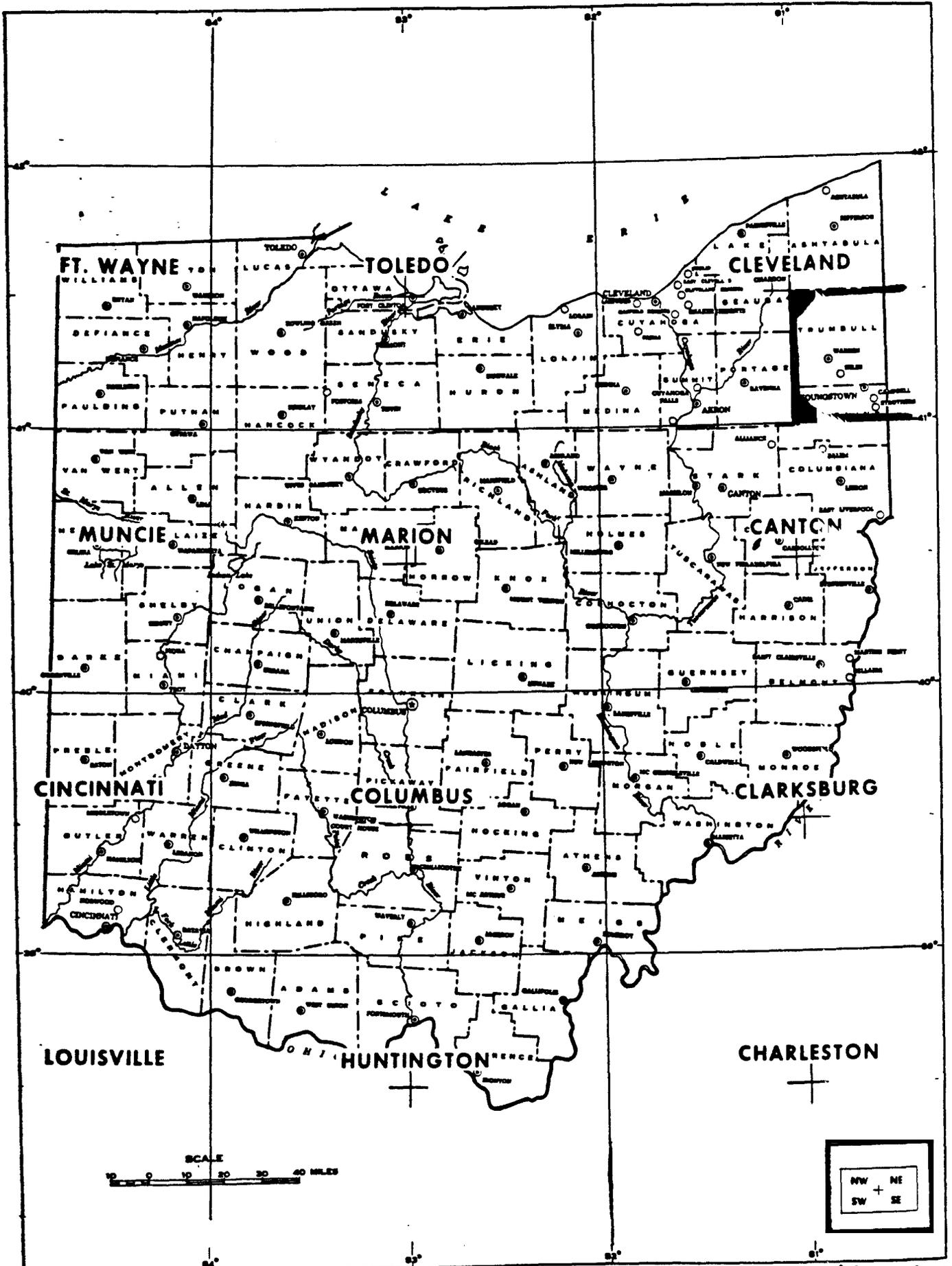
Maps for this 1:100,000 scale map were prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with Classification of Wetlands and Deepwater Habitats of the United 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 29, 1977	50%

Field Check Dates:

1. April 30 - May 4, 1979
2. April 21-30, 1980

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 Survey - Mahoning County, Ohio
3. Ohio Wetlands Inventory, 1972-74
4. Wetlands Inventory of Ohio, 1955
5. Critical Wetland Areas

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, intermittently flooded lake bottoms, cranberry bogs, or diked former tidelands in California. 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: 80° 0' to 81° 0' West

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

Largest City : Youngstown, Ohio

The Ohio portion of the Cleveland SE map area lies in the northeastern portion of the state and is bordered on the east by the Pennsylvania state line. This map covers parts of Mahoning and Trumbull Counties in Ohio, and is included within the Lake Erie watershed.

B. Ecoregion

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

Code: 2113L, 2212L, 2214L

Humid Temperate Domain (2000)

The entire Cleveland SE map lies within 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.

Warm Continental Division (2100)

This Division covers 25% of the map area, extending from the northcentral portion to the northeast corner.

This Division characteristically has warm summers and cold, snowy winters. The natural vegetation is needleleaf and mixed needleleaf-deciduous forest. The soils of this Division are Spodosols, which are strongly leached but have a top layer of humus. Spodosols are usually acidic and lack calcium, potassium and magnesium. Despite these deficiencies, Spodosols are very suitable for growing the conifers found in this Division.

Hot Continental Division (2200)

Three quarters of the Cleveland SE map falls in this Division, all but 25% of the map area extending from the northcentral portion of the map to the northeast corner.

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 Ustisols which are rich in humus and moderately leached.

Laurentian Mixed Forest Province (2110)

This Province covers a quarter of the Cleveland SE map area, extending from the northcentral portion to the northeast corner.

The vegetation of this Province is representative of the transitional zone in which it lies, between the boreal and deciduous forest zones. Forests consist either of mixed conifer-deciduous stands or mosaic-like arrangements with pure stands of deciduous forest growing on good soil sites and pure stands of conifers growing on poor soil sites.

Pines (Pinus spp.) are the most representative conifers of the mixed forest stands with white pine (P. strobus) dominating in the Great Lakes region. Pines are often a pioneer woody species following forest fires. Eastern hemlock (Tsuga canadensis) and eastern redcedar (Juniperus virginiana) also grow in this Province.

Eastern Deciduous Forest Province (2210)

This Province covers all but a quarter of the map area, which extends from the northcentral portion to the northeast corner.

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 spp.), maple (Acer spp.), and ash (Fraxinus spp.). Pines develop quickly in forests cleared for logging.

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

Northern Hardwoods Forest Section (2112L)

This Section occurs in lowland areas, and covers 25% of the map area extending from the northcentral portion to the northeast corner.

Northern hardwoods are the principal trees of this Section.

Beech - Maple Forest Section (2212L)

This Section occurs in lowland areas and covers 60% of the map area, extending from the east-central to the west-central and southwestern portions of the map.

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

Appalachian Oak Forest Section (2214L)

The southeast 15% of the map area lies within this Section, which occurs in lowlands.

Oaks are the dominant tree species of this Section.

C. Topography and Land Forms

Hammond's Land Surface Form and Physical Subdivision (Hammond 1965, 1969):

Codes: (III-1) B2b, (III-1) B3c

Interior Physical Division (III) - The entire Cleveland SE map area lies within this Physical Division.

Middle Western Upland Plain Subdivision (1) - All of the Cleveland SE map area falls in this Subdivision.

Irregular Plains Class (B2b) - This Class covers all but the southeast 15% of the map area. Fifty to 80% of the area is in gentle slopes. Fifty to 75% of these slopes are in lowland areas. Local relief ranges from 100 to 300 feet.

Tablelands, Moderate Relief Class (B3c) - The southeast 15% of the map area is in this class, where 20% to 50% of the land is in gentle slopes. Fifty to 75% of these slopes are in upland areas. Local relief ranges from 300 to 500 feet.

HYDROLOGY

Several river systems drain the Cleveland SE map area. The Maloning River system drains the largest area, in the central, south-central, and southwestern portions of the map. The northwestern and northeastern parts of Cleveland NE are drained by the Grand and Pymatuning River systems, respectively. Yankee Doodle Creek of the Shenango River system drains the southeastern portion of the map. Sizable reservoirs occur in the area. Wetland density ranges from sparse to dense, with highest concentrations occurring in the northwestern and northeastern parts of the map area.

GEOLOGY

During the Precambrian age, foldbelts were created in the Cleveland SE area by several disturbances within the earth's crust. These disturbances caused the flowage, recrystallization and metamorphism of rock layers far below the surface of the earth, with granite and other plutonic rocks forced into the deepest layers. Much folding and faulting occurred in the subsurface strata, resulting in mountainous terrain.

Foldbelts were eventually eroded to lowlands and were subsequently buried during the Upper and Middle Paleozoic ages by several strata of sedimentary rocks; these rocks were referred to as platform areas (Gerlach 1970).

Platform areas were then covered by glacial deposits during a more recent age. Several terminal moraines formed in the Cleveland SE map area, where a once stagnant glacier deposited a mixture of sand, clay, rubble and boulders. During glacial recession, clay-rich till was deposited by ice sheets and gravelly outwash was left behind by meltwater streams. In the northwestern portion of Cleveland SE, glacial lakes melted to form lake plains. These former lake bottoms are commonly lined with heavy clay and have sandy edges (Borchert and Gustafson 1980, Collins 1975).

CLIMATE

The climate of Cleveland SE is rather mild, with average temperatures ranging from 21°F to 37°F in January and from 60°F to 84°F in July. The average annual precipitation ranges from 36 - 40 inches, of which 16 - 18 inches falls during the growing season. Snowfall averages 35 - 55 inches per year, and the ground is usually frost-free from May 10 - October 7 (Collins 1975).

LAND USE

The presettlement vegetation of Cleveland SE consisted largely of beech forests in the northwest and extreme northeast, and mixed mesophytic and bottomland hardwoods in the southeast and extreme southwest. Mixed oak and oak savanna existed in the south-central portion of the map (Collins 1975).

Presently, the cities of Youngstown and Warren occupy a sizable area of Ohio's portion of the Cleveland SE map area. The remaining portion is covered by agricultural land interspersed with beech-maple and mixed mesophytic forests and woodlots.

RESOURCES

A. Wetlands

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

Wetland density throughout much of the Cleveland SE map area is moderate. The highest wetland concentrations are associated with the Grand River system in the northwestern part of the map, and with the Pymatuning River system in the northeast. Lowest wetland densities are found in the central and south-central portions of the map, near the cities of Warren and Youngstown.

Cleveland NE has a high diversity of wetland types. Some of the most common types include temporary to intermittently flooded forested/shrub and shrub/emergent wetlands. Saturated to semi-permanently flooded forested/shrub, shrub/emergent, and emergent wetlands are also common.

Predominant trees and shrubs of the forested/shrub wetlands include red maple (Acer rubrum), oaks (Quercus spp.), ashes (Fraxinus spp.), willows (Salix spp.) and dogwoods (Cornus spp.). Important species of the temporary to intermittently flooded shrub/emergent wetlands include willows, dogwoods, black cherry (Prunus serotina), sedges (Carex spp.), rushes (Juncus spp.), and grasses. A list of plant species for wetland types can be found in Appendix C.

B. Wildlife and Fish*

Urbanization in the area has led to a direct loss of habitat and degradation of water quality (Great Lakes Basin Commission 1975d). Despite this problem, a diversity of wildlife species can still be found in the region.

The high diversity of wetland types in the area attracts both resting and migrating waterfowl. Of particular importance to the waterfowl of Cleveland SE are Berlin, Mosquito Creek, Meander and Milton Reservoirs. Species which commonly nest in the area include mallards (Anas platyrhynchos), black ducks (A. rubripes), blue-winged teal (A. discors) and wood ducks (Aix sponsa). Common migrants include scaup (Aythya spp.), American wigeons (Anas americana), common goldereyes (Bucephala clangula), buffleheads (B. albeola), mergansers (mergus spp.), and Canada geese (Branta canadensis). (Rounds 1955, U.S. Fish and Wildlife Service 1957).

Other wildlife species of Cleveland SE include the bald eagle (Haliaeetus leucocephalus) and peregrine falcon (Falco peregrinus), both of which are on the Threatened and Endangered list. Habitat for some species has improved in recent years, due to a general decrease in the age of forest stands and farms reverting to early successional stages (Great Lakes Basin Commission 1975 b).

Sport fishing is common in the area, particularly in reservoirs and in the Grand River. Common fish species of the reservoirs include largemouth bass (Micropterus salmoides), white bass (Morone chrysops), chain pickerel (Esox niger), northern pike (E. lucius), crappies (Pomoxis spp.), sunfish (Lepomis spp.) and channel catfish (Ictalurus punctatus). Important river species include smallmouth bass (Micropterus dolomieu), walleye (Stizostedion vitreum vitreum), muskellunge (Esox masquinongy), and suckers (Catostomus) (Great Lakes Basin Commission 1975a).

*Wildlife and fish species named here are generalized for this portion of the State.

C. Soils

Soils which occur in all but the extreme eastern part of Cleveland SE are classified under the soil order Alfisol; those in the extreme east belong to the order Inceptisol. Soils throughout the map area are usually moist, but may become dry during the warm season of the year. The average annual temperature of these soils often exceeds 47° F.

Soils of the suborder Udaf are usually moist, but may become dry during the warm part of the year. The average annual temperature of Udalfs often exceeds 47°F.

Alfisols are soils with medium to high bases, a gray to brown surface horizon, and subsurface horizons which have accumulated clay. The Alfisols of Cleveland SE belong to the suborder Udalf, and more specifically to the great groups Fraguidalf and Hapludalf. Fragiudalfs have a dense brittle horizon that is usually below a horizon in which clay has accumulated. Soils of this great group cover the extreme northwest and southeast corners of Cleveland SE. Hapludalfs, which cover the western and central portions of the map, have a clayey subsurface horizon that is either thin or brownish.

Inceptisols have weakly differentiated horizons showing an alteration of parent materials. Unlike Alfisols, clay and other materials have not accumulated the subsurface horizons of Inceptisols. Inceptisols occurring in the Cleveland SE map area are of the suborder Ochrept, and more specifically of the great group Fragiochrept. Ochrepts are soils which formed in materials containing crystalline clay minerals. The surface horizon of Ochrepts is low in organic matter and exhibits a pale color; subsurface horizons are altered and have lost mineral materials. Fragiochrepts have a dense, brittle subsurface horizon (U. S. Soil Conservation Service 1967, Gerlach 1970).

D. Agriculture

Agriculture in the Cleveland SE area is of moderate importance. The most important agricultural commodities are beef and dairy cattle. Other important commodities include poultry, corn, and greenhouses and nurseries (Collins 1975).

E. Minerals

Coal is the only resource currently mined in the Cleveland SE map area. However, several other mineral resources occur in the area, including oil and gas pools, oil shale, siderite (iron), salt, gypsum, clay, sandstone and quartzite (Collins 1975, Gerlach 1970).

Appendix A

REFERENCES

- Bailey, R.G. 1978. Descriptions of the Ecoregions of the United States. USDA For. Serv. Intermtn. Reg. Ogden, Utah. 77 p.
- Borchert, J.R. and N.C. Gustafson. 1980. Atlas of Minnesota Resources and Settlement. Center for Urban and Regional Affairs. Minneapolis, Minn. pp. 4-6.
- Collins, C.W. 1975. Atlas of Ohio. Amer. Printing and Publishing, Inc., Madison, Wisc. 310 pp.
- 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 pp.
- Gerlach, A.C., ed. 1970. National Atlas of the United States of America. USDI Geol. Surv. Washington, D.C. 417 pp.
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- 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 pp.
- 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 pp.
- Rounds, B.W. 1955. Wetlands Inventory of Ohio. U.S. Fish and Wildlife Service, Office of River Basin Studies, Minneapolis, Minn. 23 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 pp.
- 1969. Fish and Wildlife Resources: Ohio River Basin Survey Coordinating Committee. Ohio River Basin Survey Comprehensive Study, App. G. Cincinnati. 74 pp.
- U.S. Soil Conservation Service. 1967. 1:7,500,000 scale. Distribution of Principal Kinds of Soils: Orders, Suborders and Great Groups. Nat. Coop. Soil Surv. Classif. of 1967. 1 map. p. 86-87. In Gerlach, A.C., ed. 1970. National Atlas of the United States of America. USDI Geol. Surv., Washington, D. C. 417 pp.

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 Wetland Areas. Ohio Department of Natural Resources. Columbus. 83 pp.

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: Black and white emulsion and generally poor imagery made water regime determination and species identification difficult, thus causing inconsistencies in photo interpretation.

Resolution: Awareness of signature variations from photo to photo and use of combined (Z, W, Y) water regimes. Density and texture of emergent cover in these wetlands were the basis for separating PEMY from PEMW. Differentiation was not always possible due to limits of photography. Also, some misclassification may have occurred at the subclass level. For example, some bogs (PSS3) may have been classified as PSS1.

Problem 2: Recognition of drained or ditched wetlands, and excavated ponds.

Resolution: The "d" modifier applies to partially drained wetland areas in which ditching is evident on the photography. Use of this modifier is not inclusive, however, as some draining is not detectable. In addition, many small ponds are actually excavations, but could not be determined as such due to small-scale imagery and topography of the area.

Problem 3: The high sediment load of excavated mining ponds yielded a very light signature which was difficult to distinguish from surrounding upland signatures.

Resolution: Use of USGS topographic quad sheets as collateral data. It may be more correct to classify some of these ponds as Unconsolidated Bottom. This is best done on a site specific basis while in the field.

Appendix C

WETLAND COMMUNITIES

<u>MAP SYMBOLS</u>	<u>LOCAL NAME</u>	<u>DOMINANT VEGETATION</u>	<u>WATER REGIME</u>
PFO1W PFO1/SS1W	Woodlots Stream banks Bottomlands	<u>Acer rubrum</u> <u>Quercus</u> spp. <u>Salix</u> spp. <u>Cornus</u> spp. <u>Fraxinus</u> spp.	Temporary Intermittently flooded
PFO1Y PFO1/SS1Y	Swamp	<u>Acer rubrum</u> <u>Ulmus</u> spp. <u>Fraxinus</u> spp. <u>Fagus grandifolia</u> <u>Acer saccharinum</u> <u>Quercus bicolor</u> <u>Quercus palustris</u> <u>Alnus</u> spp. <u>Cornus</u> spp. <u>Salix</u> spp.	Saturated Seasonal Semi-permanent
PSS1W PSS1/EMW	Stream banks Bottomlands	<u>Salix</u> spp. <u>Prunus serotina</u> <u>Cornus</u> spp. <u>Juncus</u> spp. <u>Carex</u> spp. <u>Panicum</u> spp. Misc. grasses	Temporary Intermittently flooded
PSS1Y	Swamp	<u>Alnus</u> spp. <u>Cornus</u> spp. <u>Salix</u> spp. <u>Spiraea</u> spp. <u>Rhododendron viscosum</u> <u>Cephalanthus occidentalis</u>	Saturated Seasonal Semi-permanent
PEMW	Meadows Bottomlands	<u>Juncus</u> spp. <u>Carex</u> spp. <u>Solidago</u> spp. <u>Aster</u> spp. Misc. grasses	Temporary Intermittently flooded
PEMY	Wet meadow	<u>Carex</u> spp. <u>Juncus</u> spp. <u>Solidago</u> spp. <u>Juncus effusus</u> <u>Scirpus</u> sp.	Saturated Seasonal

<u>MAP SYMBOLS</u>	<u>LOCAL NAME</u>	<u>DOMINANT VEGETATION</u>	<u>WATER REGIME</u>
PEMY	Seasonal basin	<u>Carex spp.</u> <u>Polygonum spp.</u> Misc. grasses	Seasonal
PEMY	Shallow marsh	<u>Juncus spp.</u> <u>Carex spp.</u> <u>Typha spp.</u> <u>Sagittaria spp.</u> <u>Sparganium sp.</u>	Saturated Seasonal Semi-permanent
PEMY PEM/OWF	Deep marsh	<u>Typha latifolia</u> <u>Typha angustifolia</u> <u>Sagittaria spp.</u> <u>Nymphaea sp.</u> Open water	Semi-permanent
Pf	Tilled wetland	Lacking vegetation	Variable
POWZx	Excavated pond	Open water	Intermittently exposed
L10WZh	Impoundment	Limnetic open water	Artificial control - impounded

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.

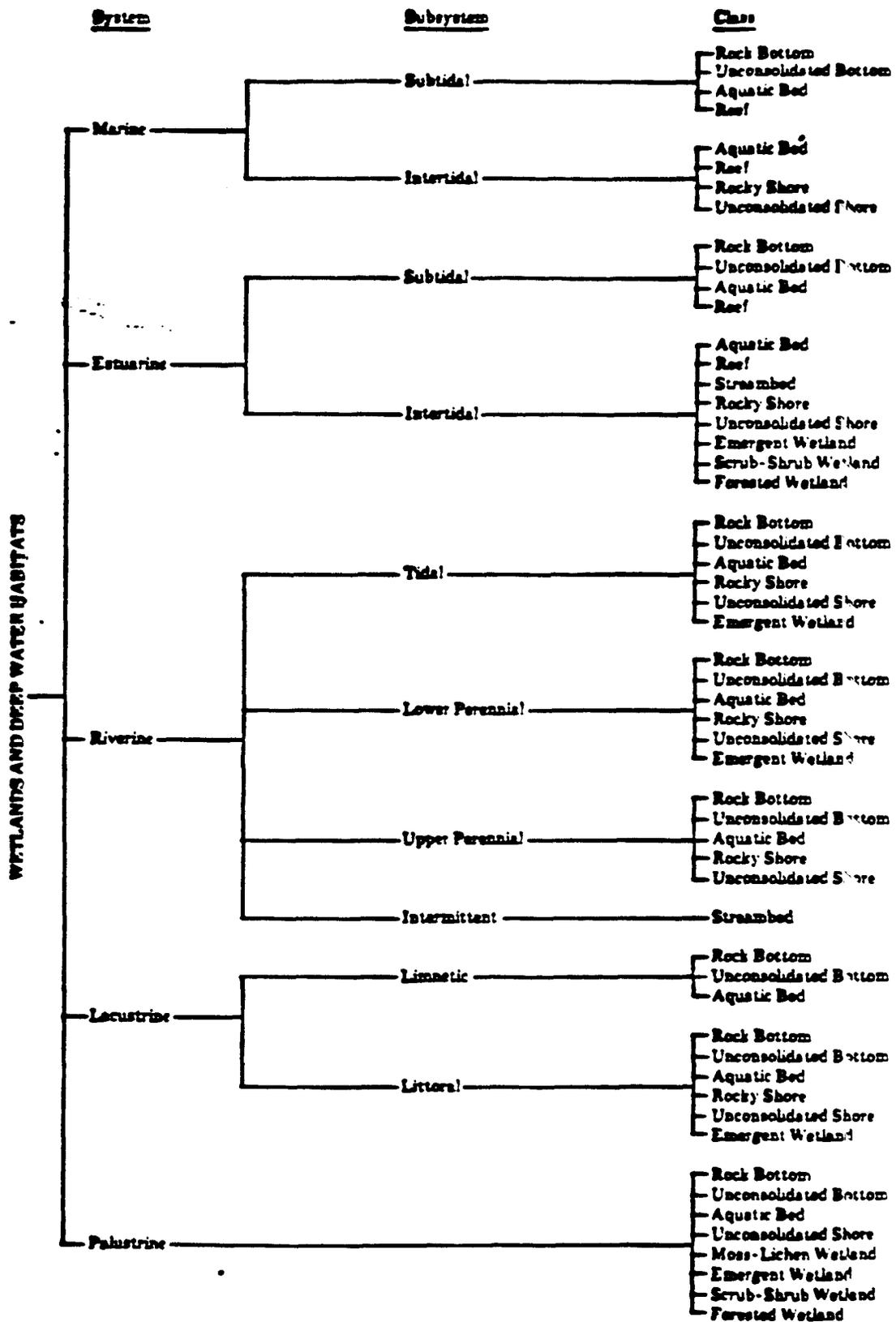


Fig 1. Classification hierarchy of wetlands and deepwater habitats, showing systems, subsystems, and classes. The Palustrine System does not include deepwater habitats.

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

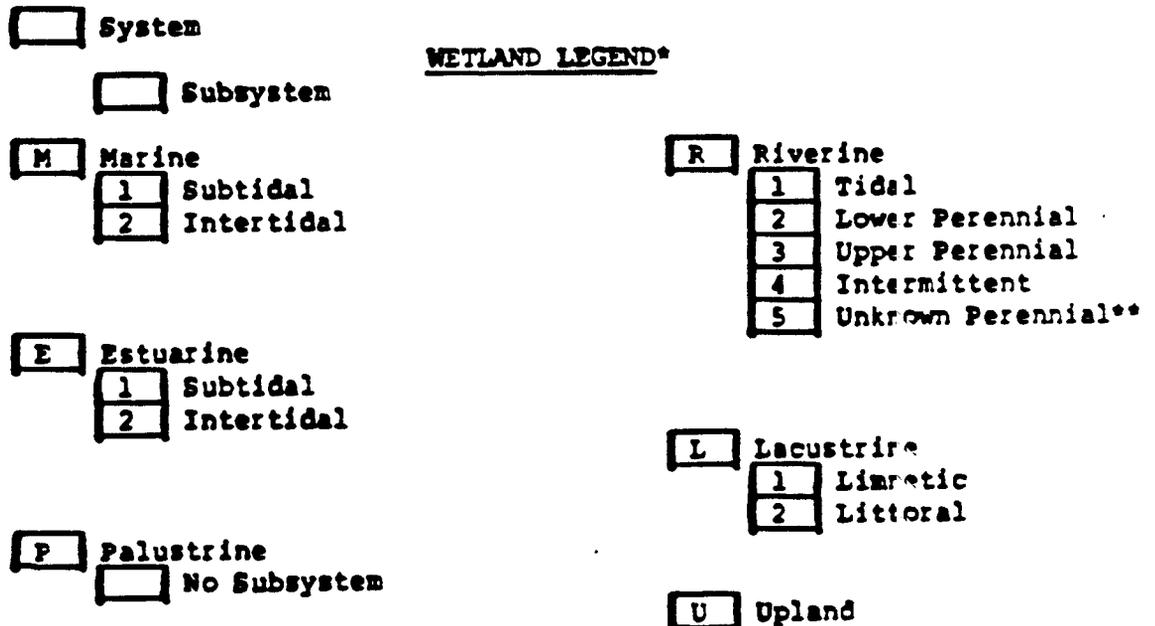
a. Classification of wetlands to water regime and special modifier:

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/EM1P = Palustrine, Forested, Needle-leaved deciduous (PFO2) 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.

OTHER MODIFIERS

Special

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

Soils

g	Organic
n	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.

