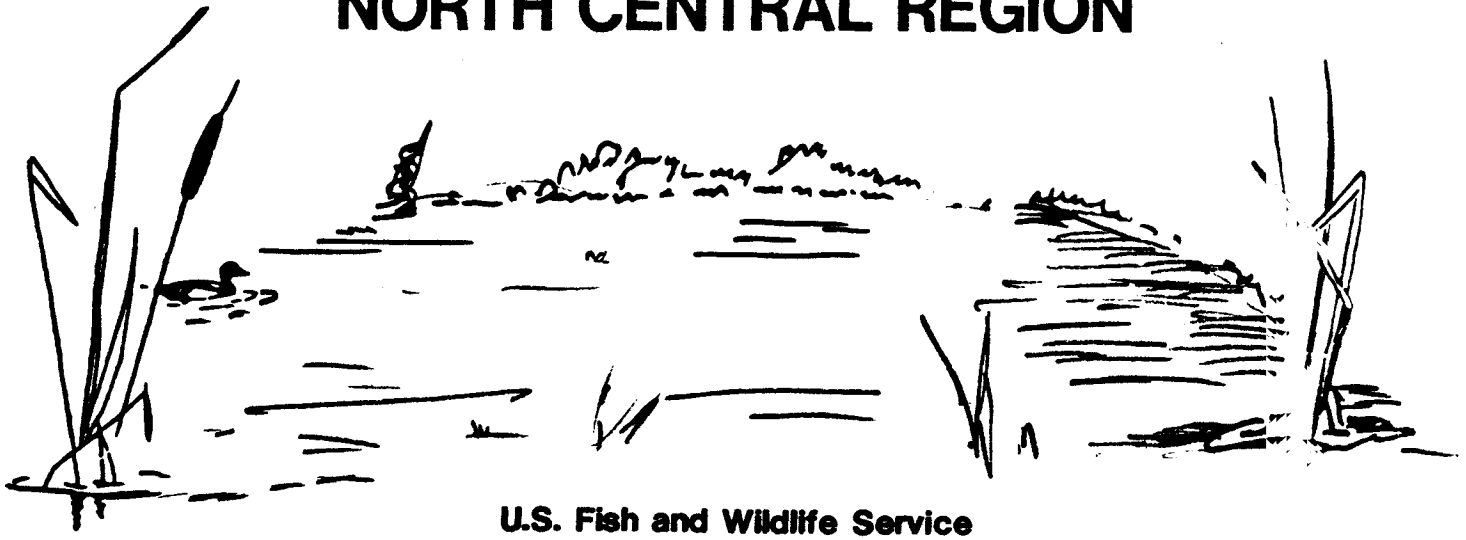
NATIONAL WETLAND INVENTORY USER REPORT 1:100,000 MAP AREA

MAP AREA: FLINT SW

1:100,000 NAME: FLINT

STATE: MICHIGAN

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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TWIN CITIES, MINNESOTA 55111

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.

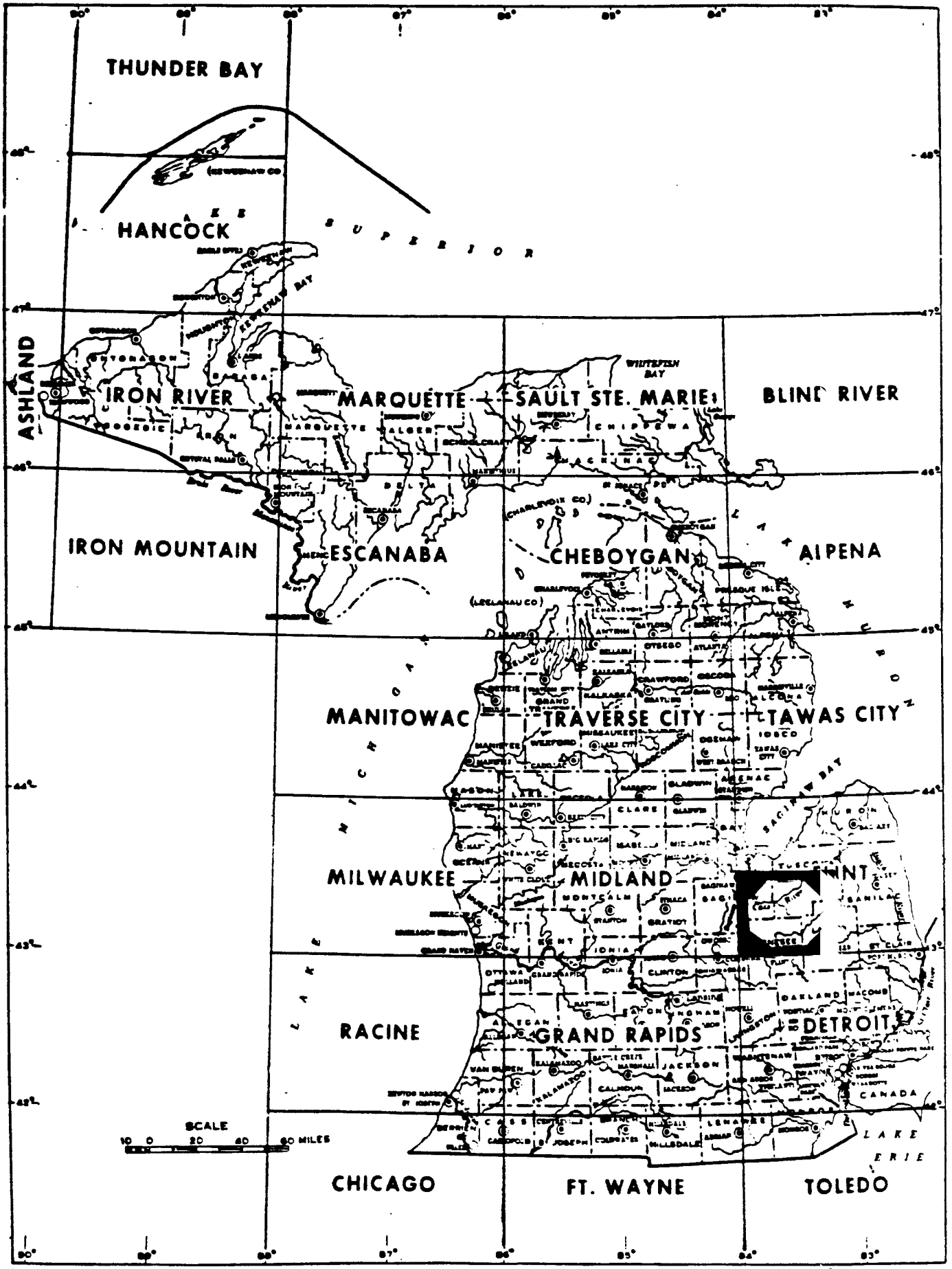
Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either design or products of this inventory, to define limits of proprietary jurisdiction of any local, State, 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

Michigan Dept. of Natural Resources
Land Resources Program
Box 30028
Lansing, Michigan 48909

LOCATION OF REPORT
STATE OF MICHIGAN



U.S. Fish and Wildlife Service Region 3 National Wetland Inventory

DATE: January 1984

MAP PREPARATION

Basic Data

Photography Used:

	Emulsion	Scale	Date	Percent Coverage
1.	Black and white	1:80,000	October 1978	75%
2.	Black and white	1:80,000	November 1978	12.5%
3.	Black and white	1:80,000	May 1980	12.5%

Field Check Dates:

1. November 27, 1979
2. January 10, 1980
3. July 23 - 27, 1980

Contractor(s) for Photo Interpretation:

1. Michigan Dept. of Natural Resources

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, 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 invertory. Many of these omitted wetlands commonly occur in floodplains.

GEOGRAPHY

A. General Location

Degrees Longitude: 83° 0' to 84° 0' West

Degrees Latitude : 43° 0' to 43° 30' North

Largest City : Flint, Michigan

Flint SW is located in the 'Thumb' area of Michigan, and lies just south of Saginaw Bay. The map area encompasses portions of Lapeer, Genesee, Shiawassee, Saginaw, Bay, Tuscola and Sanilac Counties. This map lies within the Lake Huron watershed and Saginaw and Black River drainage basins. Shiawassee National Wildlife Refuge falls within the map boundaries.

B. Ecoregion

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

Code: 2113L, 2212L

Humid Temperate Domain (2000)
The entire Flint SW 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.

Warm Continental Division (2100)
This Division covers the northern 40% of the Flint SW map, plus the extreme west-central portion.

This Division characteristically has warm summers and cold, snowy winters. The natural vegetation is needleleaf and mixed needleleaf-decidous 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)
This Division includes the southern 60% of the map, excluding the extreme west-central part.

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.

Laurentian Mixed Forest Province (2110)
The northern 40% of Flint SW is included in this Province, plus an area in the west-central part of the map.

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)
The southern 60% of the map area is included within this Province, excluding the extreme west-central portion.

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.

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

Northern Hardwood Forest Section (2113L)
This Section occurs in lowland areas and includes the northern 40% of the map area, and the extreme west-central portion.

Hardwoods are the most common tree species of this Section.

Beech-Maple Forest Section (2212L)
This Section occurs in lowland areas, and covers the southern 60% of the map, excluding the extreme west central portion.

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 1965, 1969):

Codes: (III-2) A1, (III-2) A2b, (III-2) B2b

Interior Physical Division (III) - The entire Flint SW map lies within this Physical Division.

East-Central Drift and Lake-bed Flats Subdivision (2) - This Subdivision covers all of the Flint SW map area.

Flat Plains Class (A1) - This class includes 35% of the map area, extending from the north-central and northwestern portions to the southwest corner. Over 80% of the land is in gentle slopes of less than 100 feet.

Smooth Plains Class (A2b) - This Class covers the eastern 15% of the map area, plus the part of the map which extends from the north-central portion to the south-central and southwestern portions. Over 80% of the land is in gentle slopes. Fifty to 75% of these slopes occur in lowlands. Local relief ranges from 100 to 300 feet.

Irregular Plains Class (B2b) - This Class comprises the east-central 25% of the map area. Fifty to 80% of the land is in gentle slopes. Fifty to 75% of these slopes are found in lowlands. Local relief ranges from 100 to 300 feet.

RESOURCES

A. Wetlands

No wetland acreage figure is available for the Flint SW area at the present time.

Heavy wetland losses in the Flint SW area have been attributed to agricultural drainage, and industrial and urban development (Panzner 1955). Losses have been particularly heavy in the western third of the map, around the cities of Saginaw and Flint, and also in the extreme east. The east-central portion of the map still maintains a high density of wetlands.

The wetlands which remain in the Flint SW map area occur in uplands and in river floodplains, and are primarily forested/scrub-shrub, scrub-shrub, and scrub-shrub/emergent mixed classes that are usually either saturated or seasonally flooded. Some homogeneous forested and emergent classes remain as well. Predominant trees species of the forested/scrub-shrub and scrub-shrub wetlands include red maple (Acer rubrum), white ash (Fraxinus americana), willow (Salix spp.), dogwood (Cornus sp.) and alder (Alnus spp.). Cattail (Typha latifolia) and reed canary grass (Phalaris arundinacea) are common plants in the emergent wetlands. A list of plant species for wetland types can be found in Appendix C.

Appendix A

REFERENCES

Bailey, R. G. 1978. Descriptions of the Ecoregions of the United States. USDA For. Serv. Intermtn. Reg. Ogden, Utah. 77 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.

Great Lakes Basin Commission. 1975a. Fish: Great Lakes Basin Comm. Great Lakes Basin Framework Study, App. 8. Ann Arbor, Mich. 290 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.

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 reference is recommended:

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 draining for agriculture made it difficult to distinguish some wetland forests from upland forests.

Resolution: USDA Soil Surveys were used as collateral data. Field checking was done when possible.

Problem 2: Using "leaves-on" photography presented additional problems in distinguishing upland forests from wetland forests. Tree canopies may have masked small emergent or shrub areas underneath.

Resolution: Extensive use was made of collateral data sources.

Problem 3: Waterfowl management areas were not easily classified because of water level changes, intensive land use activities and the farmed wetlands policy. These areas are usually indiated on USGS topographic maps.

Resolution: N/A

Problem 4: Heavy drainage in some areas made the determination of some wetlands difficult. Consequently, some wetlands may have been overlooked.

Resolution: Sites were field checked whenever possible.

Problem 5: 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

MAP SYMBOLS	LOCAL NAME	DOMINANT VEGETATION	WATER REGIME
PFOB PFOY PFO1Y	Lowland hardwoods Swamp	Acer rubrum Acer saccharinum Fraxinus americana	Saturated Seasonal
PFO/SSY	Swamp	Acer rubrum Fraxinus americana Cornus spp. Alnus spp.	Saturated Seasonal
PSSY PSS1Y	Swamp	Alnus spp. Cornus spp. Salix spp.	Saturated Seasonal Semi-permanent
PSS/EMY	Swamp	Alnus spp. Cornus spp. Salix spp. Typha latifolia Phalaris arundinacea	Saturated Seasonal Semi-permanent
PEMY	Wet meadow	Juncus spp. Carex spp. Phalaris arundinacea	Saturated Seasonal
PEMY	Marsh	Typha latifolia	Seasonal Semi-permanent

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.

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 (PFO2) mixed with Palustrine, Emergent, Persistent (PEM1) with semipermanent water regime (F).

WETLAND LEGEND*

- [ ] System
- [ ] Subsystem
- [M] Marine
  - [1] Subtidal
  - [2] Intertidal
- [E] Estuarine
  - [1] Subtidal
  - [2] Intertidal
- [P] Palustrine
  - [ ] No Subsystem
- [R] Riverine
  - [1] Tidal
  - [2] Lower Perennial
  - [3] Upper Perennial
  - [4] Intermittent
  - [5] Unknown Perennial**
- [L] Lacustrine
  - [1] Limnetic
  - [2] Littoral
- [U] Upland

*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] Unconsolidate Shore
  - [1] Cobble/G
  - [2] Sand
  - [3] Mud
  - [4] Organic
  - [5] Vegetat

**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

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

Nontidal Combined

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

Nontidal and Tidal

U	Unknown**
K	Artificial

Tidal

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

WATER CHEMISTRY MODIFIERS

Coastal Salinity

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

Inland Salinity

7	Hypersaline
8	Eusaline
9	Mixosaline
0	Fresh

pH Freshwater

a	Acid
t	Circumneutral
l	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	Beaver
d	Partially Drained/ Ditched
f	Farmed
h	Diked/Impounded
r	Artificial
s	Spoil
x	Excavated

Soils

q	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 additon, 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 additon, 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 descirbe 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.