

HGM Wetland Classification System for Minnesota

The Hydrogeomorphic (HGM) classification system classifies wetlands based on their setting in the landscape (landscape position), source of water, and hydrodynamics (inflow, outflow, flow-through, etc.). These core factors are likely responsible for the maintenance of most functions and are about as close to “first principles” of wetland function there is at this time. Wetlands in each HGM class have similar structure and functions.

Regulatory as well as non-regulatory entities at the federal and state levels have embraced and formally endorsed the HGM system as a means to study, evaluate and classify wetlands. The system is often used as a framework for evaluating wetland functions, with numerous HGM guidebooks being developed throughout the country. HGM has been integrated into the Cowardin classification system which has long been recognized as the national standard for separating wetlands into groups for inventory and management purposes, including the National Wetland Inventory (NWI) mapping system.

| Classification Name | Definition |
|---------------------|--|
| Lacustrine | Wetland occurs within a topographic depression that has a closed elevation contour that allows the accumulation of surface water and is restricted to the margin of a depressional lake basin. |
| Riverine | Wetland occurs on a nearly level landform and lies along and is influenced by flooding from a stream, river or flow-through ditch. |
| Slope | Wetland occurs on a slope (generally >2%) with groundwater discharge as its primary source of hydrology. |
| Mineral Flat | Wetland occurs on a nearly level landform, is not significantly influenced by flooding from a stream, river or flow-through ditch and has predominately mineral soils. |
| Organic Flat | Wetland occurs on a nearly level landform, is not significantly influenced by flooding from a stream, river or flow-through ditch and has predominately organic soils. |
| Depression | Wetland occurs within a topographic depression that has a closed elevation contour that allows the accumulation of surface water and is not associated with the margin of a depressional lake basin. |

Dichotomous HGM Classification System Key

- 1. Wetland does not occur on a nearly level landform 2
- 1. Wetland occurs on a nearly level landform 3
 - 3. Wetland lies along and its hydrology is significantly influenced by flooding from a stream/river channel or a flow-through ditch **Riverine**
 - 3. Wetland does not lie along and/or is not significantly influenced by a stream/river channel or a flow-through ditch 4
 - 4. Wetland has predominately organic soils **Organic Flat**
 - 4. Wetland has predominately mineral soils **Mineral Flat**

- 2. Wetland occurs on a slope (generally >2%) with groundwater discharge as its primary source of hydrology **Slope**
- 2. Wetland occurs within a topographic depression that has a closed elevation contour that allows the accumulation of surface water 5
 - 5. Wetland is not restricted to the margin of a depressional lake basin **Depression**
 - 5. Wetland is restricted to the margin of a depressional lake basin **Lacustrine**

Using the Classification System

Generally, a single contiguous wetland should have only one HGM-based class in consideration of the predominate characteristics. For very large, contiguous wetland complexes (hundreds of acres or more), different classes may apply to the same wetland if they are easily distinguishable and can be delineated on aerial imagery or other appropriate base maps.

Depending on the situation, it may be necessary to classify an altered wetland based on both its current and historical status. For example, a wetland that was historically influenced by flooding from an adjacent ditch or stream may now be disconnected from flooding effects due to channel entrenchment, upstream dams, changes in watershed contributions, etc. In that instance the historic classification would be Riverine, but the current classification may be a Mineral Flat or Organic Flat.

Minnesota NWI maps include HGM-based descriptors including landscape position and landform type. When a wetland is identified on the Minnesota NWI map, the landscape position and landform type can generally be used to classify the wetland into one of the seven classes in this classification system using the following table.

| Landscape Position/Landform Type from MN NWI | Class |
|---|--------------|
| Lentic Basin | Lacustrine |
| Lentic Flat | Lacustrine |
| Lentic Fringe | Lacustrine |
| Lentic Island | Lacustrine |
| Lotic Basin | Riverine |
| Lotic Flat | Riverine |
| Lotic Floodplain | Riverine |
| Lotic Fringe | Riverine |
| Lotic Island | Riverine |
| Terrene Basin | Depression |
| Terrene Flat | Mineral Flat |
| Terrene Fringe | Depression |
| Terrene Island | Depression |
| Terrene Peatland | Organic Flat |
| Terrene Slope | Slope |