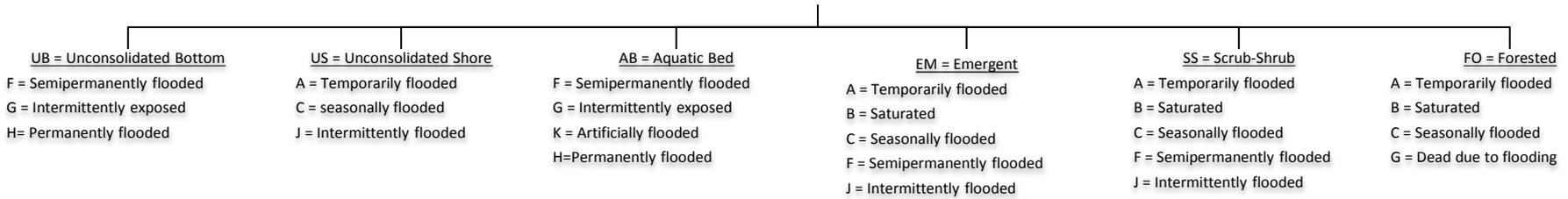
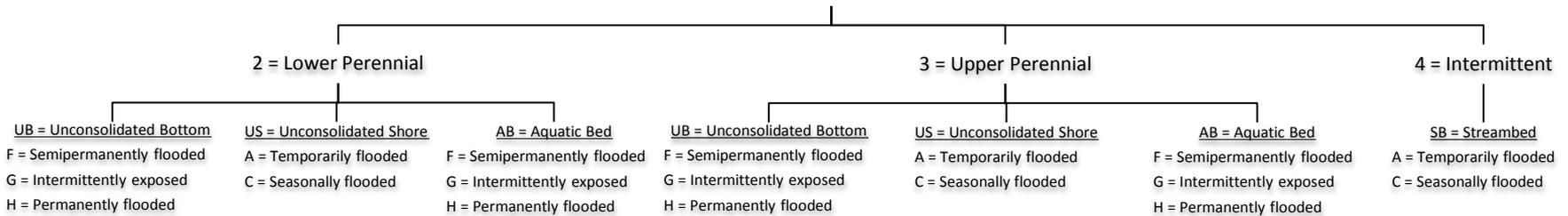


# Attributes for Mapping Wetland and Riparian Areas in Montana

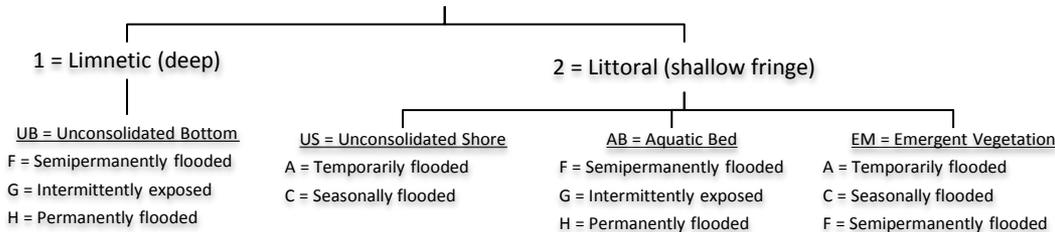
## P = Palustrine



## R = Riverine



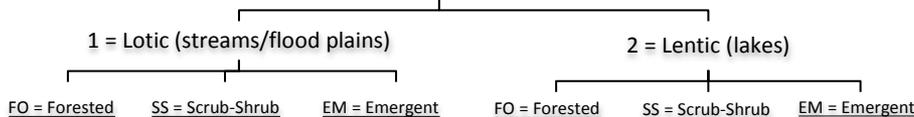
## L = Lacustrine



### Special Modifiers for Wetlands

b = beaver                      h = impounded  
d = drained/ditched          x = excavated  
f = farmed

## Rp = Riparian



### Mapping Criteria for Wetlands

Lacustrine: At least 20 acres  
Streams and ditches: 3m wide  
Canals can be R3 if wider than 10m  
FO taller than 6m, >30% areal cover  
SS shorter than 6m, >30% areal cover  
EM >30% areal cover

Minimum mapping unit = 0.1 acres

<http://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf>

<http://www.fws.gov/wetlands/Documents/A-System-for-Mapping-Riparian-Areas-In-The-Western-United-States-2009.pdf>

### Mapping Criteria for Riparian Areas

Lotic (1): Riparian areas associated with flowing water  
Lentic (2): Riparian areas associated with standing water  
FO taller than 6m, >30% areal cover  
SS shorter than 6m, >30% areal cover  
EM >30% areal cover

Minimum mapping unit = 0.5 acres

### **PALUSTRINE SYSTEM (P):**

In MT, includes all wetlands dominated by trees, shrubs, and emergent, herbaceous vegetation. Open water areas are also included in this system if they are less than 8 hectares (20 acres) in size and are less than 2 meters (6.6 feet) deep in the deepest portion of the wetland. Examples: wet meadows, marshes, ponds.

### **RIVERINE SYSTEM (R):**

In MT, includes all wetlands and deepwater habitats that are within natural and artificial stream, river, or ditch channels. Channels can either have continuous (perennial) or intermittently flowing water. Examples: channels of Yellowstone River, shores along rivers, small mountain stream channels, and intermittent stream channels.

#### **Riverine Subsystems:**

- **Lower Perennial Subsystem (2):** Typically has a low gradient and slow water velocity. Substrates in this subsystem are mainly made up of sand and mud. Floodplains are usually well developed.
- **Upper Perennial Subsystem (3):** Typically has steep gradients and fast water velocity. Substrates typically consist of rocks, cobbles, or gravel with some patches of sand. Floodplains are typically absent or poorly developed.
- **Intermittent Subsystem (4):** Intermittent streams. Includes channels that only have surface flow during a portion of the year. Isolated pools may form in the channel when there is no water flow. Class is limited to “streambed”.

### **LACUSTRINE SYSTEM (L):**

In MT, this system includes any large body of water that is greater than 8 hectares (20 acres) in size OR is more than 2 meters (6.6 feet) deep. This system is usually found in a topographic depression. It may also be formed by damming of a river channel. Examples: Flathead Lake, Fort Peck Reservoir.

#### **Lacustrine Subsystems:**

- **Limnetic (1):** Includes all deepwater habitats within a lake basin beyond the shallow fringe.
- **Littoral (2):** Includes the shallow fringe of wetland around the deeper limnetic zone and extends from the shore to areas where the depth is 2 meters (6.6 feet) or to the maximum extent of nonpersistent vegetation.

### **WETLAND CLASSES IN MONTANA: PALUSTRINE, RIVERINE, AND LACUSTRINE** \*indicates applied to Palustrine System only

- **Unconsolidated Bottom (UB):** Bottom of a wetland, stream channel, or lake. Wetlands where mud, silt or similar fine particles cover at least 25% of the bottom, and where vegetation cover is less than 30%. Examples: pond (PUB) or Yellowstone River channel (R2UB).
- **Rock Bottom (RB):** Wetlands, stream channels, or lakes with a substrate made up of 75% or greater stones, boulders, and bedrock with less than 30% vegetation cover.
- **Aquatic Bed (AB):** Wetlands with vegetation growing on or below the water surface for most of the growing season.
- **Unconsolidated Shore (US):** “Shore” of wetland, stream channel, or lake. Wetlands with less than 75% areal cover of stones, boulders, or bedrock AND with less than 30% vegetative cover, AND the wetland is irregularly exposed due to seasonal or irregular flooding and subsequent drying. Example: Yellowstone River gravel bar (R2US).
- **Streambed (SB):** Active channel that contains periodic flow. *Can be applied only to Riverine Intermittent subsystem.* Example: intermittent or ephemeral prairie stream (R4SB).
- **Moss-Lichen\* (ML):** Wetlands where mosses or lichen have more than 30% cover and all other substrates have less than 30% cover.
- **Emergent (EM):** Wetlands with erect, rooted herbaceous vegetation present during most of the growing season. *Under certain circumstances, can also be applied to Riverine Lower Perennial and Lacustrine Littoral.* Examples: fringe of prairie pothole (PEM); abandoned oxbow channel in large river floodplain (PEM); wet mountain meadow (PEM).
- **Scrub-Shrub\* (SS):** Wetlands with greater than 30% aerial cover of woody vegetation less than 6 meters (20 feet) tall. Includes tree saplings, and trees stunted due to environmental conditions. Examples: fringe of pond (PSS); abandoned oxbow channel in large river floodplain (PSS); wet mountain shrub meadow (PSS).
- **Forested\* (FO):** Wetlands with greater than 30% aerial cover of woody vegetation greater than 6 meters (20 feet) tall. Examples: limited in MT, some cottonwood or cedar dominated wetlands e.g. in NW MT (PFO).