



# Chapter 2

## Montana's Wetlands and Riparian Areas: Understanding the Resource

In order to establish an effective conservation program, it is important to understand the resource. This chapter explains what wetlands and riparian areas are, and discusses the various types found in Montana. These resources share two common elements: land and water. Their importance far exceeds their relatively small area—although no systematic on-the-ground inventory has been conducted throughout the state, estimates of their total area range from less than 2% (1,860,000 acres) (Montana Department of Health and Environmental Sciences, 1992) to 4% (3,700,000 acres) of Montana's land base (Redmond et al. 1998).

Montana has a variety of wetland and riparian types. The descriptions found in this chapter are adapted primarily from three sources: *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979), *An Ecological Characterization of Rocky Mountain Montane and Subalpine Wetlands* (Windell et al., 1986) and *Classification and Management of Montana's Riparian and Wetland Sites* (Hansen et al., 1995).

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### What are Wetlands?

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The term wetland is a catch-all that includes marshes, swamps, bogs, fens, and lowlands covered with shallow and sometimes intermittent water (water present for several weeks or months per year) or ephemeral water (water present only in response to precipitation events). The term also includes wet meadows, potholes, sloughs, some riparian zones, and river overflow areas. In addition, shallow lakes and ponds, usually with emergent vegetation, are included in the definition. Although permanent waters deeper than 6-1/2 feet are not technically considered wetlands, the term does include the shallow edges of these deeper water bodies.

Three attributes are generally present in wetlands:

- Water at or near the land surface all or part of the year;
- Soils that are poorly drained and develop certain soil characteristics (e.g., blue-green or gray color, or rotten egg smell) due to the presence of water and absence of oxygen; and

#### Box I. A Definition of Wetlands

The following definition can be incorporated into local regulations to protect wetlands:

*Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturation soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.* (Federal Register, 1982)

- Water- adapted (or tolerant) plants such as rushes, sedges, cattails, or willows.

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## Montana's Wetland Types

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There are three general types of wetlands in Montana, grouped according to where they are found on the landscape and how they are created:

### **Depressional Wetlands**

Low spots on the landscape can become depressional wetlands. These include:

**Prairie and Montane Potholes.** Most potholes are less than two feet deep and occur in open prairie grasslands or agricultural fields. They vary in their amount of open water, and in size, ranging from less than one acre to more than 20 acres. Herbaceous vegetation (cattails, bulrushes, and sedges) typically grows in bands around the margins. Although many of these wetlands are dry much of the year, they are typically wet in the spring; as a result, they are very productive for wildlife, especially for breeding ducks and shorebirds. During dry years, vegetation may fill in these wetlands. Montana's potholes are concentrated north of the Missouri River (Glacier to Sheridan County), in the Blackfoot and Mission Valleys, and along the Rocky Mountain Front.

**Marshes.** A seasonally or permanently flooded wetland, marshes often develop in shallow ponds, depressions, and river margins. They are usually dominated by herbaceous vegetation, including sedges, cattails, bulrushes, and grasses.

**Sloughs and Oxbows.** Once part of a stream channel, sloughs and oxbows were cut off from the stream's active channel through stream migration and sediment accumulation. They function as standing water wetlands. Trees, shrubs, and/or herbaceous vegetation grow in and around oxbows and sloughs.

**Ponds and Lakeside Wetlands.** These wetlands are influenced by open water systems. Ponds are bodies of water surrounded by wetland vegetation. Because of their small size and shallower depth, wave action is minimal, allowing emergent vegetation to establish. Somewhat similar wetlands also occur in or adjacent to lakes and reservoirs.

### **Slope Wetlands**

Ground water seeping to the surface can create slope wetlands. These include:

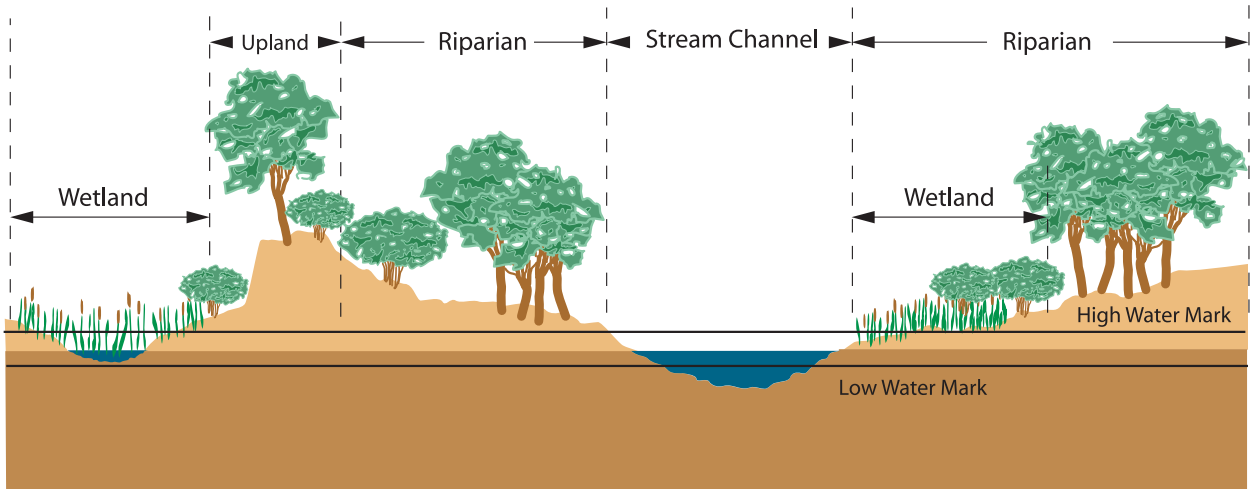
**Peatlands (fens).** These wetlands are unique because they accumulate peat, or partially decomposed plant material. The dominant vegetation associated with fens includes sedges and/or mosses, or less commonly shrubs (especially willow and birch). Pine Butte Swamp, located near Choteau, is perhaps Montana's most famous fen. The Swan Valley also contains a high concentration of these wetlands.

**Wet meadows.** Typically occurring in seasonally flooded basins and flats, wet meadows have soils that are usually dry for part of the growing season. Sedges, grasses, and forbs typically dominate these wetlands.

**Seeps and springs.** Scattered throughout Montana, seeps and springs are found in a variety of terrains, including mountains, hillsides, floodplains, and prairies. In general, seeps have less flow than a spring. The abrupt boundary between uplands and wetland vegetation often makes these areas readily recognizable.

### **Human-built/Artificial Wetlands**

Wetlands can also be created by human-related activities. Many of these activities are associated with flood irrigation, and other agricultural practices. Examples of artificial wetlands include seeps along irrigation canals, constructed ponds, and wetlands created as part of wastewater treatment processes.



**Figure 1.** The relationship of riparian areas to wetlands.

## What are Riparian Areas?

Riparian areas are plant communities next to rivers, streams, and drainage ways, commonly associated with a valley. They also have one or both of the following characteristics:

- Distinctively different vegetative species than adjacent areas; and/or
- Species similar to adjacent areas but exhibiting more vigorous or robust growth forms (USFWS, 1997).

The width of the valley often determines the extent of the riparian area; some are narrow strips, while others can be quite broad. Water flows associated with riparian areas can be perennial (all seasons of the year), intermittent (for several weeks or months per year), or ephemeral (only in response to precipitation events).

### Box II. A Definition of Riparian Areas

The following definition can be incorporated into local regulations to protect riparian areas:

*Riparian areas are plant communities contiguous to perennial, intermittent, and ephemeral rivers, streams, or drainage ways. They have one or both of the following characteristics: 1) distinctively different vegetative species than adjacent areas; and/or 2) species similar to adjacent areas but exhibiting more vigorous or robust growth forms. (Adapted from USFWS, 1997)*

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## Montana's Riparian Types

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Montana's riparian areas are divided into three broad categories. They are found adjacent to perennial, intermittent or ephemeral rivers, streams, or drainages. The vegetation associated with these areas can include trees (e.g., conifers, cottonwood, and aspen), shrubs (e.g., dogwood, alder, birch, and willows), and herbaceous plants (e.g., sedges, rushes, grasses, and forbs). In Montana's lower elevation riparian areas, where development pressure is the greatest, vegetation is adapted to growing in a dynamic system of flooding and meandering rivers and streams. This system, in combination with the moist, often wet soils and high water table, creates a place for water-loving plants.

### **Streamside Forests**

Riparian forests are the gallery forests and woodlands of generally lower elevation floodplains. The dominant trees are typically cottonwoods, with black cottonwood most common in western Montana, and plains and narrowleaf cottonwoods common in the east. Aspen can also be a prevalent species, especially on higher elevation tributaries. Cottonwood/aspen forests can be found in the floodplains of all of the state's major rivers and their tributaries. Coniferous trees can also dominate riparian forests, especially at higher elevations: in western Montana these typically include grand fir, subalpine fir, Engelmann spruce, western red cedar, and western hemlock in moister sites; and Douglas fir, ponderosa pine, and Rocky Mountain juniper in drier areas. The latter three species are also the most common coniferous trees in eastern Montana. Although riparian forests are described by the trees in the forest canopy, an important component of these forests is their understory. A healthy riparian forest generally has an understory of trees and shrubs in different life stages.

### **Streamside Shrublands and Herbaceous Areas**

Riparian areas dominated by shrubs or herbaceous vegetation, rather than trees, are common throughout the state. In western Montana, the dominant shrubs present are typically alder, willow, birch, or red-osier dogwood. Riparian shrubland in eastern Montana is drier, with hawthorn, serviceberry and chokecherry common. Riparian herbaceous vegetation includes cattails, sedges, bulrushes, grasses and forbs. This type of riparian area is especially common in eastern Montana.

### **Woody Draws**

Woody draws are found throughout Montana, although they are more common east of the continental divide. These areas support woody vegetation, such as tall shrub (e.g. chokecherry) and tree species (e.g. conifers or green ash), in small intermittent and ephemeral drainages. The vegetation is a result of higher moisture availability than the surrounding area. The duration of surface water, however, is shorter than that of other streamside riparian areas (e.g. cottonwood and dogwood communities).