Lower Coast Fork Willamette River Watershed Assessment

Chapter 6 Wetland Types, Distribution and Functions

6.1 What are Wetlands?

Wetlands form in the presence of two key factors: 1) a source of water and 2) hydric soils (i.e. soils that drain very slowly, like clays). The sources of water supplying wetlands vary. "Most are in low lying areas that collect rain and runoff. Some are in places where the groundwater is at or near the surface and so are fed from below. Others are near rivers or other bodies of water that regularly overflow their boundaries (Windham et al. 1996)." Beaver dams can also form wetlands by backing up streams and causing water to flood the land behind them. The combination of a water supply and hydric soils leads to saturated (i.e. water-logged) soils during part or all of the growing season. These conditions favor the growth of wetland plants, which have special adaptations that allow them to survive in soils that are saturated during portions of the growing season (Mitsch & Gosseling 1993).

6.2 How Do Wetlands Function Ecologically?

Wetlands in this watershed provide ecological functions that benefit many species, including humans. Wetlands can:

- Slow the flow of runoff after storms, which can reduce flooding downstream and improve water quality by giving time for suspended sediment to settle out and nutrients to be taken up by wetland plants.
- Provide habitat for wetland plant species that are specifically adapted seasonally or permanently saturated soils (e.g. Bradshaw's lomatium, tufted hairgrass).
- Provide winter habitat for fish, amphibians and invertebrates.
- Enhance groundwater recharge by giving surface water more time to percolate down to aquifers (Watershed Professionals Network 1999).

6.3 What Types Of Wetlands Are In The Lower Coast Fork Willamette Watershed?

There are three general categories of wetland in the watershed: Lacustrine, riverine and palustrine. Lacustrine wetlands include freshwater lakes, reservoirs and ponds. Wetland plants are either completely submerged or float on the surface of the water throughout the entire year. Riverine wetlands are contained within a stream channel. Because of continuous or occasional strong currents and/or shifting channel locations these areas generally have non-permanent vegetation (Morlan 1990). Palustrine wetlands include freshwater marshes, vernal pools and wet prairie. Trees, shrubs or emergent plants (e.g. grasses, wildflowers, reeds, bulrushes) typically dominate this wetland type (Morlan 1990). The amount of time they are inundated with water ranges from temporary

seasonal pools that dry up in May or June to permanent water bodies that never completely dry. In addition, the depth to which water saturates or inundates the ground varies from sub-surface to standing water. On the following page are brief descriptions of the main palustrine wetlands in the watershed.

Wet Prairie: Wet prairie is characterized by highly impermeable clay soils that cause seasonal ponding of water, but not significant inundation (i.e. deep standing water). Tufted hairgrass is a key, native indicator species of these wetlands. "Some sites support a diverse, high quality native wet prairie plant community, while other sites, due to their history of disturbance, support only tufted hairgrass and a variety of non-native grasses and forbs (Alverson 1992,3)." In addition, trees (particularly Oregon ash) and shrubs have invaded many sites (Alverson 1992). Therefore, some of the sites identified as scrub-shrub in the National Wetlands Inventory data may be historic wet prairie.

Emergent Wetland: Emergent wetland includes vernal pools and marshes that are inundated from several weeks of the year to permanently. Plants that are typically found in wetlands that are inundated during parts of the year include spike rush, pennyroyal, cattail, softstem bulrush and reed canary grass. Sites with permanent standing water often have floating aquatic plants (Alverson 1992).

Forested Wetlands: "Oregon ash is the most common tree of the forested wetlands, though other species, including black cottonwood, Pacific willow, Oregon white oak and even ponderosa pine may be found…. (O)ften associated with these tree species are numerous species of small trees or tall shrubs…include(ing) hawthorn, serviceberry and cascara. (The) hydrology of most forested wetlands is similar to the wet prairie (Alverson 1992,4)."

Scrub-shrub Wetlands: Scrub-shrub wetlands in this area are typically dominated by spiraes, willows, rose, hawthorn and serviceberry (Alverson 1992). They often represent former wet prairie that is being invaded by woody plants.

Table 6-1 shows the acres of different wetland types that are shown on the National Wetlands Inventory (NWI) map, (map figure17).

Table 6-1 Acreage of NWI Mapped Wetlands

Wetland Type	**Number of sites**	**Total Acres**
Forested	96	1083
Scrub-shrub	71	400
Emergent	185	651
Watershed Total	**352**	**2134**

Most of the wetlands on the NWI map are located in the low gradient, low elevation portion of the watershed. The Camas Swale sub-basin also shows a large number of forested and emergent wetlands. Other pockets of wetlands are scattered throughout the watershed, especially near the main stem of the larger tributaries such as Hill Creek and Papenfus Creek.

6.4 Wetland Inventories and Historic Wetland Conditions

Other than the NWI mapping there have not been any local wetland inventories or surveys conducted in the assessment area. NWI maps a total of 3.3 square miles (2134 acres) of wetlands.

Historic wetlands have been estimated to have covered approximately 49.7 square miles or 36% of the watershed. These calculations were based on the location and amount of hydric soil. As described at the beginning of this chapter, hydric soils (map figure 18) and a source of water are the key components characterizing wetlands. The source of water for these wetlands was precipitation, groundwater discharge, overland flow and seasonal flooding of the Willamette River, Hill Creek, Camas Swale Creek, Gettings Creek and Bear Creek. Wet prairie was the dominant kind of wetland historically.

"The wet prairie community was historically maintained by fire, but with fire suppression, many sites have been invaded by trees (particularly Oregon ash) and shrubs (Alverson 1992)." In addition, large portions of former wet prairie have been converted to farmland and pasture. In some places tile drains (i.e. porous pipes buried in the ground) allow these areas to be farmed by draining saturated soils more quickly. Grazing in some places has altered the plant composition from native wet prairie species to non-native plants well adapted to disturbed soil.

> Some examples of the non-native species commonly found in these sites include velvet grass (Holcus lanatus), redtop (Agrostis tenuis), tall fescue (Festuca arundinacea), oxeye daisy (Chrysanthemum leucanthemum), St. John's wort (Hypericum perforatum), and parentucellia (Parentucellia viscosa). Without direct intervention, most native wet prairie species will never become established in such sites. Similar weedy vegetation is found on sites where fill has been placed in wetlands (such as filling old log ponds) or the soil surface has been mechanically altered, but wetland hydrological conditions are still present. All these sites would… be appropriate candidates for restoration to re-establish native vegetation (Alverson 1992).

Historic scrub-shrub wetlands were often willow swamps caused by beaver dams.

6.5 Conclusions

Wetlands were once a significant element of the LCFW Watershed's environment. Their extent is evident from current knowledge of hydric soil distribution, historic vegetation, and accounts given by early explorers to the area. Although wetlands played an integral role in the ecological processes occurring in the watershed, they were generally viewed as a nuisance to travelers and homesteaders and a waste of potentially useful land. The effort to drain and convert these wetlands to farmland and urban areas was considerable.

Historically, wetlands influenced the intensity of peak flows during floods and provided thousands of acres of wildlife habitat. Groundwaters recharge and water quality enhancement were also likely functions of many wetlands in the area. Fire played a key role in shaping the kind of wetland habitat that was available to plants and animals in some parts of the watershed. A reduction in both wetland extent and possibly fire has thus reduced the kind of habitat these conditions created.

Some key points to be considered:

- There are still high value wetlands within the watershed that present protection and enhancement opportunities.
- Many wetlands have been filled by agricultural and urban development activities; some of these may have the potential for enhancement or restoration.
- Wetland enhancement and restoration has the potential to offer numerous benefits to humans and other species.
- Wetland restoration adjacent to streams will also serve to improve riparian zone conditions and provide winter fish habitat.
- No wetland surveys have been conducted in the assessment area. The watershed only has information provided from the National Wetlands Inventory (NWI). NWI information is based on aerial photo interpretation. Some types of wetland are difficult to identify and wetlands under two acres are not classified.
- There are currently no proposed plans for wetland assessments.
- Local expertise on wetland surveying, planning and protection exists. This may be valuable to council members if they are considering wetland enhancement or restoration. The council might consider soliciting input from local experts on how to prioritize council sponsored actions related to wetlands.
- Education opportunities to help protect existing wetlands.