



Mixed conifer forest
Photo: Tracy McEwan



Bunchberry (Cornus canadensis)
Photo: Gerald and Buff Corsi, California Academy of Sciences

Biotic communities are recognized by associations of particular plant and animal species. Conditions required for the specific life cycle requirements of species such as Chanterelle and Camas are often limited to a single biotic community. Species such as Killdeer may be found in more than one biotic community because their life cycle requirements can be met by a wider range of conditions.



Camas (Camassia quamash)
Photo: USDA, NRCS. 2001. The PLANTS Database



Killdeer
Photo: Rick Cameron



Rough-skinned Newt
Photo: Rick Cameron, <http://racphoto.com>



Northern Harrier
Photo: Rick Cameron



Elk
Photo: Rick Cameron



Chanterelle (Cantharellus cibarius)
Photo: Taylor F. Lockwood



Calypso Orchid (Calypso bulbosa)
Photo: Keith and Barbro McCree, www.efn.org/~k_mccree



Male Fender's Blue Butterfly on Kincaid's Lupine Photo: Cheryl B. Schultz



Willamette Valley Prairie
Photo: Susan Payne



In this chapter we describe some of the biotic components of the Willamette Basin, specifically its native vegetation, fish assemblages, and terrestrial wildlife. The fish and wildlife species that occurred historically in the basin did so because they were well adapted to the region's climate, soils, native vegetation, stream characteristics and hydrologic dynamics, and other habitat features. As people have altered these habitats through land and water use, it is not surprising that the types of species able to survive in the basin are also changing.

We begin the chapter by characterizing native vegetation circa 1850, prior to extensive EuroAmerican settlement, using historical records. At that time, conifer forests dominated the uplands, as they still do today. The valley, by contrast, was quite open then. Periodic burning by Native Americans suppressed shrubs and tree seedlings, resulting in extensive grasslands and open oak woodlands. Seasonal wetlands were common — the poorly drained valley soils becoming saturated during winter but drying during the droughty summer months. Today, over 90% of these wetlands and natural grasslands have been converted to other, primarily agricultural, uses.

Riparian areas, adjacent to rivers and streams, provide critical ecological functions and habitat for both aquatic and terrestrial biota. For that reason, in addition to describing native vegetation basinwide, we also present a focused summary of changes within riparian areas. Riparian areas, in general, were more heavily wooded in the past than other areas within the valley. The floodplain of the Willamette River and its major tributaries in particular supported an extensive bottomland forest. Only 20% of the area covered by bottomland forest circa 1850 remains forested today.

Thirty-one fish, 18 amphibian, 15 reptile, 154 bird, and 69 mammal species are native to the basin. Thirty-six of these species are listed as threatened, endangered, or species of conservation concern, including over 20% of the fish species and 60% of the amphibian species. Factors contributing to these species' declines include habitat loss, introduced species, contaminants, and direct human disturbance. Forty-six non-native species are known to have been introduced into the basin, over half of which are fish species. Many of these introduced species occur predominately in areas that have been greatly altered by people.

We end the chapter with a discussion of ecoregions, which provide a useful spatial framework for ecological research and analysis. Ecoregions bound areas that are relatively homogenous in terms of their overall environmental characteristics, including factors such as physiography, soil, climate, natural vegetation, native biota, and land use. We use both ecoregions and hydrologic units later in the Atlas to summarize our results, and make a distinction between Lowlands (Willamette Valley ecoregion) and Uplands (Cascades and Coast Range ecoregions).