

# Riparian ecosystems: At your service

BY TIM FRANKLIN

Although you might not know what a riparian ecosystem is, you have seen them, walked through them, and you might even live in one. Most of us, though we may not know the term, recognize the unique assemblage of plants along a stream, including willows, alders, ash, cottonwoods, and conifers as well as a diverse array of shrubs, forbs, and grasses. The word riparian is derived from the Latin *ripa*, which means riverbank. Simply put, riparian systems are the lands adjacent to a stream supporting vegetation that are largely dependant on the stream. Because of their location on the landscape, riparian systems provide a number of very important ecological functions.

## Streambank and Stream Channel Stability

The roots of riparian vegetation exert strong influences on streambank characteristics and the shape of the stream channel (channel morphology). Roots hold soil in place and provide protection against the erosive action of flowing water. Riparian vegetation thus helps prevent the loss of lands near streams during flooding.

Large trees that fall into the stream channel create pools where otherwise none would exist. Increasing pool habitat in Applegate streams, which contain very little due to the historic removal of trees and snags from streams throughout the watershed, makes the stream much more biologically productive. Stream habitat improvement projects that place logs or rootwads in streams as habitat elements have produced quick responses in local fish populations - salmon and trout begin using the habitat immediately.

## Hydrology

Riparian systems influence the hydrology of the watershed in a number of ways. Riparian vegetation increases the hydraulic roughness of the streambanks, which helps slow down and dissipate the energy of flood flows. Large trees that have fallen in to the stream can act as small check dams, also slowing and dissipating the energy of increasing the hydraulic roughness of the stream channel. During flood events, a well-vegetated riparian area will slow flood waters and capture sediment, dispersing stream energy and protecting adjacent lands from scouring and the deposition of rock and debris. Side channels and other wetlands within the riparian zone

will store water when flows are high and release it when flows subside, improving summer low flows.

## Nutrient Cycling and Water Quality

Riparian vegetation takes up and sequesters many of the nutrients transported into the riparian ecosystem via groundwater or surface flows. Organic debris from the trees, in the form of leaves, fruits, twigs, and insect bodies falls into the stream, providing much of the carbon and nutrients that drive the biological communities of the stream. Through these processes, riparian vegetation can absorb or attenuate nutrient or chemical pulses from land uses on adjacent lands. For example, healthy riparian vegetation can provide an important buffer between pastured livestock and the adjacent stream, preventing feces-derived nitrogen, phosphorous, and bacteria from entering the water.

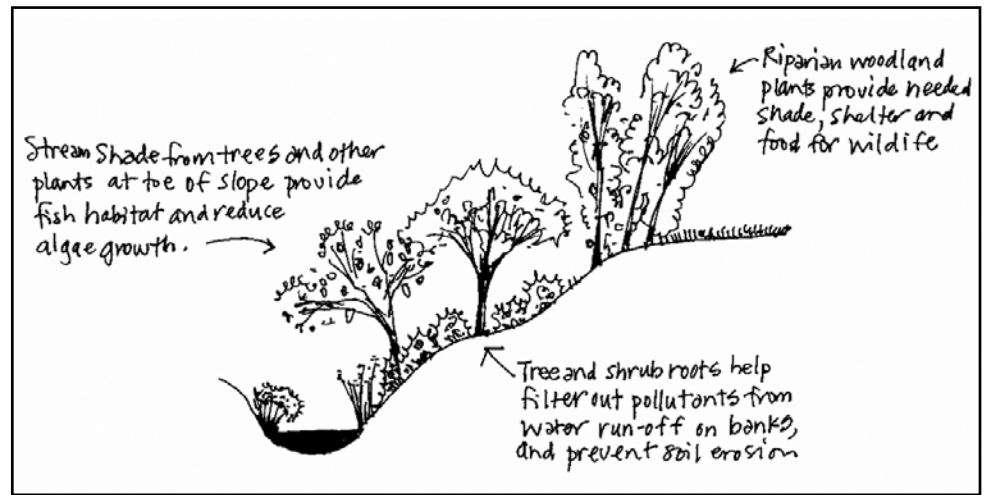
Shade provided by riparian canopies helps maintain cool temperatures required by trout, salmon, and many of their food sources in the stream. Stream temperatures are a particular water quality concern for the Applegate River and the lower reaches of many of its tributaries. Shading also decreases the amount of light available for photosynthesis, thereby limiting the growth of algae.

## Wildlife Habitat

Riparian ecosystems provide habitats for a disproportionately large number of birds, reptiles, amphibians, and mammals. In general, average bird densities are approximately twice as high in riparian areas as they are in upland habitats. In fact, more wildlife species use riparian areas than all other habitats combined. Healthy riparian ecosystems produce abundant food, water, and shelter, and provide forested corridors through which animals migrate and disperse. In addition, riparian vegetation communities typically have greater structural diversity, providing for a large biotic diversity. Streams that have healthy riparian ecosystems also tend to have cleaner water and more productive and diverse fisheries.

## Riparian Restoration Services

In recognition of the important functions healthy riparian areas provide, the Applegate Partnership and Watershed Council provides a service as well. APWC works with landowners in the Applegate to restore native riparian



vegetation communities. During the 2008-2009 planting season, the APWC worked with just under 30 landowners to control invasive, non-native vegetation and re-establish native groundcovers,

shrubs and trees. If you are interested in participating in such a project, call Tim Franklin at 541-899-1974.

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## Wilderville Church



Above: Originally built in Wilderville in 1890, the T.L. Jones Memorial Church was named after Reverend T.L. Jones, a circuit rider. (Source: Josephine County Historical Society)

Below: In 1931, these ladies of the Wilderville Church presented a play, "Packing the Missionary Barrel." From l to r, Magdalen Loughridge, Ollie Robinson, Ms. McCollum, Mahala Robinson, Loa Robinson, Ms. Stevenson, Effie McCollum, Alma Loughridge, Clara Robinson, and Lora Robinson. Kids in the background are Kathleen McCollum and Becky Lindsay. (Source: Josephine County Historical Society)



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