



Woodland Fish and Wildlife

Riparian Areas: Fish and Wildlife Havens

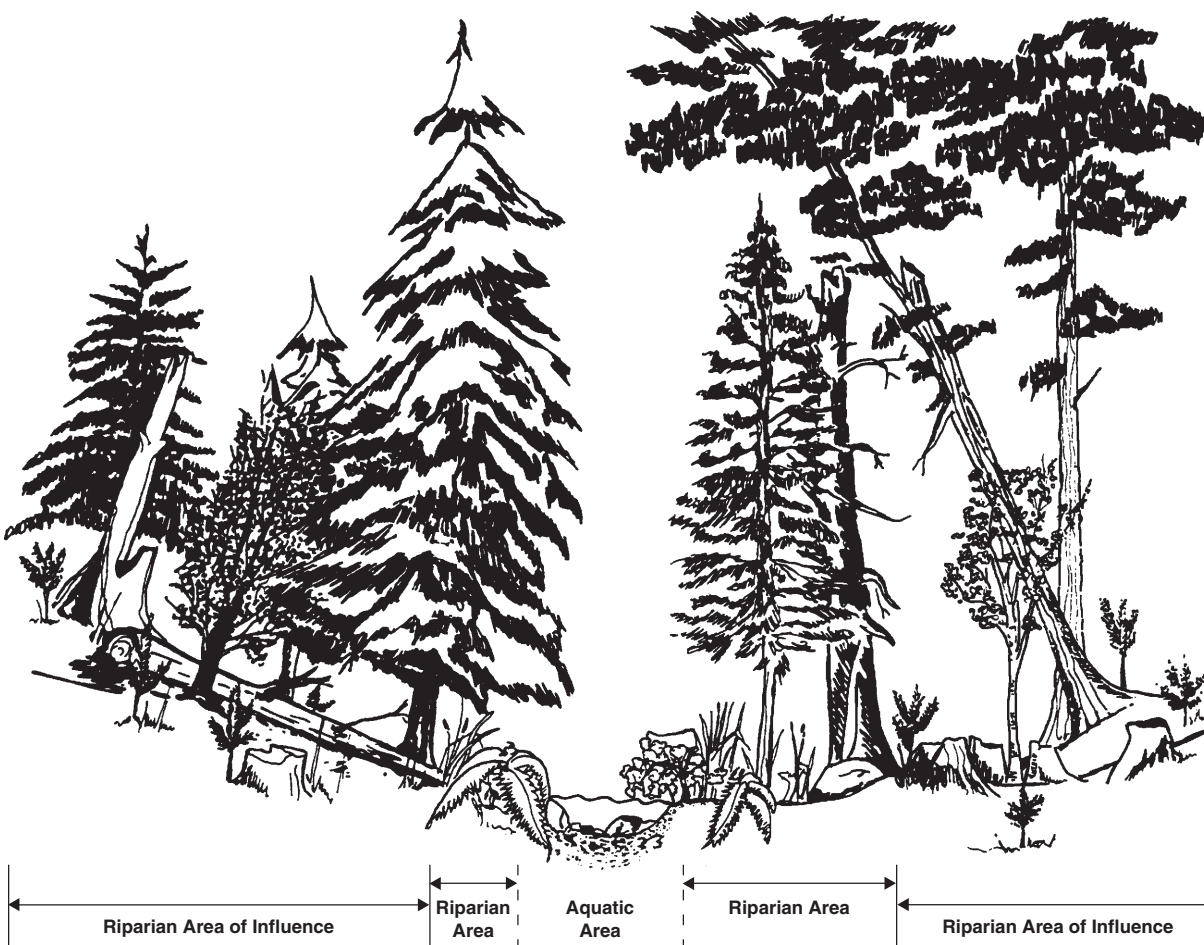
If your property includes a body of water such as a pond or stream, part of your land is riparian. “Riparian” is simply a name for the border of moist soils and plants next to a body of water. This area may be only a foot or

so wide, like the steep bank of a small creek, or hundreds of feet wide along lowland streams, rivers, lakes and ponds.

Riparian areas are only a small part of the natural landscape, but they are of great value to fish and

wildlife. They are also productive areas for timber and forage, and are important for recreation. Landowners can maintain these unique areas by giving them special attention.

This publication tells how riparian area provide essential fish



and wildlife habitat, how land use can affect this habitat, and briefly describes management practices that protect or enhance habitat. (Other publications in this series provide more detailed advice for managing specific kinds of fish and wildlife.) Many of these practices are required by law. Managing riparian areas can increase your use and enjoyment of your land and may even increase the value.

Riparian Habitat

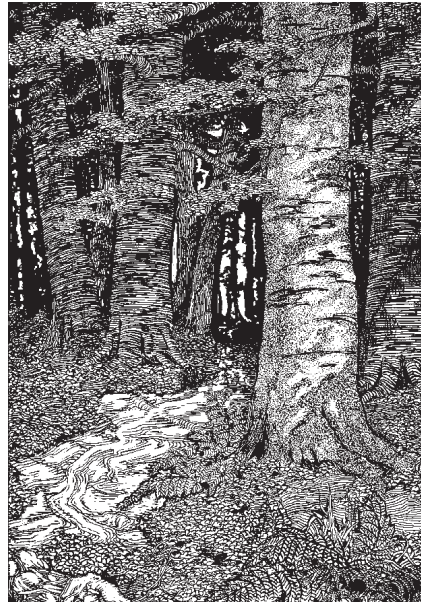
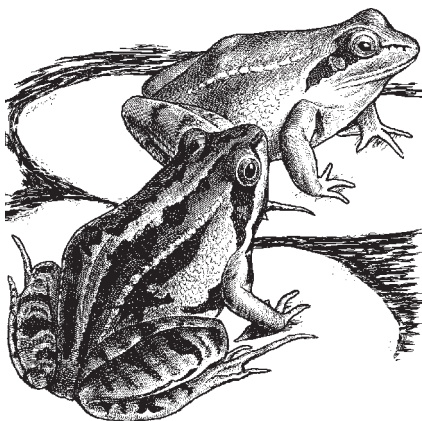
To live and thrive, our native fish and wildlife have a number of requirements:

Fish

- food and year-round water
- clean, cool water
- cover from predators
- spawning and rearing areas
- stable conditions during spawning and rearing

Wildlife

- food and water
- cover from heat and cold
- cover from predators
- breeding and rearing areas



Riparian areas help provide most of the needed elements of good habitat to a wide variety of fish and wildlife.

Riparian areas help provide most or all of these elements for a wide variety of fish and wildlife species. Trees and other plants that shade streams help keep water cool while stabilizing banks and providing food (leaves, twigs, etc.) for insects that fish eat. Trees also provide food and cover for wildlife. When trees die and fall into streams, the logs create small dams and pools that offer fish rearing habitat and cover from predators. Logs that remain on land provide cover for wildlife.

Wildlife heavily use riparian areas because the moist, fertile soils support a rich food supply and offer good shelter from predators and the elements. Despite their relatively small size, riparian and wetland areas are used at some time by nearly all of the animal species in Oregon and Washington.

Riparian habitats can look very different depending on their location, the water body they border, and the season of the year. For example, east of the Cascades, riparian areas may have pine, cottonwood or aspen trees with willow shrubs or grass and edge undergrowth. West of the Cascades, ash, red alder, cedar, and spruce are more common, as are salmon-berry and devil's club.

Differences in riparian habitats are often related to differences in terrain and stream size. Riparian areas along small upland streams may be very narrow and noticeably different from each other only in undergrowth. Where broadleaf plants are common, the natural pattern of spring leaf-out and autumn leaf fall lead to some unique riparian conditions.



Effects of Land Use on Riparian Habitat

As in the case with most everything in nature, riparian areas are constantly changing. A great many of the changes occur naturally, while others come about as a result of human activities. Floods and landslides are the most common natural disturbances in riparian areas.



Quaking Aspen

Human activities in riparian areas include forest management, road construction, mining, grazing, agriculture, recreation and development. However, with some thought and planning, impacts that might be detrimental to fish and wildlife can be minimized without seriously interfering with other land uses. In many instances, fish and wildlife habitat may be improved in conjunction with other activities.

Protecting and Enhancing Riparian Areas

Loss of vegetation is one of the most serious changes affecting the riparian area. The impact can be great because, until enough regrowth occurs, the land can be more vulnerable to erosion and food and cover for fish and wildlife

are altered. The adjacent water may be subject to siltation and increased temperatures.

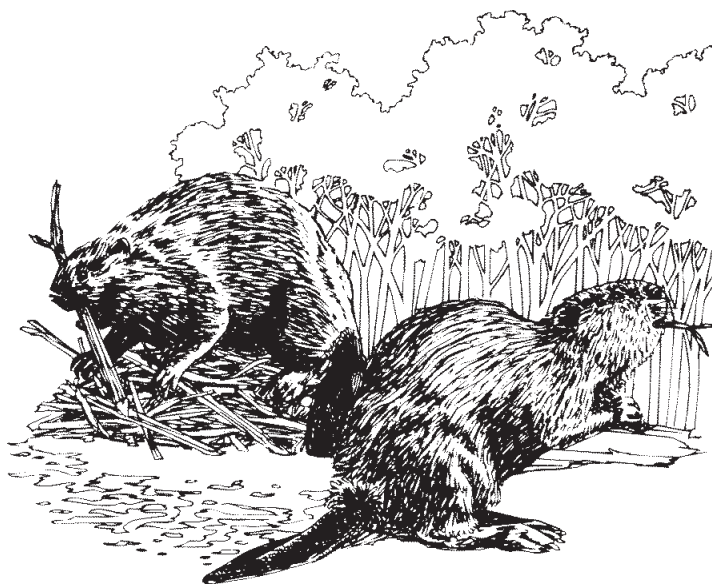
In the case of streams, fallen trees present a particularly challenging situation. Removal can contribute to the loss of stream bed and bank stability because of increased streamflow velocities. Leaving the trees may also contribute to soil erosion by directing the flows into banks. If carried to extremes, either case can be detrimental to fish and wildlife populations.

Forest Harvesting Operations: If timber harvest is planned in or near riparian areas along major streams, state regulations usually require retaining some “leave” trees to provide shade and organic debris to the aquatic and riparian area. A mix of broadleaf and coniferous trees can help provide year round cover and supplies of debris. The conifers are important because the debris from them is



slow in decaying and the cover provided is long-lasting. Both dead snags and live trees of varying sizes are left to provide essential and diverse habitat for many kinds of birds and mammals, as well as travel corridors for big game.

Depending on the stream size and location, harvest of some riparian trees may be allowed. Such trees should be felled so they do not damage the remaining “leave” trees and logging slash and debris should be kept out of the water. Designated skid trails are preferred and heavy



Beavers can make dramatic changes in a riparian area, but the activities of wildlife generally do not harm an area.

equipment should be kept out of the riparian area. Although some small organic material and larger debris is important to the aquatic habitat, too much material entering the water in an uncontrolled manner can deplete oxygen and block fish passage.

Conversely, if the pond or stream is quite barren, a nearby logging operation can be an opportunity to make some improvements. Large logs can be carefully placed in the water to create fish habitat, with a portion left on land to prevent them from drifting away. This type of activity should only be carried out in streams by getting expert advice and the necessary permits before the work begins.

Roads: Forest roads may be a major source of sediment to streams and alteration of riparian areas. In the past, roads and skid trails were often located in or near riparian areas because they provided easy access routes. The results sometimes included water quality degradation, vegetation changes, and reduced riparian habitat.



It is preferable to locate roads along ridges or stable benches and avoid the riparian areas. If a road must enter a riparian area near a stream, it should be constructed at right angles to the area to reduce the impact. Excavated soil is not pushed over the side of the road but hauled away to an area where it won't pollute the water. Road width should be minimized to retain as much vegetation as possible, and exposed soils can be seeded with native vegetation to prevent erosion.

Chemicals: Use of herbicides and other toxic chemicals should be avoided in the riparian area. However, they may be needed to control noxious weeds and other plants that compete with desirable native species. Application methods used in adjacent areas should include prevention of allowing chemicals into the riparian area or the water.

In both Oregon and Washington there are many specific logging, road construction, and other regulations that apply to riparian areas. Seek advice from forestry or other natural resource agencies before operating in these areas!

Grazing and Agriculture: Occasionally, grazing by deer and elk may alter riparian vegetation or a busy pair of beavers can make dramatic changes, but generally the activities of wildlife do not harm an area. However, heavy use by domestic animals



Willow

can damage stream-banks, promote erosion, and impact water quality with animal waste. Fencing animals out of sensitive areas or providing alternate sources of water and feed can help limit these impacts. Controlling the timing and numbers of animals allowed on the areas can also be useful management tools.

Agricultural activities can greatly affect the riparian area when conducted near the water's edge. Runoff from such lands can carry chemicals and soil into the water, causing problems for fish and other aquatic life. Protection of the riparian area as a filter can help control these problems. If the damage has already been done, plantings with native vegetation can help the area recover. Incentives and technical assistance for restoring

riparian areas retired from crop production may be available to qualified landowners. Contact your local USDA Service Center or Conservation District office for more information.

Recreation and Development:

Recreational activities in the riparian area may include fishing, hunting, hiking and camping. In some instances sites may be developed in conjunction with these pursuits. Such facilities can eliminate habitat as well as disrupt the activities of wildlife. Locating recreation sites outside of the riparian area is desirable to avoid such changes.

Surveys made prior to development can make sure important nesting sites for eagles, herons, and other sensitive species are not disturbed. Developments such as summer homes not only directly eliminate habitat, but may also disrupt wildlife travel routes. Structures may create the need for bank protection with riprap, causing further habitat changes. Septic systems are a potential source of water pollution.

Values tied to the riparian area make the site desirable to begin with—development that harms these values is counterproductive. Shifting development to nearby upland areas can help avoid such unintended consequences.



Habitat Management

General information on habitat improvement may be obtained from a variety of sources. On a more personal and local level, you can consult with professional resource foresters and biologists working for public and private organizations. Both technical and financial assistance programs exist for landowners. Help is usually as near as your telephone or computer, but you must ask or look for it.

Perhaps the first, most important step in habitat management is to maintain what is already there if it provides for the needs of desirable fish and wildlife.

Protection of riparian areas from undesirable change is much more effective than trying to restore areas that have been damaged. Change in riparian areas is not necessarily detrimental, but it should be carefully planned if fish and wildlife are to benefit.

Management to improve fish habitat usually involves restoration of vegetation, bank

stabilization, and possible placement of large debris or boulders in streams. The in-stream activities are mostly aimed at increasing cover and rearing habitat for fish. Because of concerns for water supplies and the hydraulic forces involved, expert advice is important and state fish and wildlife agencies must approve such projects. This is especially true with streams. Early consultation will make the job easier and less frustrating.

As has been mentioned, riparian areas usually contain food, water and cover needed by wildlife. Fruits that tend to dry on the stems and are slow to fall to the ground supply important winter food. Mountain ash, hawthorn, Russian olive, crabapple and rose can be planted to increase winter food for many birds and mammals. Information on the best food plants for your area can be obtained from your fish and wildlife agencies in either Washington or Oregon. Publications listing preferred food for various species are available.

Adjacent to cultivated lands, wildlife cover may be seriously lacking. Some of the material planted to supply food may also



provide good cover for wildlife. Again, suggestions for plants that will do best in your area may be obtained from your fish and wildlife, as well as forestry, agencies.

More specific information on riparian areas is available in publications and from the agencies listed in the reference section that follows. Direct contact with individuals working in your area can help produce ideas specifically tailored to your situation.

Generally, the best management of riparian areas for fish and wildlife is protection of the plant life. If the area is in a somewhat natural condition, it is probably supporting a great number of plants valuable to fish and wildlife. However, by looking at the area for needed improvements, new plants may be added for the benefit of both fish and wildlife and for you as landowner.

For example, willow can be planted to stabilize banks while providing shade and organic matter.

Rose bushes might be added in certain areas to provide winter food and cover while creating a fence effect. Again, consultation with technical experts can be time well spent.

You have taken a big step by recognizing the value of riparian areas. By properly managing and protecting such areas, and staying informed about new developments and techniques, you can help assure the continued existence and enhancement of these valuable areas.

Sources of Information and Assistance

Oregon Dept. of Forestry
2600 State Street
Salem, OR 97310
Phone: 503-945-7200
Web site: <http://www.odf.state.or.us/>

College of Forest Resources
University of Washington
Seattle, WA 98195
Web site: <http://www.cfr.washington.edu/Research/research.html>

Oregon Dept. of Fish & Wildlife
3406 Cherry Ave. NE
Salem, OR 97303
Phone: 800-720-6339
Email: ODFW.info@state.or.us
Web site: <http://www.dfw.state.or.us>

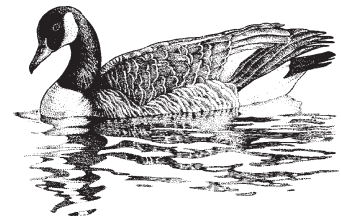
Washington Dept. of Natural Resources
PO Box 47001
Olympia, WA 98504-7001
Phone: 360-902-1000
Email: information@wadnr.gov
Web site: <http://www.dnr.wa.gov/>

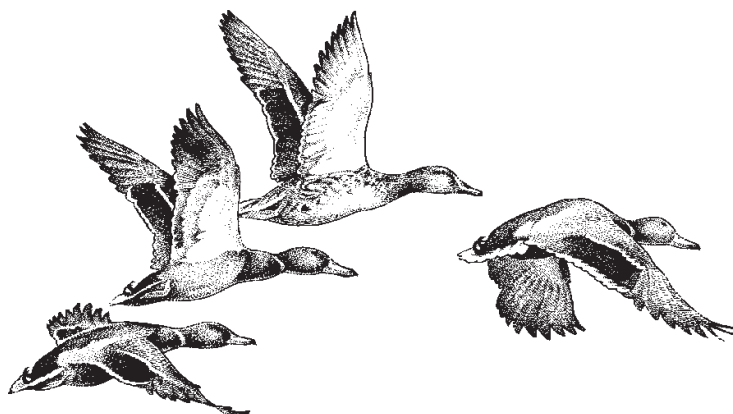
Extension & Experiment Station
Communications
Oregon State University
422 Kerr Administration Bldg.
Corvallis, OR 97331
Web site: <http://eesc.oregonstate.edu/>

Wildlife Extension
Washington State University
PO Box 646410
Pullman, WA 99164-6410

Forestry Communications Group
College of Forestry
Oregon State University
256 Peavy Hall
Corvallis, OR 97331
Web site: http://www.cof.orst.edu/service/publications/pub_database.php

U.S. Environmental Protection Agency
Ariel Rios Bldg.
1200 Pennsylvania Ave. N.W.
Washington, D.C. 20460
Phone: 202-272-0167
Web site: <http://www.epa.gov>





Titles available in the Woodland Fish & Wildlife series:

Is There a Place for Fish and Wildlife in Your Woodland?	MISC0132
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Managing Small Woodlands for Grouse	MISC0141
Wood Ducks on Small Woodlands	MISC0142
Managing Ponderosa Pine Woodlands for Fish and Wildlife	MISC0158
Managing Small Woodlands for Cavity-Nesting Birds	MISC0160
Trout in Small Woodlands	MISC0161
Managing Small Woodlands for Elk	MISC0164
Coastal Douglas-fir Forests and Wildlife	MISC0168
Hawk, Eagle and Osprey Management on Small Woodlands.....	MISC0169
Wetlands as Varied as our Region	MISC0179
Wildlife on White Oak Woodlands	MISC0180
Quail on Small Woodlands	MISC0187
Managing Deer on Small Woodlands	MISC0189
Beaver, Muskrat, and Nutria on Small Woodlands	MISC0196
Managing Forest Habitats for Neotropical Migrant Songbirds	MISC0198
Habitat Management for Bats on Small Woodlands	MISC0226
Managing Western Juniper for Wildlife	MISC0286
Wildlife in Broadleaf Forests of Oregon and Washington	MISC0534

*These publications may be ordered from Washington State University Extension Bulletin Office,
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<http://www.WoodlandfishandWildlife.org>.*

A Woodland Fish and Wildlife Project Publication

By

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The Woodland Fish and Wildlife Project is a cooperative effort among the World Forestry Center, Oregon State Department of Forestry, Oregon Department of Fish and Wildlife, Washington State Department of Natural Resources, University of Washington College of Forest Resources, Oregon State University Extension Service, Washington State University Extension, Oregon Association of Conservation Districts, Oregon Small Woodlands Association, Washington Farm Forestry Association, Washington Department of Fish and Wildlife, USDA Natural Resources Conservation Service, USDA Forest Service, US Fish and Wildlife Service, and the Western Forestry and Conservation Association.

The Woodland Fish and Wildlife Project was initiated to provide information on fish and wildlife management to private woodland owners and managers. It is the intent of the organizations involved in this project to produce publications that will serve as practical guides to woodland owners.

Each publication is intended to be complete in itself. Users may find it convenient to collect all publications in this series in a three ring binder to form a permanent reference file. Woodland Fish and Wildlife Project publications range from an overview of fish and wildlife opportunities on woodland properties to specific publications concerning techniques for managing individual species.



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