River Stewardship Guide

Stewardship

"dealing with man's relation to land and to the animals and plants which grow upon it."

Aldo Leopold (1887–1948)

For Property Owners:

Upper Deschutes River · Little Deschutes River
Sunriver · Fall River · Spring River

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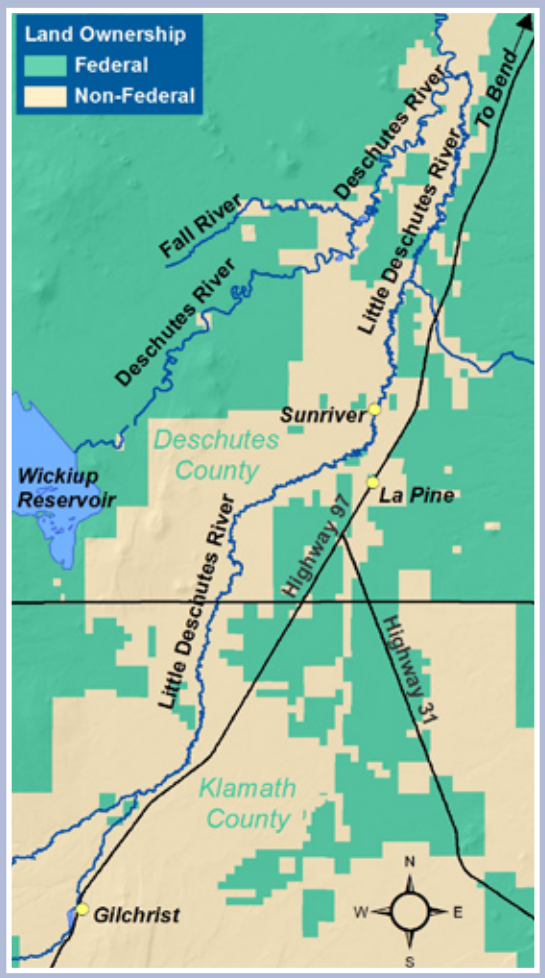
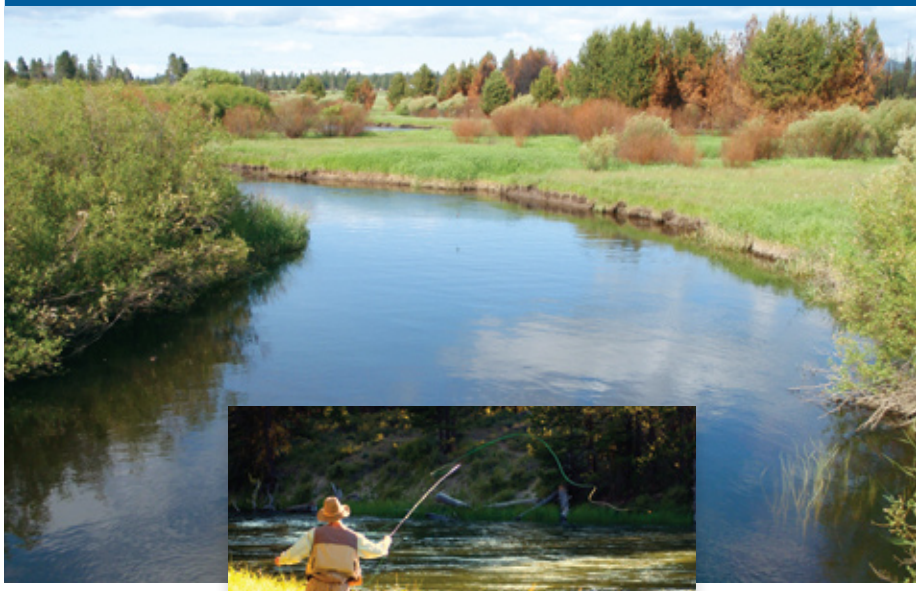
Stewardship Map



Introduction



This stewardship guide is for landowners who want to be good stewards of the Deschutes River, Little Deschutes River, Fall River, Sunriver and Spring River. Agencies and organizations that share concern for these rivers want to work with landowners to preserve the beauty, water quality and unique structure and function of habitat along these rivers within the Upper Deschutes Watershed. This guide describes what landowners can do to protect, improve and preserve riverside conditions. The guide includes simple steps and recommendations from experts in the community.

Each property has unique elements that are important for the river corridor and wildlife living in and along the river. When needed, some restoration projects can be accomplished simply with garden tools and the use of the right vegetation. For bigger projects, it may be necessary to seek professional assistance. In many cases, permits are required before adding or removing plants, soil, rocks, wood or in-stream structures. See page 6: Getting Help, for a list of agency names and information about where to seek advice and permit information.

Riverfront property conservation and restoration will preserve the value of the property and protect the wildlife, fish, water quality, and habitat that we all treasure.

Upper Deschutes River: A Unique Area

The U.S. Congress designated the Upper Deschutes River as a Wild and Scenic River, while the people of Oregon designated it a State Scenic Waterway. These designations allow for the protection and preservation of this majestic river and its banks, which provide important habitat for fish, birds and other wildlife. The river also provides a serene setting for people who live and recreate along its banks and riverside forests.

During fall and winter, most of the water from the headwaters of the Deschutes River is collected and stored in Wickiup Reservoir and the flow in the river below the reservoir is reduced to low levels. In spring and summer, the river's flow is increased to provide water for irrigation to agricultural lands around Bend, Redmond and Madras. These managed flows accelerate natural erosion of the riverbanks and slow the establishment of vegetation. Erosion and sparse vegetation affect riverside properties and associated fish and wildlife habitat. Proper care of native vegetation along the river, including preserving trees and shrubs whose roots stabilize the riverbanks and sedges and rushes that thrive in wet areas, can help reduce the effects of erosion.

Areas along the riverbank and marshy areas support a greater diversity of wildlife than areas beyond the riverbank. Habitat along riverbanks is limited, especially on the east side of the Cascade Mountains. Approximately 80 percent of all wildlife species depend on habitat along rivers and streams, lakes and wetlands. More than 50 percent of the songbirds in the western United States use these areas at some point during the year.

Healthy river systems and fisheries depend on healthy habitat along riverbanks and in marshy areas.

Habitat And Wildlife

Riverine Habitat

The Upper Deschutes, sliding through rugged lava fields and ribbons of willow and pine trees, represents natural riverine habitat (riverine relates to or resembles a river and is located on or inhabiting the banks of a river). The species and conditions found in and along the river reflect the Upper Deschutes' history of flow fluctuation and development. Introduced fish, such as brown and brook trout, are available along with native redband rainbow trout, sculpin, minnows and dace.

The character of the Upper Deschutes changes from small streams and channels to large, deep pools and waterfalls, which provide a diversity of habitat for many sizes, species and life stages of fish. The fish often closely follow insect populations—from caddis fly larvae inching along a stone to mayflies floating to a nearby willow. River otters slip into the water in search of fish and crawfish and use riverside trees and banks to mark their territory and find mates. Riverine habitat contains water, food and shelter for an entire community of fish, insects and wildlife that inhabit the river and nearby areas.

Wetland Habitat

Wetland habitat links the land and water and is wet most or all of the year. Often called "nurseries of life," wetlands provide habitat for thousands of species of aquatic and land-based plants and animals. Wetlands help reduce damage and loss from flooding by serving as a floodplain for excess water during periods of high flow. Wetlands provide habitat for a variety of amphibians, such as frogs, toads and salamanders, and feed and shelter fish at various life stages. Beaver, common wetland residents, provide benefits to wetland habitats by damming water that keeps wetlands intact and introducing wood into the stream from adjacent riparian and upland areas.

Oregon Spotted Frog

Riparian Habitat

Riparian habitat is the transition area between the river or wetlands and the uplands. Plant communities of riparian areas are generally woody species such as willows, alders and cottonwoods, whose roots serve to stabilize the banks of streams. The canopy along the stream provides shade to help regulate water temperature and cover for fish hiding near the bank. Riparian shrubs provide nesting and foraging habitat for birds like the willow flycatcher. Trees and shrubs of different sizes and ages provide layers of habitat for shelter and feeding. Decomposing wood from riparian plants provides food for insects; fallen trees provide shelter for fish. Logs or large wood with attached tree roots change the flow of water to create new pools and shelter for insects and fish. Elk and deer often use cool, dense riparian areas for birthing, sheltering and feeding their young.

Upland Forest and Meadow Habitat

Upland habitat has drier soil and less plant growth than riparian and wetland habitat. Older ponderosa pine and other trees provide important perching and nesting areas for birds such as owls, osprey and eagles. Insect-foraging and cavity-nesting birds often use dead, standing trees (snags) in upland and riparian habitat.

Oregon Spotted Frog: A Unique Upper Deschutes Species

Riparian and wetland areas often provide important habitat for sensitive or rare species, which are generally considered indicators of environmental health because of their need for pristine habitats. The Oregon spotted frog (Rana pretiosa), a candidate species for listing under the Endangered Species Act, is highly dependent on the Upper Deschutes and Little Deschutes rivers and associated wetlands. Oregon spotted frogs are the most aquatic native frog in the Pacific Northwest and historically ranged from southwestern British Columbia to northeast California.

In Oregon, the species remains present in only three out of ten historically occupied counties: Deschutes, Klamath and Lane. The frog is usually found in small ponds, isolated wetlands or near a body of water that has continuous, year-round flow and includes zones of shallow water and abundant emergent or floating aquatic plants, which the frogs use for basking and protective cover. Habitat with no predatory fish and bull frogs is especially desirable. Riverine areas that contain permanent standing water, but are no longer directly connected to the river, such as oxbows, provide essential overwintering and breeding habitat for the Oregon spotted frog.

In the Upper Deschutes and Little Deschutes rivers, Oregon spotted frog survival is threatened by the loss of marsh habitat due to vegetation succession and the invasion of reed canary grass and encroachment of lodgepole pine into wetlands, alteration of river flows, interactions with non-native fish and bull frogs, and degraded water quality. Livestock grazing can also pose a threat to the Oregon spotted frog if it degrades frog habitat structure or water quality.

Assessing Property and Habitat

To assess property, walk around and record the diversity, habitat types and condition of the property through notes and photographs. Share examples with neighbors and local experts. Consider features that are unique to the property and improvements to care for the vegetation and water quality.

Things to look for when assessing property

• Runoff and erosion from hard surfaces or bare soil

Any spot where flowing water meets exposed soil is a potential source of erosion and pollution: dirt roads, driveways or parking areas, earthen drainage ditches, over-grazed pastures or corrals, and areas of bare or sparsely-vegetated earth.

• Riverbank failure or erosion

Riverbank erosion is a natural process, particularly where swift flows occur and riverbanks are sparsely vegetated. Managed high summer and low winter flows of the Deschutes River also contribute to bank erosion problems. Vertical concrete walls and riprap retaining structures often change the direction and velocity of water flow, resulting in erosion at the ends of these features or on adjacent property.

• Lawns and removal of riverside vegetation

Maintaining a manicured lawn up to the edge of the river and removing native riverside vegetation reduces habitat and riverbank stability, which may put property at greater risk for flooding or riverbank erosion. Removal of vegetation also decreases homeowner privacy. Use of fertilizers and pesticides on lawns and vegetation near the river can reduce water quality and harm wildlife. Avoid using harmful chemicals or dumping waste along or in the river.

• Document the types of vegetation and general "health" of the riverbank

Keeping a photographic or other tally of the kinds and condition of the vegetation helps identify and target where you need improvements. Rating your overall riverbank "health" can help identify whether prevention or intervention is your best option for long term health and stability of your riverbank.

• Livestock and domestic animals

Grazing domestic livestock and pet waste along the bank can reduce or eliminate healthy riparian vegetation and affect water quality. Grazing may cause soil degradation; soil compaction might break down the riverbank, adding to erosion problems. Roaming pets can disturb nesting and breeding fish and wildlife.

Restoring the Riverbank

After gathering information about the property and defining goals for improvements, consider the options available for restoration to:

- Enhance habitat for migrating insects (butterflies) and wildlife, improve vegetation by adding native species that have been lost
- Remove non-native species to prevent spread downstream
- Add vegetation or limit access to stop erosion problems

With the help of local professionals, stabilize banks with carefully-placed logs, or plant trees to use the benefits their roots provide.

Think about each role and component of the habitat and envision living along a beautiful and healthy river system. Crafting a thoughtful design with the support of local professionals allows landowners to undertake bigger restoration projects and obtain the permits and habitat components needed for a riverside restoration project.

It is always easier, and less costly, to prevent erosion and decline of the river than to repair damage. Proper care of riverfront property will increase its value. When damage has occurred, the techniques available for restoring the riverbank vary in cost, aesthetics and longevity. Regional agencies, organizations or experts are available to support restoration methods. Qualified professionals should design and implement the restoration methods, but property owners can help. Before contacting someone for support, go through this 5-step checklist:

1. **Did you capture conditions on the property with photographs?**
2. **What are the common native species and weeds of concern for the property?**
3. **What are the concerns for the health and stability of the riverbank?**
4. **What are the goals to improve the areas and conditions for the river?**
5. **What resources are available to work on the restoration?**

Work with community experts to plan for improvements, restore disturbed sites and create more natural conditions along the river.

More ideas available from: www.udrc.org

Preserving and Enhancing Natural Features

Vegetation, soil and structure, such as woody material, support many needs and roles. For example, it is important to protect against forest fire, while leaving layers of native vegetation to attract birds and insects. Dead standing trees (snags) provide opportunities for insect-foraging and cavity-nesting birds; they might also pose a hazard to people and homes. Knowing about the living things on private property and adjacent forest and river leads to informed decisions about preserving and enhancing natural features.

Guidelines to preserving and enhancing natural features

• Leave streamside vegetation intact

A healthy riverbank needs undisturbed soil and vegetation. Native shrubs, trees and grasses provide wildlife habitat. Vegetation provides shade, which lowers water temperature and creates cover for waterfowl, fish and other organisms. Leaves and insects that drop from nearby trees and shrubs supply food for the aquatic community; plant roots stabilize the bank and reduce erosion. Healthy vegetation filters sediment and absorbs some harmful nutrients. Properly manage or eliminate streamside livestock grazing. Leave snags standing whenever they do not pose a hazard to people or structures.

• Monitor and manage livestock and domestic animals

To avoid excessive erosion, carefully monitor and manage river access points for domestic animals.

• Keep woody material in the river

Fallen trees provide cover and food for fish, insects, amphibians, and other wildlife. This material creates hiding places and pool habitat for deeper water fish. Logs and wood protect riverbanks by slowing the current and allowing the deposit of sediments. Leave woody materials found in or along the river in place. Leave dead trees standing where they do not pose a hazard. Dead standing trees fall into the river. If logs are causing excessive erosion along the bank, see page 6: Getting Help, for information on who to contact.

• Recognize and remove invasive weeds

Become familiar with common invasive weeds that occur along the river. Aquatic invasive weeds can quickly spread to riparian habitat, becoming a nuisance and having the potential to outcompete native vegetation. Some noxious weeds, such as western waterhemlock, are poisonous to humans, livestock and wildlife. Removal of invasive weeds is important; exercise care when using any herbicide near the river. Small amounts of any yard or garden chemicals can be lethal to plants and animals. These chemicals can enter the river as spray residue or storm runoff. Avoid using these products near the river and exercise caution when applying them. Read the label carefully and choose safe products for use along waterways. Information about keeping property free from invasive weeds is available from: www.deschutes.org/Road/Citizen-Involvement/Noxious-Weed-Control.aspx

• Irrigate wisely

The soils of the Upper Deschutes are highly porous and drain rapidly. Although these characteristics improve the soil's filtering ability, they also contribute to the need for frequent irrigation to maintain lawns and other non-native landscaping. In an arid climate, even on a river, water is precious and must be used sensibly. Over watering causes excess fertilizer and chemicals to leach into the groundwater and river. Make every drop count; landscape with native or drought-tolerant plants and install drip irrigation systems. Information about water conservation is available from: www.deschuteswcd.com

• Dispose of wastes properly

Keep the riverside clean. Disposing of any material in or along the river, even grass clippings or garden wastes, can harm riverside vegetation and water quality. Do not dispose of antifreeze, oil, paint, solvents, detergents or other chemicals anywhere near the river. Remember, chemicals used in everyday activities like washing a car or cleaning a dock can pollute the river. Consequences of improper disposal can be far-reaching, especially when multiplied by the many households using these common substances. Information about disposing of waste is available from: www.deschutes.org/solidwaste.aspx

• Check septic system

Ensure that septic systems function properly. Bacteria and dissolved nutrients from poorly-functioning septic systems pollute the river. Replacing leaking septic tanks or clogged leach fields and timely pumping of all systems can help keep this source of river contamination in check. Information about septic systems is available from: www.deschutes.org/community-development/environmental-soils.aspx

Getting Help

Local city, county, state or federal agencies can help assess the condition of a riverbank and recommend the most cost-effective solutions for a particular situation. Most riverbank restoration activities on the Upper Deschutes will need approval from one or more agencies. Agencies will work closely with landowners and each other to keep a project running smoothly in the permitting process.

Frequently Requested Improvements for Property Owners

Problem:	Contact:	Phone:
Identify weeds and consider the proper treatment	Deschutes County vegetation manager	541-322-7135
Stabilize banks to prevent erosion and design larger restoration projects for riverbanks	Deschutes Mitigation and Enhancement Program	541-633-1112
Add steps or dock for riverside access	Deschutes County planner OR Department of State Lands	541-388-6575 541-388-6112
Work with wildlife affecting a home or property	Oregon Department of Fish and Wildlife	541-388-6363

Top Community Resources for Riverside Property Owners

Deschutes County
www.deschutes.org, 541-388-6560
County zoning, land use permits, planning staff, weed control, wetland inventory

Deschutes County Mitigation and Enhancement Committee
541-633-1112
Information and help on issues dealing with restoring, developing, and implementing riverbank and wildlife habitat in the Upper Deschutes River Basin.

Deschutes National Forest
www.fs.usda.gov/deschutes, 541-383-5300
Wild and scenic river management, NW Forest Pass, camping, technical assistance for riverbank restoration

Oregon Department of Fish and Wildlife
www.dfw.state.or.us, 541-388-6363
Information on fish, wildlife, habitat management, fishing/hunting licenses, monitoring

U.S. Fish and Wildlife Service
www.fws.gov/oregonfwo, 541-383-7146
Threatened and endangered species, Partners Program for Fish and Wildlife habitat restoration opportunities

Upper Deschutes Watershed Council
www.restorethedeschutes.org, 541-382-6103
Restoration projects for rivers and riverbanks, education programs, monitoring

Deschutes River Conservancy
www.deschutesriver.org, 541-382-4077
Restoration of stream flow and water quality, water banking, water rights planning

Department of State Lands
www.oregon.gov/DSL, 541-388-6112
Soil removal or fill permits, management of lands, water ways, and wetlands

Deschutes Soil and Water Conservation District
www.deschutesswcd.com, 541-923-2204
Conserving soils, water quality, preserving wildlife and habitat, planning

Upper Deschutes River Coalition
www.udrc.org, 541-390-9798
Supporting neighborhoods for fire prevention, habitat conservation, river clean ups

Oregon Department of Environmental Quality
www.oregon.gov/DEQ/WQ, 541-388-6146
Protecting and enhancing air and water quality, monitoring, planning

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