Riparian Restoration

This fact sheet is one of a series written for people with rural acreage or small farms. It is intended to help you install a component that will benefit your property, protect water quality, and enhance our natural resources. This practice will benefit fish and wildlife, as well as add aesthetic value to your property. The Snohomish Conservation District offers free assistance to landowners in establishing a healthy riparian area next to streams and adding practices to protect and improve natural resources.

Snohomish
Conservation
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FACT SHEET

WHY RESTORE YOUR RIPARIAN ZONE?

There are many reasons to consider restoring creeks and streams on your property and many ways to get started. The simplest way is to plant trees and shrubs that will have immediate and long lasting effects on the health of the stream and the wildlife that lives there.

Riparian zone – Riparian zones are the areas along bodies of water (streams, rivers, wetlands and lakes) that interact with the body of water. These zones provide benefits to the aquatic and terrestrial organisms that live in the water and in the riparian zone. Riparian zones may also be called buffers, corridors or setbacks.

Restoration – Restoration is the process of repairing an area to a natural state. Restoring riparian zones may include removing non-native vegetation, amending the soils, and planting native trees and shrubs.

FISH, WILDLIFE AND WATER QUALITY BENEFITS

Minimize Erosion

The roots, trunks and branches of trees and shrubs growing in the riparian zone hold the soil along riverbanks in place and slow water down, reducing the potential for erosion. Erosion is a problem for fish and other aquatic organisms. It impairs water quality by adding silt and small particles to the water column, clogging fish gills and smothering their eggs.

Erosion is part of the natural processes that occur in undisturbed streams. In many cases, erosion is exacerbated by human disturbances such as rip rapping (rocking) streambanks, mowing to the edge of the bank and animal grazing. Be aware that upstream disturbances can affect downstream areas.

Get the advice of a fisheries biologist or habitat specialist to determine whether the erosion on your property deserves special attention. Always proceed cautiously when trying to address erosion concerns. Planting vegetation is the simplestt and least invasive way to prevent erosion. Remember that the stream will eventually decide it's own path, based on the topography and soils on the site. Giving the stream a sufficient buffer to hold high water flows and alter its' channel will lessen the degree to which it affects your land use goals.

Improve Water Quality

Trees and shrubs growing in the riparian zone keep the water cool and reduce the amount of sediment and other pollutants entering the water. Shaded streams are cooler and can hold more oxygen. Water carrying pollutants from upland sources is slowed by the roots, stems and trunks of riparian vegetation. When the water slows, pollutants settle out. Some pollutants are taken up by plants, some bind to soil particles and others are broken down by microorganisms in the soil. Trees that have fallen into the stream create areas where sediment that has entered the stream channel can settle out.

Create Diverse Fish and Wildlife Habitat

Hooker Willow

A diverse assortment of trees and shrubs including evergreen trees, deciduous trees and berry-producing shrubs will provide habitat for a variety of birds, mammals, amphibians and insects. Riparian zones provide corridors and refuges for these animals in human-dominated landscapes. Snags provide habitat for woodpeckers and cavity-nesting birds. Downed wood provides valuable habitat for amphibians and insects. Leaves and twigs that fall into the water are the base of the food chain for aquatic organisms. They are eaten by aquatic insects that in turn feed fish, birds and a host of other creatures.

Logs that have fallen into the water provide hiding places for fish, amphibians and aquatic insects. They cause the formation of pools which are important resting and hiding places for fish, and riffles, which help keep the water full of oxygen.

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RESTORING YOUR RIPARIAN AREA

The first step is to become familiar with your stream and the surrounding riparian area. Find out what types of native vegetation are already present upstream and downstream. Is the stream shaded or open? Are the banks steep or gradual? Are the banks eroding? Is your site generally shady or sunny? Carefully choose plants that can tolerate your planting conditions. Native plants are best suited to our region and historically linked to all natural processes. Conservation district staff are available to assist you with plant selection and design.

Evaluate existing soil conditions

Is the soil mostly sand, clay or a combination of both? Is the ground soggy year-round or just in the winter? See the chart below for plant selection tips based on soil and light conditions. Check your library for publications about native plants or contact your local conservation district to help you identify plants based on water tolerance. After planting, it is a good idea to apply a 2-3 inch layer of mulch or composted manure around the plants. This helps to reduce weeds, trap moisture and it provides nutrients to the plant for good growth.

Get a visual idea of where trees should go

Begin by drawing up a planting plan that details where different species can be planted, noting mature height requirements. It is important to consider the width of the planting. Riparian buffers should be a minimum of 25 feet wide on each side of the creek. Narrow buffers will not adequately protect eroding stream banks and will not allow for maximum plant and animal diversity.

Select your trees

Plant selection will largely be determined by the above factors. For quality wildlife habitat, spend some time reading about different native plants and the wildlife they support. Look around your neighborhood and find species that you like. If your project site is large, plan to complete it in stages by adding a few more trees each year. Check the list below for commonly used riparian plant species.

Red Osier Dogwood

Plan to maintain the site for 3-5 years

Maintaining the replanted area will be time consuming. A good maintenance plan will include mowing around the plants until they are above the grass height. It is a good idea to spend at least one season doing site preparation before trying to establish native plants. Site prep can include mowing, spraying and rototilling the area to remove established sod. This will decrease your first-year maintenance and result in better plant growth.

If invasive species such as Himalayan blackberry or reed canarygrass are present, you will need to remove them before trying to establish native plants. Invasive plants have strong root systems that compete for nutrients and water with native trees and shrubs. A combination of cutting and spraying both before and after planting new plants is the best formula to keep weeds and invasive plants out of the project area. There are chemical sprays approved for use near waterways. Contact your local Cooperative Extension office for a list.

When to plant?

The best time to plant is late fall through early spring. Although bare root plants will usually survive if given enough attention, potted plants have well established roots and are better able to withstand drought conditions. Cuttings are an inexpensive way to get plants established. Native plants are available at yearly plant sales held by conservation districts and at many local nurseries.

Livestock concerns

Livestock with unrestricted access to a waterway increase erosion, prevent the establishment of trees and shrubs, and impair water quality. If your livestock have access to a stream or wetland, you need to fence them out. Alternate watering sources are easy to install. Please ask SCD staff about watering options.

Are there any regulations to be aware of?

There are no regulations concerning the planting of trees or shrubs next to a stream or waterway, but permits are required for in-stream work or for moving large amounts of soil.

Plants Adapted to Stream Restoration

See next page

Plants Adapted to Stream Restoration

Common name	Botanical name	Soil						Light		
Trees		Satur-	Wet	Moist	Well-	Dr	Dry	Full S	Partial	Full Shade
Bigleaf Maple	*Acer macrophyllum*			X	X			X	X	
Black Cottonwood	*Populus trichocarpa*		X	X				X		
Cascara	*Rhamnus purshiana*			X	X			X	X	X
Douglas Fir	*Pseudotsuga menziesii*			X	X		X	X		
Red Alder	*Alnus rubra*		X	X			X	X	X	
Vine Maple	*Acer circinatum*			X			X	X	X	X
Western Hemlock	*Tsuga heterophylla*		X	X	X				X	X
Western Redcedar	*Thuja plicata*	X	X	X				X	X	X
Sitka Spruce	*Picea sitchensis*		X	X						
Willow	*Salix spp.*	X	X	X				X		
Shrubs										
Black Twinberry	*Lonicera involucrata*	X	X	X					X	X
Douglas Spiraea	*Spiraea douglasii*	X	X	X				X	X	
Serviceberry	*Amelanchier alnifolia*			X	X		X	X	X	
Hazelnut	*Corylus cornuta*			X	X		X	X	X	X
Indian Plum	*Oemleria cerasiformis*			X			X	X	X	X
Mock Orange	*Philadelphus lewisii*			X	X		X	X	X	
Oceanspray	*Holodiscus discolor*				X		X	X	X	
Pacific Ninebark	*Physocarpus capitatus*		X	X				X	X	
Red Elderberry	*Sambucus racemosa*		X	X			X	X	X	
Red-osier Dogwood	*Cornus stolonifera*	X	X	X	X			X	X	
Salmonberry	*Rubus spectabilis*		X	X				X	X	X
Snowberry	*Symphoricarpos albus*		X	X			X	X	X	
Tall Oregon Grape	*Mahonia aquifolium*			X	X			X	X	X
Wild Rose	*Rosa nutkana*		X	X			X	X	X	