

Do-It-Yourself Riparian Buffer Guide for Homeowners

Introduction to Riparian Buffers

The name “Walla Walla” means place of many waters, and that name is certainly true for a city with over a dozen creeks flowing through it. Together, these small creeks flow through more than a thousand backyards, four school campuses, three city parks and several church properties before their confluence with the Walla Walla River. These creeks add to the character and culture of the community by enhancing property values and offering many opportunities to enjoy natural beauty within the urban area. Although cool and clean at their source, the spring-fed creeks and streams are degraded as they flow through town.

Many different types of wildlife live around these waterways. The Walla Walla watershed is home to many fish species including spring chinook, summer steelhead, bull trout and lamprey. This area also has amphibians, including salamanders and frogs, numerous birds associated with riparian habitat such as warblers and water birds such as ducks and herons, and aquatic invertebrates, including freshwater crayfish, mussels and limpets.

Healthy streamside ecosystems help provide clean water for these creatures and people as streams flow through town. Riparian buffers, vegetated areas along a stream that separates the water from lawns, buildings, and other developed space, function to enhance water quality and habitat for fish and wildlife. Studies indicate that buffers containing native plants are very effective at improving water quality by filtering pollutants, stabilizing streambanks, and providing shade.

This guide will provide all the information needed to design and create a riparian buffer. It includes solutions to the most commonly encountered problems, tips for designing your buffer, a recommended list of native plants, and maintenance advice. It is designed to be a workbook, so please feel free to write on this booklet.



Long-toed Salamander



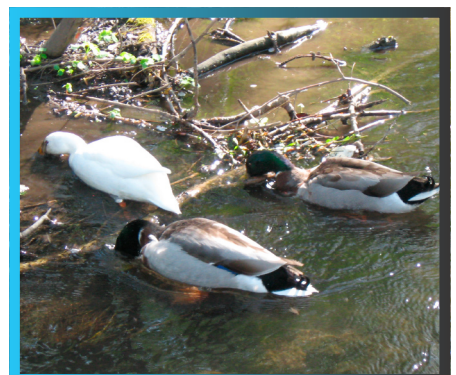
Blue Elderberry

Benefits of Riparian Buffers

- Community Pride
- More Shade
- Cleaner Water
- Cooler Water and Air Temperatures
- Pollutant Barrier
- Stream Bank Stability
- Species Diversity
- Wildlife Habitat
- More Wildlife
- Decreased Erosion
- More Green Space
- Less Flood Damage



Golden Currant



Two Mallards and a Pekin

Identifying Problems

Many home owners share common concerns about their streamside land including erosion, noxious weed growth and lack of habitat. Several streamside concerns are listed below. A check may be placed next to problems that have been identified in your backyard. To aid you in developing a plan for your backyard, possible solutions are discussed in the pages that follow.

___ **Noxious weeds** are invasive plants that aggressively spread and can harm local ecosystems. These non-native plants can kill native species by out competing them and may reduce in-stream habitat.

___ **Erosion** is the movement of soil into the stream. It often occurs on steep slopes or where the soil is either sparsely planted or bare. Sometimes the stream may scour under banks or vegetation and slowly widen the stream bed.

___ **Lack of Shade** can cause the water to become warm. Warm water does not hold as much dissolved oxygen as cooler water, making it more difficult for fish and other aquatic creatures to survive.

___ **Lack of habitat** is a common concern where there is little or no plant life along streams, including lawns planted to the water's edge. These conditions make survival difficult for birds and mammals that traditionally find food and cover in riparian areas.

___ **Sediment accumulation** can occur in areas where the stream is slowed by a widening of the channel, a dam across the creek or excessive vegetation. Controlling erosion on your property will reduce sediment accumulation downstream.



Newly planted area, currently lacking shade



Area prone to erosion

Some Possible Solutions

A healthy riparian buffer can effectively address the concerns described above. Riparian buffers provide a natural way to stabilize the ecosystem and increase the health and beauty of a stream. The guidelines below are intended to provide long-term solutions for common problems and assist with your buffer design.

Noxious weeds flourish in the streamside environment and should be addressed as part of a buffer plan. Weed removal may be accomplished by hand or by chemical treatment depending on the type of weed. Controlling weeds before they go to seed is effective at reducing the amount of future weeds. Annual weeds rely on seed dispersal for success, while perennial weeds invest in root formation. Knowing your weeds will help you plan for their demise. Please refer to the Noxious Weed Control Board for the specifics of your weed.

Many weeds may be removed by hand. If the species does not reproduce vegetatively (reproduce via stems or leaves) or have flowers that may go to seed, they may be dried and added to compost pile. If a weed is listed as toxic (for example, poison hemlock), it retains its poison even after the plant is dried and can remain toxic for a long time. For this reason, toxic plant material should be placed in the disposal bin, and not the yard waste bin, composted or burned (as the toxin can be inhaled). Weeds that clog the channel, such as water cress, are often caused by nutrient rich water. Reducing the amount of excess fertilizer from lawn application that enters the creek can reduce their growth.

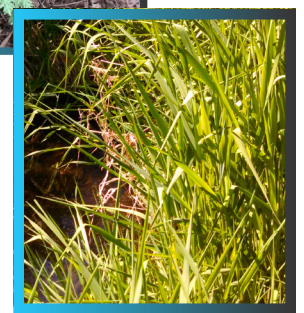
An effective method of weed control that requires more time but is less labor intensive is solarization. Plastic is laid over top the weeds and left for a period of time. The best plants to kill this way are grasses and other small plants, so that the plastic is close to the ground. Heat from the sun and lack of airflow combine to kill the weeds. This may take as few as 2 weeks or as long as 2 months depending on the weather at the time.

For chemical control of weeds, **read the label** as many herbicides are detrimental to streams and are prohibited from being sprayed within 60 feet of the water. For large amounts of weeds, it may be necessary to hire a professional who has obtained an aquatic applicator's license.

After your buffer is established and the desired plants are growing well, weeds will be forced to compete for nutrients, space, and light, reducing their vigor. Adding mulch to areas of your buffer will reduce the need for weeding.

10 Common Noxious Weeds

Poison Hemlock
Reed Canarygrass
Knotweed
Yellow Flag Iris
Himalayan Blackberry
Teasel
Canada and Scotch Thistles
Yellow Starthistle
English Ivy
Bittersweet Nightshade



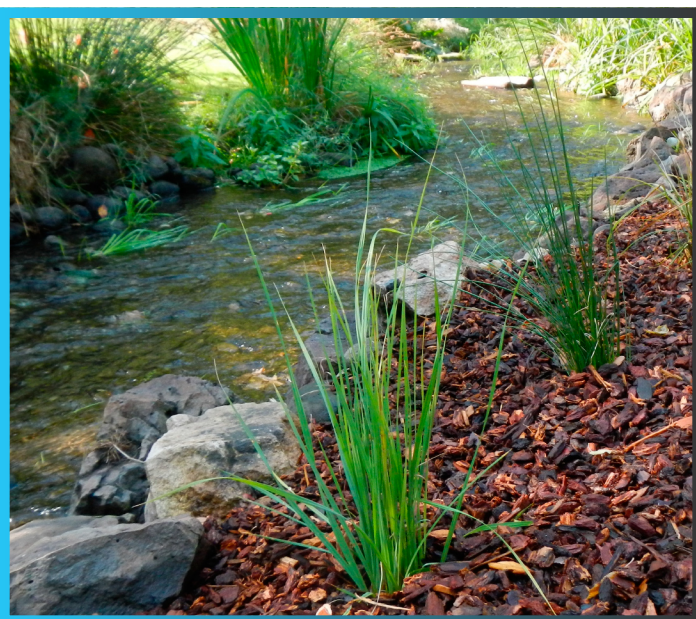
Clockwise from top left: Knotweed, Poison Hemlock, Reed Canarygrass, Teasel

Erosion control was historically achieved by hard armoring, placing rocks, concrete, and other hard material along streambanks. This is no longer a recommended practice. An ecosystem friendly method is bioengineering, where deep, fibrous roots are used to stabilize the soil. A healthy stand of deep rooted, native grasses works well as a long term fix for many eroding streambanks. For streambanks subject to forceful flows, deeply rooted trees and shrubs will likely be necessary to protect against erosion. Please refer to the recommended plant table for trees, shrubs, and grasses effective for erosion control.

When landscaping along the water, it is important to keep bare, loose, and disturbed soil from entering streams. In the short term, this can be done with wood chips, straw or other material. Please note: Working within the wet area of a stream may require state and local permits. Please contact the WA Department of Fish and Wildlife and the Walla Walla Joint Community Development Agency for any permitting requirements.

Lack of habitat and shade can be addressed by planting trees and fruit bearing shrubs. Please refer to the plant section of this guide for help choosing species.

Sediment accumulation is reduced by improving the flow of the stream. Reducing the amount of overgrown weeds that impede waterflow may decrease sediment accumulation. If you need to remove structures, such as a dam, you will need the same permits as described in the erosion section.



Grass mixtures suitable for Erosion Control:

In moist areas/water edge:

Sedges and Rushes

Dry shade mix:

60% Idaho fescue, 30% Canby Bluegrass
and 10% Prairie Junegrass

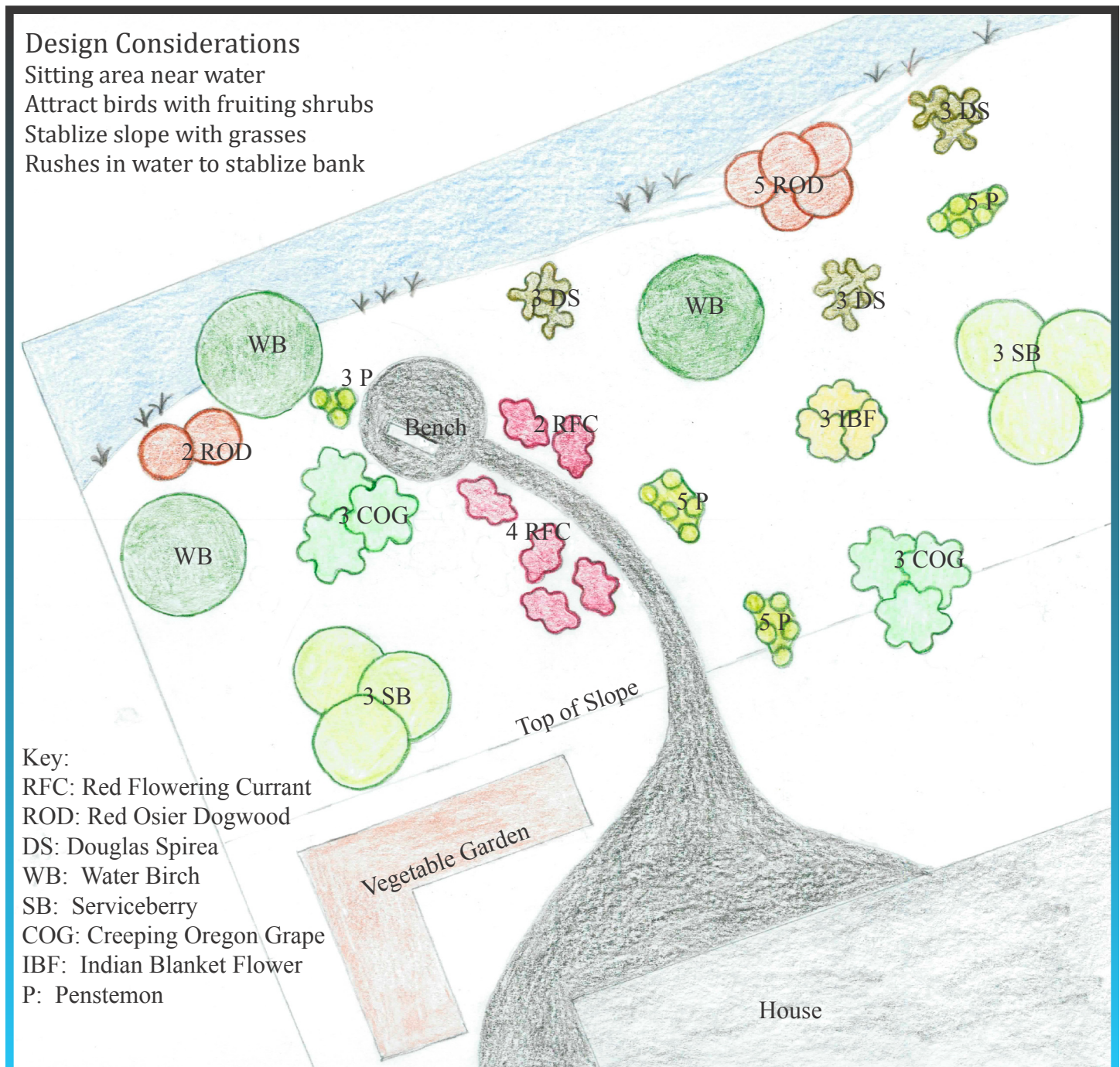
Dry sun mix:

25% Snake River Wheatgrass, 20% Idaho Fescue,
10% Big Bluegrass, 25% Indian Ricegrass
and 20% Mountain Brome

Designing a Riparian Buffer

When designing a buffer, it is important to keep in mind how you use your back yard, and what is important to you. For example, if you want to sit near the water, a curved path that leads to the water with a bench at the end may be incorporated into your plan. If the path is steep, you may wish to consider stairs or grading. Do you want to see the water? Plant a section with low growing vegetation surrounded by taller trees as a viewing corridor. Do you wish to attract birds? Plant fruiting shrubs or trees. What specific needs do you have? On the next page, try listing what you want from your buffer and then sketch your backyard and designate areas to fulfill your needs. Then, fill in plants and paths to meet those goals.

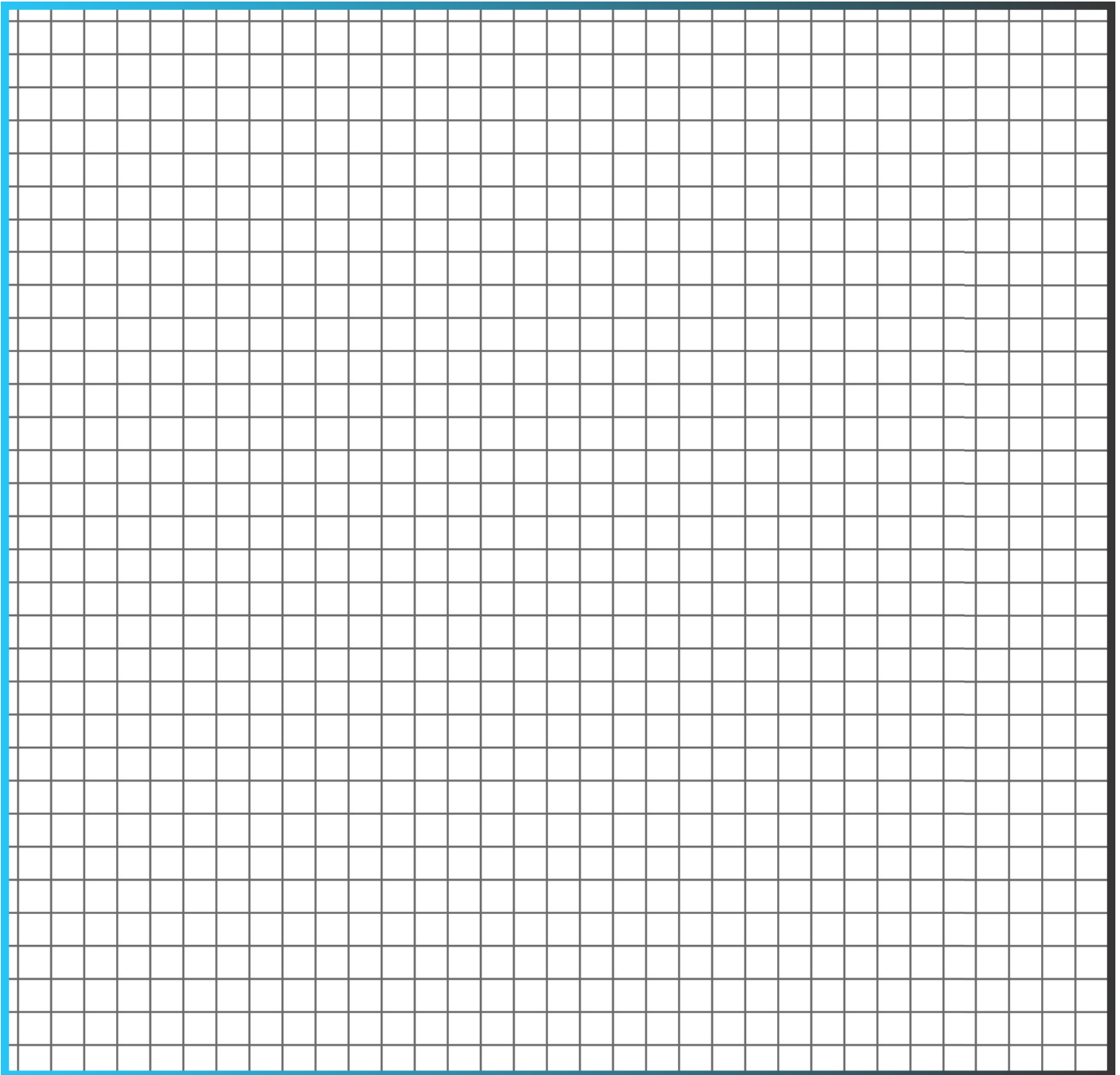
Choosing plants well-suited for the conditions in your yard will greatly improve buffer success. Moisture levels can vary tremendously, even just a few feet back from the water's edge. The amount of light reaching the area is an important consideration, not just now, but also after the planted trees grow to their full height. When planting young shrubs and saplings, it's easy to forget how big they will get and plant them too densely. The best buffers are planted in layers, with taller trees and smaller understory shrubs interspersed with perennials and grasses. To create a natural looking area, it is best to plant small groupings of like species.



Design Considerations

What are some important uses and attributes of your buffer?

Sketch your yard below, and design your buffer.





Chokecherry

Plant Recommendations

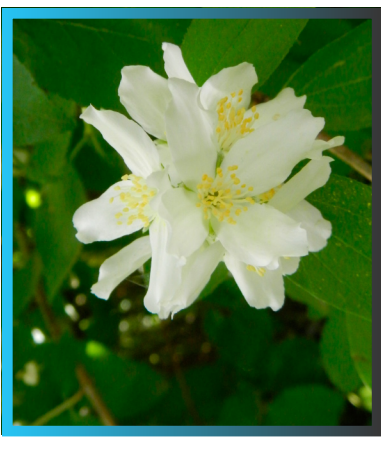
The plants recommended in this booklet are native species which have increased resistance to pests and environmental stress due to being adapted to the local environment. Native plants also use less water and require less maintenance. The following table is a list of suitable plants for this area. A blank column has been added for your own planning. Please refer to sidebar in erosin control section for grasses that may be suitable for the riparian area. Suppliers can change, local nurseries and extension offices can provide plants suitable for our climate. Online Sources are also available.

Table Key:

Light: Sun (S), Shade (SH) or Part Shade (PSH)

Water: Moist (M) or Dry (D)

Wildlife: Food (F), Cover (C) or Pollinators, such as bees and butterflies (P)



Mock Orange

Trees are the backbone of the riparian buffer. They provide shade for the stream and stabilize the soil and the ecosystem.

Common name:	Scientific Name:	Height:	Light:	Water:	Wildlife:	Additional Information:
Red-osier Dogwood	<i>Cornus sericea</i>	15 ft	S	M/D	F	Red twigs and bark add color in winter
Chokecherry	<i>Prunus virginiana</i>	30 ft	S	D	F/C	Leaves, stems and seeds are poisonous; Flowers are fragrant
Blue Elderberry	<i>Sambucus cerulea</i>	13 ft	S	M/D	F/C	Leaves and stems of the plant is poisonous.
White Alder	<i>Alnus rhombifolia</i>	70 ft	S	M		
Quaking Aspen	<i>Populus tremulooides</i>	70 ft	S	M		
Water Birch	<i>Betula occidentalis</i>	25 ft	S/PSH	M	F/C	
Ponderosa Pine	<i>Pinus ponderosa</i>	80 ft	S	D	F/C	Grows well in acidic soils
Rocky Mountain Juniper	<i>Juniperus scopulorum</i>	12 ft	S	D	F/C	
Rocky Mountain Maple	<i>Acer glabrum douglasii</i>	15 ft	S/PSH	M	F/C	
Smooth Sumac	<i>Rhus glabra</i>	8 ft	S	D	F/C	Bright red seed clusters are attractive in the fall & winter
Western Red Cedar	<i>Thuja plicata</i>	100 ft	S/Sh	M		
Western Larch	<i>Larix occidentalis</i>	80 ft	S	D	F	
Black Cottonwood	<i>Populus trichocarpa</i>	100 ft	S	M	F/C	Fast growing; May cause allergies
Pacific Willow	<i>Salix lucida</i>	50 ft	S	M	C	Can be propagated via cuttings
Scouler Willow	<i>Salix scoulerana</i>	50 ft	S/PSH	M/D	C	Only drought tolerant native willow
Douglas Fir	<i>Pseudotsuga menziesii</i>	80 ft	S	M/D	F/C	Somewhat fire resistant, due to its thick bark; Evergreen
Grand Fir	<i>Abies grandis</i>	200 ft	S/PSH	M	C	Evergreen

Shrubs help stabilize the soil and give the creek some protection and shelter.

Common name:	Scientific Name:	Height:	Light:	Water:	Wildlife:	Additional Information:
Common Snowberry	<i>Symphoricarpos albus</i>	6 ft	S/SH	M/D	F/C	Raw berries may be toxic
Coyote Willow	<i>Salix exigua</i>	10 ft	S	M	C	Can be propagated via cuttings
Douglas Spirea	<i>Spiraea douglasii</i>	7 ft	S	M	F/C/P	Flowers are fragrant
Mock Orange/Syringa	<i>Philadelphus lewisii</i>	10 ft	S/PSH	M/D		
Golden Currant	<i>Ribes aureum</i>	10 ft	S/SH	M	F	Flowers are fragrant
Red Flowering Currant	<i>Ribes sanguineum</i>	9 ft	PSH	D	F/P	
Oregon Grape	<i>Mahonia aquifolium</i>	4 ft	S/SH	D	F	Evergreen
Serviceberry	<i>Amelanchier alnifolia</i>	16 ft	S	M/D	F/C	
Mallow Ninebark	<i>Physocarpus malvaceus</i>	15 ft	S	D		Bright red leaves in the fall and the bark appears to be peeling when mature.
Oceanspray	<i>Holodiscus discolor</i>	9 ft	S/SH	M/D	C	Drought tolerant

Annuals and Perennials will filter runoff water and provide an attractive environment.

Common name:	Scientific Name:	Height:	Light:	Water:	Wildlife:	Additional Information:
Kinnikinnick	<i>Arctostaphylos uva-ursi</i>	8 in	S	D	C	Low growing vine
Common Rush	<i>Juncus effusus</i>	5 ft	S/PSH	M	F/C	
Indian Blanketflower	<i>Gaillardia aristata</i>	2.5 ft	S	D	F/C/P	Occasionally may cause a skin rash.
Blue Mountain Penstemon	<i>Penstemon venustus</i>	2 ft	S	D	P	
Rocky Mountain Penstemon	<i>Penstemon strictus</i>	3 ft	S	D	F/C	Somewhat fire resistant due to storing water in leaves
Creeping Oregon Grape	<i>Mahonia repens</i>	8 in	S	M/D		
Prairie Smoke	<i>Geum triflorum</i>	20 in	S	D		
Sticky Geranium	<i>Geranium viscosissimum</i>	3 ft	S/SH	M/D	F/P	
Oregon Iris	<i>Iris tenax</i>	15 in	S	M		
Rosy Pussytoes	<i>Antennaria microphylla</i>	15 in	S	D		
Wild Strawberry	<i>Fragaria vesca</i>	12 in	S/SH	M	F	Fruits are edible
Oregon Sunshine	<i>Eriophyllum lanatum</i>	24 in	S	D		
Columbine	<i>Aquilegia formosa</i>	3 ft	S/PSH	M	P	
Bee Balm	<i>Monardella odoratissima</i>	2 ft	S	D	P	Mint like fragrance. Grows well in Rocky Soils.
Nebraska Sedge	<i>Carex nebrascensis</i>	3 ft	S	M	F/C	

Caring for Your Buffer

The new plants will need to be nurtured for the first two years. After that, your buffer should not require much maintenance. Below are some general tips on caring for your buffer.

- **Watering:** Plants will need regular water for at least two years during July, August, and September. For the success of your new plantings, we recommend deep watering. Watering for at least an hour, once or twice a week, allows moisture to sink deeply into the soil, encouraging the roots of your new plants to follow.
- **Weeds:** Early summer is the most important time to weed. By removing the weeds before they go to seed, you will save time later. Hand pull weeds from around the young native plants to reduce competition for moisture and nutrients. Landscaping fabric or mulch will also reduce weeds. Avoid chemical sprays.
- **Fertilizer:** No fertilizers are necessary. Native plants have adapted to the local nutrient levels in the soil. Avoid “Weed and Feed” products as they are an unnecessary expense, and may also contribute to poor water quality.
- **Pruning:** Your native plants do not require pruning to stay healthy. If you wish to prune a specific plant for aesthetics, allow 3 years for the plant to become established before doing so. After 3 years, prune during dormancy when there are no leaves on the plant, generally between Thanksgiving and Valentine’s Day.



Additional Resources

More information may be found at <http://tristatesteelheaders.com/>. Please contact Tri-State Steelheaders at tssfih@tristatesteelheaders.com or by phone 509-529-3543 for any questions.

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