Caring for Streams

Conserving, Restoring, and Enhancing Stream Habitat in Southern Oregon

Illinois Valley SWCD & IV Watershed Council
Locally Led Conservation in Southern Oregon’s Illinois Valley

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Equal Opportunity Service Providers and Employers

“Caring for Streams” Booklet
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Hello, neighbor!

If you live in the Illinois Valley, chances are you live close to a river or stream. These waterways are natural beauties and are part of what makes our area such a great place to live. However, living next to a stream is not always a "walk in the park." Our waterways require our attention—sometimes, during high water, they demand it! Flooding and erosion are concerns for many landowners.

This booklet has been designed to offer suggestions about things you can do ahead of time to ensure your stream stays healthy and problem-free. Sometimes, the best defense is often a good offense. We hope you will gain some ideas about how to take care of rivers and streams on and near your land. But please don’t stop there. The professional staff at Illinois Valley Soil & Water Conservation District and IV Watershed Council (also known as the “IV Stream Team”) can provide free help with planning and possibly paying for improvement projects.

If you have any questions, we hope you will call us 541-592-3731, visit us online at www.ivstreamteam.org, or stop by our offices in the Josephine County Building, 102 S. Redwood Highway in Cave Junction.

Warmly,
The IV "Stream Team" Staff

Resources for Stream and Riparian Management

Watersheds, Wildlife, and People
The Stream Scene: Watersheds, Wildlife, and People is an extensive guide published by ODFW. The 550-page booklet can be viewed at the IVSWCD/IVWC Offices, and individual sections are available for download online at www.dfw.state.or.us/fish/STEP/resources-education.asp

Riparian Plantings
Oregon State University Extension Service offers a comprehensive guide to Riparian Tree Planting in Southwest Oregon. Search online at www.extension.oregonstate.edu or contact Jackson/Josephine County Extension Forester Max Bennett at (541) 476-6613 max.bennett@oregonstate.edu

Local Conservation Projects and Information
Visit the Stream Team—either at our offices at the Cave Junction County Building or online at www.ivstreamteam.org—to learn more about efforts to conserve, restore, and enhance natural environments in Southern Oregon’s Illinois Valley. We can offer advice and assistance with your stream concerns, and though we are not an enforcement agency, we can offer suggestions to help you meet requirements. Grant funding assistance may be available for improvement projects.

Want to get involved with local efforts to improve streams and protect water quality?

Please share what you have learned about rivers and streams with your friends and neighbors. Our office may be able to help with funding improvement projects. We would also love to hear about your successes. We are always looking to share what has worked for others in the Illinois Valley.

We invite you to join us for our monthly “Stream Team” Board Meetings, usually held the 4th Thursday of the month at 6 pm at the Josephine County in Cave Junction. Visit www.ivstreamteam.org for a current event schedule.
Riparian Vegetation Buffers
Josephine County’s Rural Land Development Code prohibits many activities in the riparian zone—an area that extends legally 25’-50’ from the edge of a waterway. The area should be maintained in stabilized vegetation, and vegetation that shades surface waters should be retained.

Contact Josephine County Planning:
Phone: (541) 474-5421
Online: www.co.josephine.or.us

The Oregon Department of Agriculture also has rules for protecting streamside riparian trees, shrubs, and grasses. To meet ODA requirements, there must be enough vegetation around streams to moderate solar heating of the water, filter pollutants from adjacent pastures and prevent stream-bank erosion.

Contact Oregon Department of Agriculture:
Phone: (503) 986-4700
Online: www.oregon.gov/ODA/NRD

Irrigation and Water Withdrawal
Removing water from streams, whether for agricultural irrigation or any use, requires a water right. According to the Oregon Water Resources Department, “Under Oregon law, all water is publicly owned...Landowners with water flowing past, through, or under their property do not automatically have the right to use that water without a permit from the Department.”

Contact Oregon Water Resources Department:
Phone: (503) 986-0900
Online: www.oregon.gov/OWRD/

Working in your stream
Redirecting stream flow or making changes to the stream channel should be avoided. A permit from the Oregon Division of State Lands or Army Corps of Engineers may be required to fill or remove material from a stream. Consult these agencies before doing any in stream work.

Contact the Oregon Division of State Lands:
Phone: (503) 986-5200
Online: www.oregon.gov/DSL

Contact the US Army Corps of Engineers:
Phone: (503) 808-5150
Online: www.nwp.usace.army.mil

Moving stranded fish
Live fish may not be moved between streams without a permit. This rule is intended prevent invasive species and predators from being introduced to new areas, as well as to protect native fish populations. A permit from the ODFW is required to capture and move all species of fish in Oregon.

Contact the Oregon Department of Fish and Wildlife
Phone: (503) 947-6253 or (503) 947-6254
Online: www.dfw.state.or.us/

Stream – a body of water with a current, confined within a bed and stream banks.

“Stream” is a general term for a moving body of water. Depending on its locale or certain characteristics, a stream may be referred to as a branch, brook, creek, “crick”, slough/slew, gill, lick, bayou, streammage, wash, run, or even river.

Rivers are generally accepted to be larger than streams, but there is no consistent definition that makes a distinction between the two. In this booklet, we will use “stream” to refer to all types of moving water, large and small.

All of the "streams" in the Illinois Valley eventually make their way to the Illinois River. Another way to say that is, all streams are part of the Illinois River Watershed. A watershed is an area of land that all drains to the same body of water. The line that marks the edge of our watershed follows the tops of hills and ridges—that’s why watersheds do not have straight edges.

A closer look at seasonal streams
Not all streams flow year ‘round. Perennial streams, streams with water during all seasons, are usually the largest and most noticeable streams.

However, intermittent (or seasonal) streams, which only flow during part of the year, are also very important. Intermittent streams can still cause erosion and flooding and are important to wildlife.

All of the information in this booklet applies to both perennial and intermittent streams.
The Value of Streams

**How streams can enhance your property**

In addition to the natural beauty they provide, streams contribute to many positive aspects of your property. Here are some ways:

**Increased property values**

Studies have shown that houses with natural streams have higher appraised values, and the closer a property is to a natural area, the higher the value. A well-managed stream is definitely an asset to your land.

**Source of irrigation water**

If you have a water right for your stream, it can be a source of increased productivity for your land during dry summer months. Additionally, water enters the ground near and around the stream channel, creating naturally “irrigated” areas close to the stream.

**Attract wildlife**

Over ninety-four percent of Western Oregon species use streams and their surrounding riparian areas as sources of water and habitat. Keeping your stream in good condition can make your land attractive to waterfowl, native fish, deer, and many, many other species. See page 9 for more information.

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**Riparian Shrub Species**

There’s more to healthy riparian areas than just trees. Consider planting shrubs to add variety of plant types and heights to the vegetation in your riparian buffer. Certain shrub species can be used to attract butterflies and to provide food for wildlife.

**Chokecherry**

*Prunus virginiana*

Grow best on stream banks and upper banks. Plants have medium tolerance to flooding and drought, but does not grow well in shade. Good wildlife species.

**Willows**

*Salix spp.*

Willow grows best close to stream channel. Plants have a high tolerance to flooding, but do not grow well in shade and drought. Willows range in size from tree-size to large shrubs. Plants root well from cuttings, and are well suited to bank stabilization.

**Red-osier dogwood**

*Cornus stolonifera*

Dogwood grows best on stream banks. Plants have medium tolerance to flooding and shade, but do not tolerate drought. Medium to tall understory shrub. Roots well from cuttings.

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**We all live downstream.**

Everything we do upstream can have an effect on people, plants, animals, and natural systems downslope and downstream. Taking good care of your stream is not just important for you, it is important for everyone else in our Valley.

The Illinois River drains into the Rouge River and eventually the Pacific Ocean. That’s a lot of “downstream,” and a lot of neighbors who are relying on us to take care of our watershed!

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**Where to find seedlings.**

Many local nurseries are excellent sources of trees and shrubs for riparian planting. Additionally, some trees and shrubs (noted above) can be grown from cuttings of nearby, local plants.

The “Stream Team” regularly contributes to volunteer riparian planting efforts. If you need help finding seedlings, or people to plant trees, please let us know. Our staff is happy to offer recommendations and assistance.
**Riparian Tree Species**

**Incense Cedar**  
*Calocedrus decurrens*  
Grows best on upper banks and floodplain. Low tolerance to flooding, but highly tolerant to drought. Grows slowly. Is a source of woody debris over the long term.

**Bigleaf Maple**  
*Acer macrophyllum*  
Grows best when planted above the stream banks. Medium tolerance to flooding and drought; highly tolerant to shade. Lives longer than cottonwood and alder. A soil builder.

**Ponderosa Pine**  
*Pinus ponderosa*  
Grows best on upper banks and floodplain. Medium tolerance to flooding, but highly tolerant to drought. Does not do well in shade. Long-lived and source of large woody debris. Better than Douglass fir for droughty sites in SW Oregon.

**Black Cottonwood (& hybrids)**  
*Populus trichocarpa* (x)  
Grows best on stream banks and upper banks. High tolerance to flooding, but low tolerance to drought and shade. Well-suited for shade and bank stabilization. Root well from cuttings.

**Challenges with streams**

**Erosion and Flooding and Pollution—Oh my!**

Just as streams make many positive contributions to the land, they may also cause some problems.

With peak winter flows, erosion and flash flooding are not uncommon. It is important to understand where your stream’s **floodplain** is located. The floodplain is not a good place to build your house, barn or garage. You can read more about floodplains on page 6.

Pollution is always a concern for streams. When you think of pollution, you may think of chemicals spewing from a factory or garbage and litter floating in your waters. These are some types of pollution, but there are other, less obvious types as well. Runoff from fertilizers or manure piles or even too much dirt washed into the stream or are also sources of stream pollution in the Illinois Valley.

One way to limit the challenges streams can cause is to establish healthy and robust **riparian buffers**. Riparian buffers are areas next to streams or other waterways that have been protected to allow native plants to grow. You can read more about riparian buffers on page 10.

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Learn more.

Oregon State University Extension Service offers a comprehensive guide to Riparian Tree Planting in Southwest Oregon (the information source for this page).

Search online at [www.extension.oregonstate.edu](http://www.extension.oregonstate.edu) or contact Jackson/Josephine County Extension Forester Max Bennett at (541) 476-6613 or max.bennett@oregonstate.edu

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Characteristics of a Floodplain

![Characteristics of a Floodplain](image-url)
Erosion: Causes and Control

Stream functions and implications

The “root” of the problem
Erosion—and resulting sand/rock deposits and meandering streams—are completely natural and necessary process. That does not mean they are not problems for landowners. Many of our streams and their surrounding riparian areas have been altered from their natural state, and these changes can contribute to problems with erosion.

Erosion is more likely to occur on bare soil than on areas thick with plant life. That is why keeping the land next to streams full of healthy, varied vegetation is so important. The image of flooding on page 4 shows the erosion that can happen when streamside riparian areas are left “naked” and unprotected.

As you have probably noticed, fast-moving water causes more erosion. Streams may move faster because they have been straightened or because they lack in-stream logs and boulders to slow water. However, the solution to erosion is not just to “throw some rocks in the stream to slow things down”. This is likely to only shift the problem upstream or downstream. (Additionally, this sort of in-stream work often requires permits.)

How to learn more
Unfortunately, there is no “one size fits all” fix for eroding streams, and there are many factors to consider. A visit with a hydrologist or stream restoration specialist from your local Watershed Council can help you make sense of your stream system.

Riparian Buffers

Steps to restoring your Riparian Zone

Before

After

Protect the area from overuse
If your stream flows through a pasture, fencing off a portion of the stream and allowing animals to water at specific places is suggested to improve conditions. Our organizations may be able to offer funding assistance for riparian fencing projects.

Additionally, protecting riparian areas may be required by law. Josephine County prohibits many activities in the riparian zone—an area that legally extends 25’-50’ from the edge of a waterway. The Oregon Department of Agriculture also has standards for protecting streamside riparian trees, shrubs, and grasses.

Restore native vegetation.
Native plants are adapted to thrive in our environment. Unlike Himalayan Blackberries—a poor choice for streamside riparian areas—native plants have sturdy root systems that will keep soil in place. Plan for a variety of plant types. A mixture of mature trees, shrubs, and grasses are the best bet for a healthy riparian buffer that will keep your stream well-vegetated. Some suggested species are on pages 11-12.
Stream Habitat: Fish & Wildlife

Healthy vegetation = healthy streams

Wildlife Habitat
Over 350 species of Western Oregon wildlife species strongly rely on healthy riparian areas, while 29 species use riparian areas exclusively. Keeping your stream and your riparian area in good health is excellent way to attract wildlife.

Waterways attract ducks, geese, and other waterfowl, and plant life provides cover for these birds. In fact, many species of native birds require riparian areas for breeding. Fencing to keep cats and dogs out of riparian zones can help make these areas even more friendly to birds and wildlife.

Fish-Friendly Streams
For native salmon and other fish species, healthy streams are extremely important. Riparian areas help create fish-friendly habitat by limiting the amount of sediments and other pollution that enter streams. Riparian areas also shade streams to keep water temperatures cool. Salmon species require average stream temperatures below 64°F. However, all major streams in the Illinois Valley are warmer than this.

Do not relocate fish from one stream to another. When seasonal streams dry out, fish can become trapped in the remaining pools. However, in Oregon it is illegal to catch and move live fish to another stream without a proper license. (This is partly to make sure invasive species are not moved into new areas.) IVSWCD and IVWC can help connect you with people who can take care of struggling fish.

If you irrigate, use fish screens on diversions and pump stations.
Examples of diversion and Pump screens are shown to the right.

Although flooding is a natural and essential process for waterways, that does not mean floods do not cause problems. But what causes floods?

Floods occur when there is more water in the landscape than can effectively flow downstream. Simply put, floods are an imbalance in our water system. Several different conditions can cause this:
• Heavy rainfall over a short period
• Runoff from a deep snowpack
• Over-saturated soil, when the ground can’t hold more water
• Frozen soil
• Wood and debris jams in rivers

There is little we can do about the amount of snow and rain we receive, but by creating buffers of riparian vegetation it is possible to slow the way rain water enters streams. Slower rates of water flowing into streams can reduce the chance of flooding.

What determines where a flood occurs? Usually, the slope of the land limits where flood waters can flow. The floodplain is a large, flat area near a stream that is likely to be flooded. There are often limits on building houses or other structures in the flood plain and near streams. Some areas are intentional flood plains, designed to “hold” water and limit flooding further downstream. The riparian zone (see page 7) is part of the floodplain and an important part of stream health. When a section of stream has steep, narrow banks, that portion of the stream is not likely connected to its floodplain. This can cause serious problems downstream.
What is a Riparian Zone?

Healthy vegetation = healthy streams

What does riparian mean? The word “riparian” (pronounced rip-air-een area) comes from the Latin word for stream bank.

A riparian area is a terrestrial zone where annual and intermittent water, a high water table, and wet soils influence vegetation and microclimate, according to the Oregon Department of Fish and Wildlife.

A simpler definition of “riparian” is simply, next to a body of water. The land next to your stream is in the riparian zone. (Riparian zones can also be called riparian areas and riparian buffers.)

How big is a Riparian Zone?

The size of a riparian zone differs based on the size of the body of water and the surrounding land. For example, a stream surrounded by steeply sloping land has a different size and type of riparian zone than a stream that flows across a flat plain. Also, different parts of the riparian zone have different functions, as shown in this diagram.

Riparian Zones & Stream Health

Functioning riparian zones are essential for stream health

As the diagram on the previous page shows, riparian zones perform many important functions.

• Control water temperature
  Although riparian buffers may contain a mixture of plant types, trees, and shrubs, tall trees are able to shade the water in the stream. Cooler water is good for everyone who wants to swim in a stream—fish and people.

• Stabilize streambanks
  The root systems of riparian plants work together to hold soils in place, reducing erosion and undercutting. It is important to consider the types of plants growing in riparian zones. Although Himalayan blackberries are common throughout the Illinois Valley, their shallow root systems are not very good for controlling erosion.

• Filter and remove nutrients and sediments
  Riparian plants slow down the water flowing into streams, allowing nutrients and sediments to drop out before the water enters the stream.

• Mitigate (Control) Floods
  Just as we can walk or drive more quickly across pavement than through heavy underbrush, water also moves more slowly in areas with thick plant life. Although surface water will eventually flow into the stream, riparian plants can slow down the process while allowing some of the water to soak into the ground.

• Stabilize Summer Flows
  Riparian zones collect and store water and save it for later use. A slow release of groundwater allows streams to recharge more consistently in drier, low-flow seasons. Riparian plants also shade soil and water to limit evaporation.

• Provide Wildlife Habitat
  In addition to providing drinking water, stream corridors are places for wildlife to travel and make their homes. Having a variety of plant types in your riparian zone will help to attract a different types of wildlife. See page 10 to learn more.