



# Watershed Events

Glenn and Gibson Creeks Watershed Council Newsletter

Winter 2021-22

## Who Needs Riparian Corridors?

According to the experts, almost everyone...

**“While riparian areas are very limited, they play such an important role in the landscape that they have been called the aorta of an ecosystem.”**

**Oregon’s Living Landscape, Defenders of Wildlife**

## Biodiversity

The importance of riparian corridors in biodiversity is demonstrated by the number of wildlife species that use riparian and wetland habitats during some portion of their life. Of the total of 414 species of amphibians, reptiles, birds and mammals in Oregon and Washington, 359 or 87% frequent or are dependent upon these habitats. Approximately 29% depend upon the riparian zone. In parts of the western United States more than 10 times as many birds use riparian zones during migration as any other habitat.

This diversity is echoed in plant communities. Riparian wetlands and forests of the Pacific Northwest are the most diverse communities of the region.

Vertical diversity includes grass and forb ground cover, low shrubs, subcanopy and canopy.

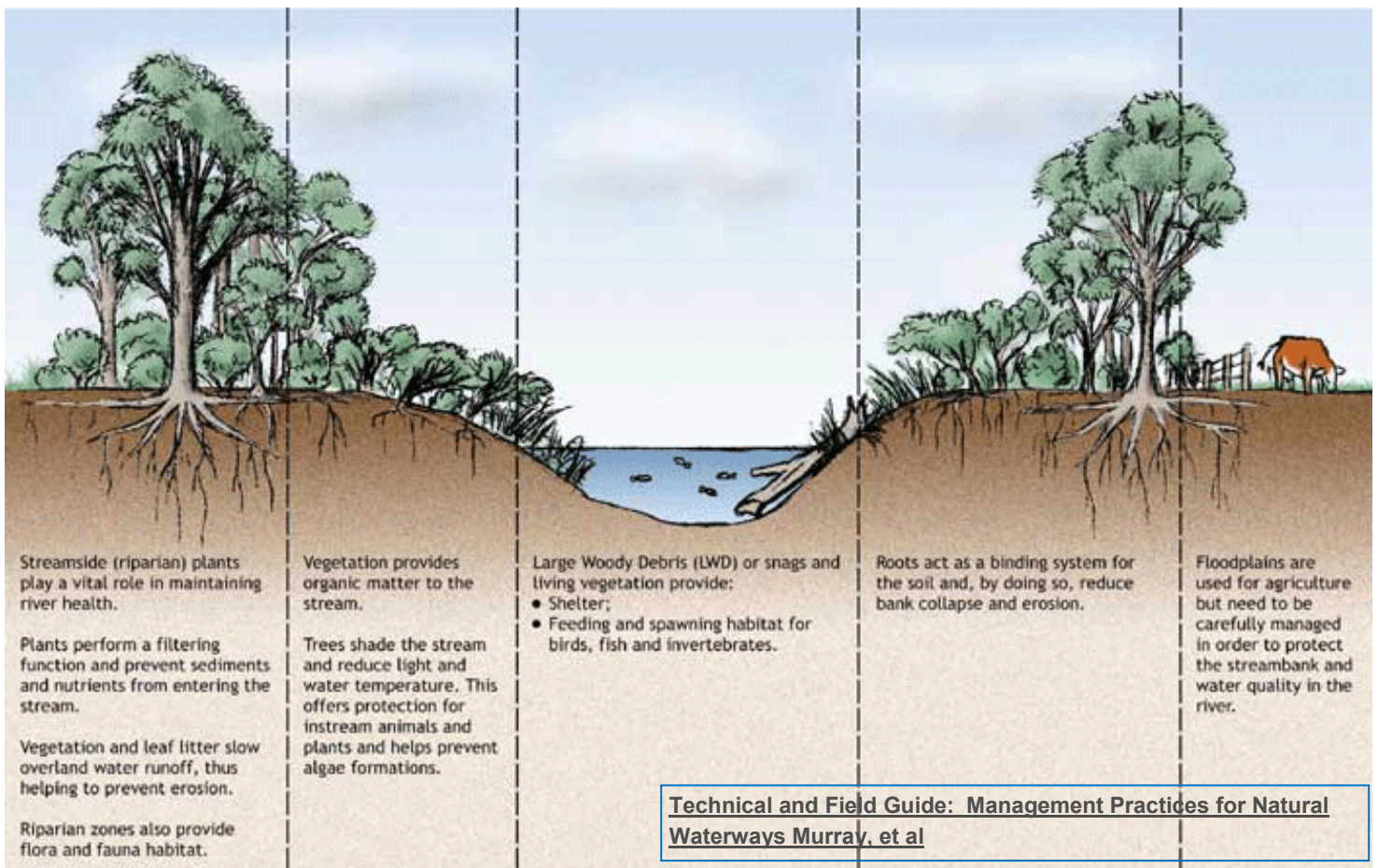
Restoring Rare Native Habitats in the Willamette Valley  
Bruce H. Campbell

## Water Quality and Quantity / Floodplain Protection

Riparian corridors affect water quality by filtering stormwater run off. Riparian vegetation slows flood waters, allowing sediments to fall out. Riparian trees and shrubs shade streams, keeping water temperatures lower, and maintaining higher levels of oxygen. Wetlands are often associated with riparian zones. They act like sponges, storing water in times of high flows and slowly releasing water during dry times.

Riparian corridors have high natural values and they are hazardous for human development because they are frequently floodplains. If we reserve riparian corridors for nature, for water quality and quantity, and for carbon sequestration, we protect both the natural and the developed world.





- Wikipedia information: **riparian zone or riparian area** is the interface between land and a river or stream.
- Riparian is also the proper nomenclature for one of the terrestrial biomes of the Earth.
- Vegetation and communities along the river margin and banks are called riparian habitat and are characterized by hydrophilic plants.
- Riparian zones are important in ecology, environmental resource management, and civil engineering because of their role in soil conservation, their habitat biodiversity, and the influence they have on fauna and aquatic ecosystems, including grasslands, woodlands, wetlands, or even non-vegetative areas.
- In some regions, the terms riparian woodland, riparian forest, riparian buffer zone, riparian corridor, and riparian strip are used to characterize a riparian zone.
- The word riparian is derived from Latin ripa, meaning "river bank".

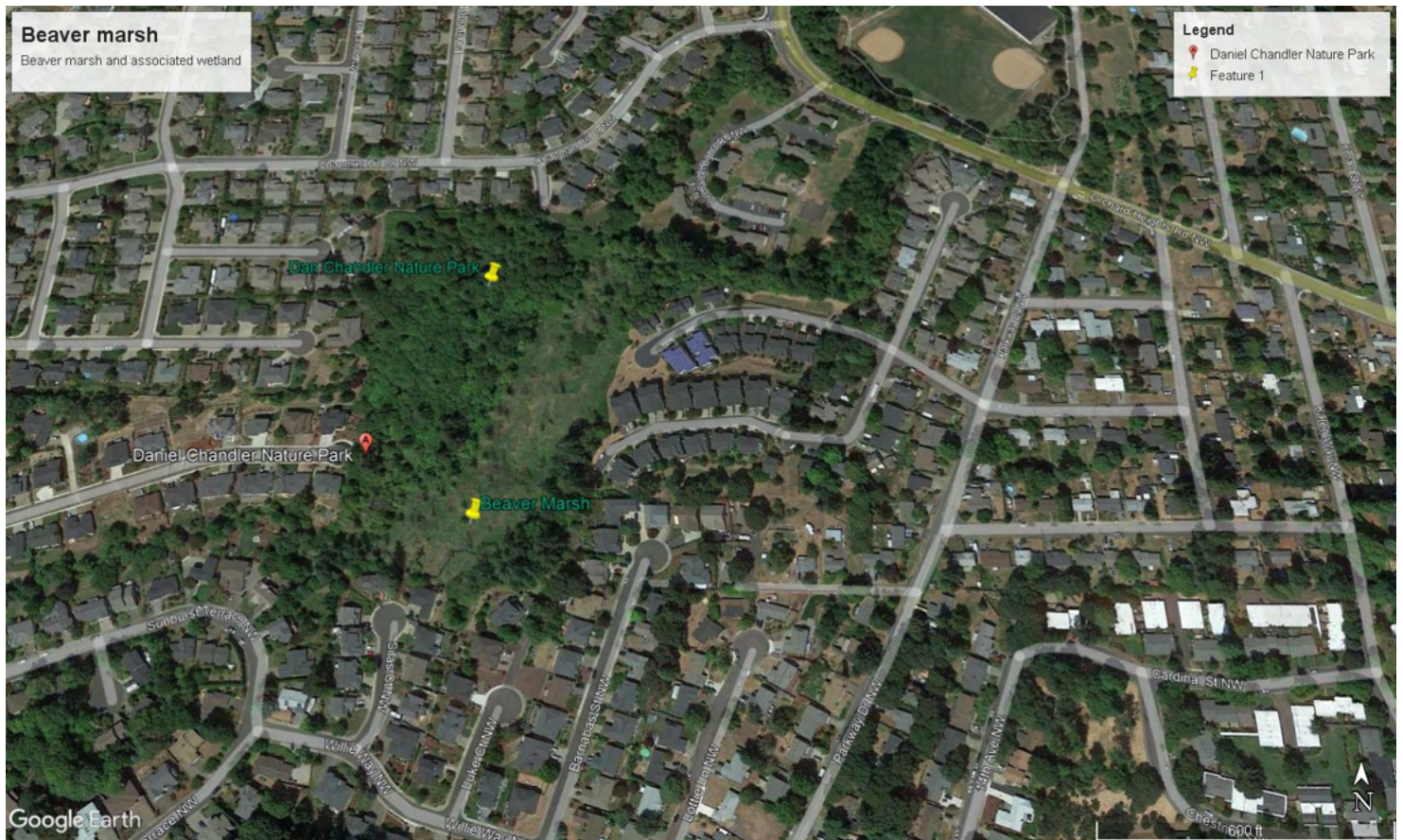
## Carbon Sequestration

Researchers around the world are studying the potential for carbon storage in riparian corridors. Studies indicate carbon storage potential is directly proportional to the complexity of the riparian corridor, with unaltered corridors providing the greatest carbon storage. The greater the alteration, the less carbon storage capacity.

*Natural river systems are complex, 'messy' and retain water, nutrients and carbon. Modified river systems are simple, 'neat' and designed to keep water moving. These systems are carbon poor. It is estimated that modified river systems store less than 2% of the carbon they used to. Professor Elaine Wohl*

<https://riversofcarbon.org.au/resources/the-science-of-riparian-carbon/>





In the Glenn Creek Watershed, the beaver marsh and wetland at the base of Dan Chandler Nature Park is an important feature protecting biodiversity and providing water quality, carbon storage and flood control. More about the beaver marsh on page 4.

## Aquatic life

Rooting herbaceous and woody vegetation helps shape aquatic habitat and stabilizes streambanks, retards erosion, and, in places, creates overhanging banks that serve as habitat for fish. Trapping sediment before it reaches the stream helps maintain a cleaner or more sediment-free stream bottom where aquatic organisms live. These organisms are important sources of food for fish and birds.

## Terrestrial life

Riparian ecosystems are extremely productive and have diverse habitat values for wildlife. This is demonstrated most visibly in the western United States, where riparian habitat comprises less than 1 percent of the total land area at some time of the year but supports most of the terrestrial wildlife. The linear nature of riparian ecosystems provides distinct corridors that are important as migration and dispersal routes and as forested connectors between habitats for wildlife. This is particularly important as corridors through the urban landscape.

## Wetlands

Some riparian areas meet the criteria established for wetlands. The functions of wetland and riparian areas generally depend on configuration, soils, vegetation, hydrology, and landscape context. Even non-wetland riparian areas share many characteristics, functions, and values with wetlands; such as surface or ground water, or both, and several varieties of plant and animal communities.

## In Our Own Backyard: the Beaver Marsh at Dan Chandler Nature Park

This beaver marsh and wetland rank as one of the most important natural features in our watershed. Beaver activity has resulted in a complex creek system, with many creek channels wandering through the meadow. Over time, the beavers and the flooding resulting from their dams has created tree snags and downed trees which, in turn, act as habitat for cavity nesters of all kinds. Dead and downed trees attract insects and become food sources for a wide variety of wildlife from bats to songbirds. They provide basking habitat for turtles, roosting and nesting habitats for water birds, and cover for small mammals.

In times of high precipitation, the beaver marsh captures stormwater run off, allowing particles to settle out of the water. Water quality improves, and the receiving soil at the bottom of the floodplain benefits from the added nutrients that settle out. This action is what makes flood plains so fertile and prime growing places for plants of all types.

Also in times of high and swift water, the beaver marsh meadow and creek system creates refugia for the resident Cutthroat trout that call Glenn Creek home. The beavers are cost effective and skillful ecosystem engineers, restoring healthy watersheds as part of creating their home. It is difficult to overstate the environmental importance of beavers. As author Ben Goldfarb states in his book Eager, the Surprising, Secret Life of Beavers and Why They Matter, "Beavers are environmental Swiss Army knives, capable of tackling just about any ecological dilemma. Trying to slow floods or filter out pollution? There's a beaver for that. Hoping to capture more water for agriculture in the face of climate change? Add a beaver."



More about riparian corridors, wetlands, and beavers

Beaver: Nature's ecosystem engineers  
<https://doi.org/10.1002/war2.1494>

Riparian areas; reservoirs of diversity:  
[https://www.nrcs.usda.gov/wps/portal/nrcs/detail/?cid=nrcs143\\_014206](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/?cid=nrcs143_014206)

Peaceful Coexistence with beavers:  
<https://hawriver.org/peaceful-coexistence-with-beavers/>

<https://www.beaverinstitute.org/management/tree-protection/>

<https://www.dfw.state.or.us/wildlife/livingwith/beaver.asp>

## Challenges and Rewards of Living with Beavers

If you are lucky enough to live with a beaver in your backyard, you understand that it comes with challenges. You have to be prepared to protect any plantings, sometimes repeatedly. You have to be prepared to change your notion about what a healthy stream looks like.

Here is the payoff: you get a front row seat for one of nature's most amazing shows - the transformation of a degraded watershed, with eroding streambanks and limited biodiversity into a meandering stream system through a ponded meadow with a diverse cast of characters from birds to bats and butterflies, racoons to rabbits and deer and everything in between.

You get richer soils, the opportunity to grow native trees, shrubs and flowers more successfully, creating better habitat and greater biodiversity. You become part of a healthier watershed, creating a system for clean water, groundwater recharge and floodwater storage.

Beaver removal either by trapping for lethal removal or trapping for relocation is expensive and usually ineffective. Beavers almost always return to recolonize the place they have chosen as their home and they bring their children and cousins. Living with beaver is a process and requires some readjustment but it can be done and can be rewarding, as they are very interesting creatures. Here are some tips:

Rethinking how streams should look: Most of us think of streams as straight and fast moving, when actually, these conditions create eroding streambanks and down cut streambeds. Healthy streams meander and are connected to floodplains that receive floodwaters in times of high flows. Beaver dams can and do restore these healthy stream conditions to watersheds. Beaver colonies are an environmental lifesaver.



**Healthy stream; meandering channel, ponded water, close connection with floodplain.**



**Degraded stream; stream-bank erosion, down cut streambed, stream isolated from the floodplain**



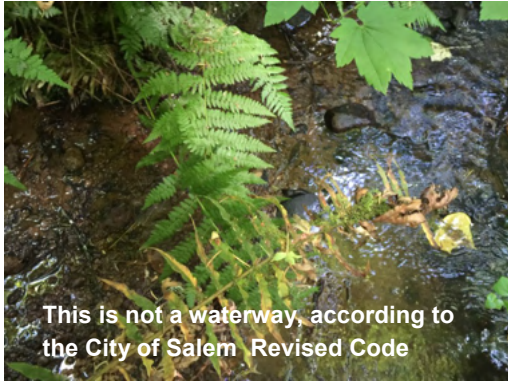
Protecting plantings: if you choose to plant along streambanks, and we hope you do, think native. Native trees and shrubs provide multiple benefits and require less care. Protection for the plantings includes fencing, sand painting tree protection, and taste aversive tree protection.

<https://www.beaverinstitute.org/management/tree-protection/> This web page from the **Beaver Institute** contains the best tips we have found to coexist with beavers and protect plantings. It contains information about beavers, their habitats and why they are so important. Readers can sign up to receive information, support, and tips about how to live with beavers.

## Are Riparian Corridors Protected?

**Riparian corridors** are generally acknowledged to be critical habitat, vital in maintaining healthy streams, with a crucial role in good water quality, regulating water levels, and a high potential for carbon sequestration. Yet, surprisingly, protections are weak to non-existent at all levels of government. Most riparian areas are privately owned, so conservation and restoration of these areas largely depends upon landowners.

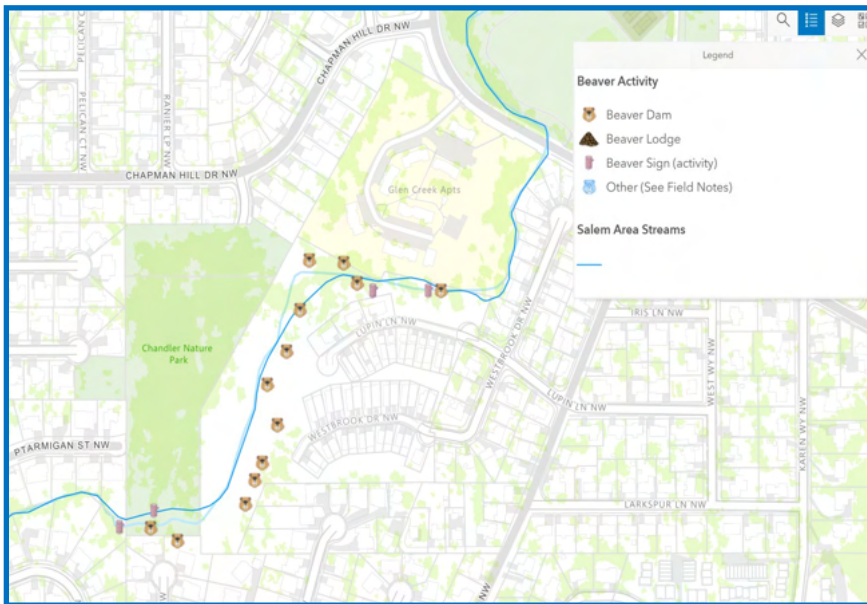
**Definition and Description:** The width of riparian corridors or zones in nature varies depending on the steepness of the slope, the meander of the stream and the condition of the watershed, yet all levels of governmental regulation legally define riparian corridor boundaries by a specific measure of feet from the top of bank, not by physical characteristics such as soil or vegetation type.



Salem's legal recognition of the existence of a riparian corridor depends upon whether the Public Works Director has defined the stream as a "waterway". If a stream has not been designated as a waterway, its riparian corridor does not officially exist, and is afforded no protection.

The City of Salem regulates the removal of trees and native vegetation within riparian corridors but offers a list of exemptions from regulation broad enough that riparian corridors in the City have no real protection. For example, Salem Revised Code (SRC)

808.035 (3) states that " *No trees or native vegetation in a riparian corridor are designated for removal **unless** (emphasis added) there are no reasonable design alternatives that would enable preservation of such trees or native vegetation.*" This regulation does not define "reasonable design alternatives", nor does it identify the scope of uses and activities permitted in the riparian corridor upon tree removal.



A map of beaver activity along this reach of Glenn Creek\*. The beaver marsh is protected as a wetland but development has been allowed close to the marsh and, as a result, this natural area receives less protection and neighbors experience greater contact with the wildlife that inhabit the marsh for better or worse.

\* City of Salem map

Polk County regulates riparian corridors along streams that are designated as significant and defines a specific width based upon the width of the stream. As with City of Salem regulation, many exemptions and exceptions substantially reduce the level of protection.

The State of Oregon regulates riparian corridors through State Land Use Planning Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces, Rule 660-023-0090. Local governments are required to inventory resources or to use the Safe Harbor Rule, which designates a 50' or 75' setback from all fish bearing bodies of water. The City of Salem uses the Safe Harbor Rule. The City has never gone through the Goal 5 inventory process.

A recently passed Oregon Administrative Rule requires a 100 ft stream setback from mixed use developments.



Interested in restoring and maintaining your riparian area? We are here to help. Email us at [info@glenngibsonwc.org](mailto:info@glenngibsonwc.org) More information about how to help preserve riparian corridors on page 8



# How to Help Preserve and Restore Riparian Corridors

## Appreciate nature - preserve and restore

Whether you live along a stream or in an upland area, notice and appreciate native plants, birds and wildlife. Learning about the life around us is rewarding and a never ending source of interest. Flooding happens seasonally in our watershed, enriching the life within it. If you do live along a stream and would like to preserve or restore the riparian corridor, the Glenn and Gibson Creeks Watershed Council is here to act as a resource for information and possibly funding through grants. Reach us at [info@glenngibsonwc.org](mailto:info@glenngibsonwc.org)

## Help others understand the importance of riparian corridors

We have tried to provide clear information about the biological importance of riparian corridors in this issue of Watershed Events, but our newsletter might not reach everyone. When opportunities present themselves, we hope that you will help your friends and neighbors understand the degraded nature of our Glenn and Gibson Creeks watershed and the importance of preserving and restoring our riparian corridors moving forward. Many residents are not aware of how this watershed has changed over time. We become so used to degraded landscapes that we accept them for normal when in fact, they are merely remnants of the richness that once existed.

Healthy streams are not straight, fast moving, or incised (down cut). Healthy riparian corridors are broad, complex, and include the *meander belt* of many channels of the stream, with a wide border of many vertical layers of trees, shrubs and low vegetation.



## Become an advocate

Riparian corridor protection is an achievable goal if there are enough advocates. Contact your elected officials at all levels. Let them know you support riparian corridor protection. Become involved in public processes. There are many opportunities to comment and let your voice be heard through the West Salem Neighborhood Association (WSNA) and the Glenn and Gibson Creeks Watershed Council. Most development in the watershed must go through a public process and you can become involved by writing letters to or calling your public representatives, volunteering to serve on a board or commission, and/or attending public meetings, many of which now offer remote attendance option. See the City of Salem Public Meeting Calendar for details about upcoming public meetings: <https://www.cityofsalem.net/calendar-meetings>.

WSNA Land Use Chair Steven Anderson: [andersonriskanalysis@comcast.net](mailto:andersonriskanalysis@comcast.net)

Salem City Council: [citycouncil@cityofsalem.net](mailto:citycouncil@cityofsalem.net)

Polk County Commission: <https://www.co.polk.or.us/boc>

Oregon State Representative Paul Evans [Rep.PaulEvans@state.or.us](mailto:Rep.PaulEvans@state.or.us)

Oregon State Senator Deb Patterson [Sen.DebPatterson@oregonlegislature.gov](mailto:Sen.DebPatterson@oregonlegislature.gov)