

# Managing Riparian Areas for Fish and Wildlife

The following are general guidelines for managing riparian areas to help protect fish and wildlife.

## To Protect Wildlife Habitat

- A riparian area that will truly benefit wildlife often means a much larger area (with a complex diversity of plants) than what is needed for water quality and erosion control purposes.
- Width depends upon the desired species and how much land is available. Narrow riparian corridors are often edge-type habitats which attract disproportionate numbers of predators such as blue jays, crows, brown-headed cowbird, raccoons, skunks, foxes, and domestic pets.
- The larger and more diverse the area, the more habitat value it provides. Larger animals and interior forest species generally require more room. Some species require so much habitat that it is nearly impossible to protect the full range. However, because small or isolated patches of habitat are vital to migrating birds, even patches are better than no habitat at all.
- Continuity is important — even a narrow width can act as a wildlife travel corridor that connects larger areas of habitat. When restoring a riparian area, it is beneficial to connect existing natural patches of vegetation.
- Riparian areas should be maintained or restored in an undisturbed, naturally vegetated state. Noxious weeds, such as Himalayan blackberry and periwinkle, should be avoided.
- Identifying and safeguarding the following natural features within riparian areas will also help protect wildlife:
  - large trees overhanging the water (for bird feeding perches)
  - large dead standing trees (for hawk and eagle nesting and roosting)
  - large cavity trees (nesting by owls, wood ducks, mergansers & others)
  - large dying trees (bats roost under loose bark)
  - seasonal and vernal pools (used by amphibians for breeding)
  - understory tangles (cover for many wildlife species)
  - large woody debris in streams (basking areas for turtles, fish habitat)
  - streambank burrows (homes of weasels, otters, muskrats)
  - sandy soils with good sun exposure (used by turtles as nesting areas)
  - stone walls and rock piles (snakes and small mammals)
  - large stands of conifer trees (used by deer as wintering areas)
  - hollow trees and logs (suitable as dens for many mammals)
  - fallen shaded logs (preferred habitat for many salamanders)



Planting native riparian plants along a creek that supports steelhead trout

## To Protect Cold Water Fish

- The wider the riparian area, the healthier the aquatic food web.
- Make sure the stream channel is shaded completely. Encourage and/or plant native trees which will grow tall enough to shade the stream.
- Leave large woody debris in streams to provide cover for fish.

For more information about the management and restoration of riparian areas, call or visit:

**Natural Resources Conservation Service (NRCS) or Napa County Resource Conservation District (RCD)**

1303 Jefferson St, Suite 500B, Napa, CA  
707/252-4188  
www.naparcd.org

A great deal of the NRCS and RCD energy is devoted to assisting landowners with riparian area management and restoration. Technical and financial assistance may be available.

### Sources

Napa County RCD. 2005. *Caring for Creeks: Management Tips for Streamside Property Owners in Napa County*. Call the RCD for a free copy.

Connecticut River Joint Commission. 1998. *Living with the River* series. [www.crjc.org/information](http://www.crjc.org/information).

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# Understanding Napa County Watersheds Riparian Areas and Wildlife

Life is simply richer along rivers and streams. A myriad of wildlife species use the delicate edge between the land and water called the riparian area. Because the riparian area is a transition between upland and water, it supports plants and animals from both. Riparian areas are also important to life in the stream. Landowners who protect and maintain riparian areas provide valuable habitat for native wildlife and help protect fish habitat.



Belted Kingfisher, a common inhabitant of Napa County's riparian areas.

Dr. Hays Cummins, Miami University

## Riparian Areas as Habitat

Healthy functioning riparian areas provide important habitat for a diverse mix of wildlife because of the availability of water, food and shelter. These areas support a diverse mix of terrestrial species that utilize the available habitat for hunting, nesting and access to water. Riparian areas tend to have an abundance of cavity trees and woody debris that are useful to many kinds of wildlife. Osprey, kingfishers, flycatchers and other birds use snags along the water as feeding perches and bats roost under the loose bark of dying trees when they are not out catching insects.

### Travel Corridors for Wildlife

Besides serving as important resting and foraging habitat, corridors of riparian vegetation also serve to connect lower portions of watersheds to headwater and upland areas, thus enabling wildlife movement. Continuous travel corridors for wildlife are key to maintaining healthy populations. Many species of reptiles, amphibians and mammals need the ability to disperse to new habitat to set up new feeding and breeding



The Napa River Ecological Reserve in Yountville at the confluence of the Napa River and Conn Creek. This 73-acre preserve, managed by the Department of Fish & Game, is the last significant stand of riparian forest in the Napa Valley and a great place to observe wildlife.

territory. This allows for the continuous exchange of genetic material between sub-populations, a critical factor in maintaining species' resilience to disease and other environmental stresses and change. Loss of these connective corridors results in habitat fragmentation, a major cause of wildlife decline and even extinction.

Riparian corridors along rivers and their tributaries also provide paths for migratory birds to follow. Migrating songbirds and waterfowl depend upon the early-greening riparian habitat along larger rivers for food and cover until upland areas become suitable later in the season.

## Did You Know?

- Although riparian areas generally occupy small areas on the landscape, they are usually more diverse and have more plants and animals than adjacent upland areas.
- Napa County's creeks and riparian areas are home to over 200 wildlife species.
- Of the 60 special-status wildlife species in Napa County, 22 are associated with riparian woodland habitats.
- Birds are the most commonly observed terrestrial wildlife in riparian areas. Nationally, over 250 species have been reported using riparian areas during some part of the year.

# Wildlife in Napa County's Riparian Areas



River otter



Todd Adams

Black-crowned Night Heron



Todd Adams

Rough-skinned newt



Todd Adams

Damselfly



Todd Adams

Foothill yellow-legged frog, a state listed species

## Mammals

Mammals found in Napa County's riparian areas include muskrat, river otter, beaver, raccoon, ringtail cat, mule deer, fox, rabbit, bats, black bear, bobcat, mountain lion, and others.

## Birds

Birds that use riparian areas include shorebirds, ducks, kingfishers, hawks, eagles, herons, bitterns, owls, woodpeckers, swallows, songbirds, and others. The Napa River is a major migration route for many species of songbirds, such as vireos, flycatchers, thrushes, and warblers, and also larger birds such as Northern Harriers and Peregrine Falcons.

## Amphibians and Reptiles

Species you might find in Napa County's riparian areas include Pacific giant salamanders, California red-legged frogs, Foothill yellow-legged frogs, Pacific tree frog, Northwestern pond turtles, garter snakes, newts, and others. Salamanders, frogs, turtles and their kin require water or damp habitats to reproduce and disperse, although many then leave for upland habitats. Much less mobile than birds and mammals, they require unbroken riparian corridors of natural habitat because they may be unable to cross even small areas of unsuitable habitat.

## Insects

Riparian areas are home to aquatic beetles, damselflies, butterflies, dragonflies, stoneflies, and hundreds more. The diversity of insect life in riparian areas is the number one attraction for birds, amphibians, and other animals.

## Special-Status Species

The riparian zone in Napa County is also home to rare, threatened, and endangered animal species. These include ringtail cats, California Swainson's Thrush, California horned lizard, California red legged frog, Foothill yellow-legged frog, Yellow-breasted Chat, Yellow Warbler, Pacific giant salamander, Northwestern pond turtle, and others.

# Protecting Life in the Stream

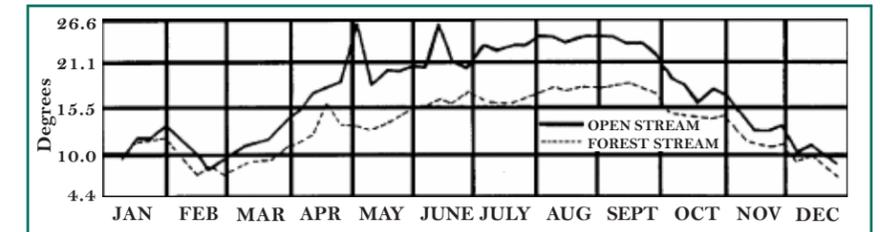
Healthy riparian areas mean healthy aquatic habitat. Fish and other aquatic life do not always adapt well to changes on the land around their home. Keeping riparian areas forested is the single most important thing landowners can do to improve or maintain habitat for fish and other aquatic organisms.



Riparian corridors support aquatic species by protecting water quality, providing nutrients, and shading the creek.

## Keeping Water Cool

Forested riparian buffers maintain cooler water temperatures by shading the water surface. Cool and consistent water temperatures are necessary for a diversity of aquatic life. For example, salmonid species like steelhead trout and chinook salmon need water temperatures below 65° F to thrive. Cool temperatures maintain the dissolved oxygen levels



Weekly maximum temperature for open vs. forested streams. Note: this graph describes a general trend; the data itself is not specific to Napa County. Source: Connecticut River Joint Commission.

necessary for salmonid survival. An increase in water temperature increases the demand for dissolved oxygen, thereby reducing the amount of dissolved oxygen available. This can lead to mortality for young salmonids, and stress for adult fish. If water temperatures are too warm, the risk of disease increases, spawning success is reduced, and the amount of available food decreases. Aquatic invertebrates, which comprise most of a young salmonid's diet, are also negatively impacted by elevated stream temperatures; as invertebrate populations decline, there is less food available for young fish, and the entire aquatic ecosystem is affected.

## Providing Essential Organic Matter

Leaves, twigs and wood from streamside vegetation provide both food and breeding ground for instream invertebrates which then, in turn, feed many others in the food chain. Riparian areas also deliver large woody debris into streams. Large woody debris, often referred to as LWD, helps create habitat complexity, including pools, riffles and gravelbeds. LWD is generally considered to be material twelve inches in diameter and at least ten feet in length. Fallen logs provide cover for fish to rest and hide from predators and deflect the stream's current, exposing more of the rocky substrate used by insects and many fish to lay their eggs. Debris dams keep natural organic litter and food from washing downstream. Woody debris also helps stabilize streams by slowing flows and, therefore, reducing erosion.

## Filtering Out Pollutants

Without riparian areas to act as a filter, excess nutrients can easily enter streams. Chemical pesticides and fertilizers can also easily wash into streams leading to a loss of aquatic species including caddis and mayflies. In addition, sediment will enter waterways easily if the stream lacks riparian vegetation. Excessive sedimentation is particularly harmful or fatal to fish populations because it abrades fish gills and covers spawning areas.

## Helping Streams Flow Year-round

Streamside forests capture rainfall better than any other kind of land use, and keep groundwater recharged so that streams do not dry out in the summer months.