



# *CARING FOR CREEKS*

*IN NAPA COUNTY*

Management Tips  
for Streamside  
Property Owners

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# Many Thanks

to those who helped review this publication:

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# Preface

Having a creek on your property is a valuable amenity. Creeks provide water supply, fish and wildlife habitat, a conveyance for flood water, and a host of aesthetic and recreational values. As a streamside property owner you have an opportunity to help maintain or improve the health of local creeks for your enjoyment, for the benefit of the community, and for the wellbeing of the wildlife that depend upon them. Careful management of your streamside property can help prevent or minimize excess stream bank erosion, preserve water quality, contribute to the survival of local fish and wildlife, and help avoid flood and property damage.

This booklet is designed to encourage and support the ongoing stewardship of creeks in Napa County. It provides some background on how watersheds work; some recommendations for how you can contribute to maintaining a healthy creek; and a resource directory, should you find that you would like additional information or assistance. While this publication primarily focuses on recommendations for people living along freshwater creeks in Napa County, much of the information and many of the recommendations are also suitable for a broader audience.

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# Table of Contents

## How Watersheds Work

|  |    |
|--|----|
| • What is a Watershed?.....                  | 3  |
| • Creek and River Dynamics.....              | 6  |
| • Plants along the Creek.....                | 7  |
| • Creeks, Riparian Areas and Wildlife.....   | 10 |
| • Fish: An Indicator of Creek Condition..... | 11 |
| • Signs of a Healthy Creek.....              | 13 |

## Stewardship of Creeks

|   |    |
|---|----|
| • Protecting Creek Habitat & Banks.....     | 15 |
| • Approaching Streambank Erosion.....       | 17 |
| • A Word on Riparian Corridor Width.....    | 19 |
| • Keeping Soil On-Site.....                 | 20 |
| • Managing Natural Debris in the Creek..... | 23 |
| • Maintaining Landscapes & Yards.....       | 24 |
| • Plants to Avoid.....                      | 26 |
| • Recommended Plants.....                   | 27 |
| • Water Management & Use.....               | 28 |
| • Home Maintenance & Waste Disposal.....    | 29 |
| • Non-Toxic Household Products.....         | 31 |
| • Septic Systems.....                       | 33 |
| • Caring for Livestock & Animals.....       | 34 |
| • Preventing Catastrophic Fire.....         | 35 |
| • Creek Friendly Recreation.....            | 37 |

## Resource Directory

|                             |    |
|-----------------------------|----|
| • Technical Assistance..... | 38 |
| • Useful Publications.....  | 43 |
| • Permitting Agencies.....  | 45 |

|                              |           |
|------------------------------|-----------|
| <b>Acknowledgements.....</b> | <b>47</b> |
|------------------------------|-----------|

|                                |           |
|--------------------------------|-----------|
| <b>Additional Sources.....</b> | <b>47</b> |
|--------------------------------|-----------|

# How Watersheds Work

## *What is a Watershed?*

No matter where you are, you are in a watershed. A **watershed** is an area of land that catches rain and snow and drains it into a body of water, such as a river, pond, estuary, bay, lake, or ocean. A watershed can also be called a **drainage basin**.

Ridgetops of hills or mountains form the boundaries between watersheds. A drop of water falling on the top of a ridge will flow by gravity into one watershed or another depending upon the topography or lay of the land. Watershed boundaries often cross private property, county, state, and even international borders.

The upstream areas of a watershed are called the **headwaters**. As you move downhill and downstream, tiny rivulets and streams combine to form larger rivers which eventually empty into a larger body of water such as a lake or bay.



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The area of land in a watershed can be immense or it can be very small. Large watersheds often are composed of several smaller watersheds, called **sub-watersheds** or sub-drainages. For example, Sulphur Creek flows into the Napa River and has its own watershed, but it is also part of the much larger Napa River watershed, which is part of the even larger San Pablo Bay watershed.

Napa County has three major watersheds: the Napa River, Putah Creek, and Suisun Creek watersheds. The Napa River and Suisun Creek watersheds are part of the San Pablo Bay watershed and the Putah Creek watershed is part of the larger Sacramento River watershed. Each of Napa County's watersheds is comprised of many smaller sub-watersheds.

It is important to recognize that activities and conditions *anywhere* within a watershed can influence the condition of

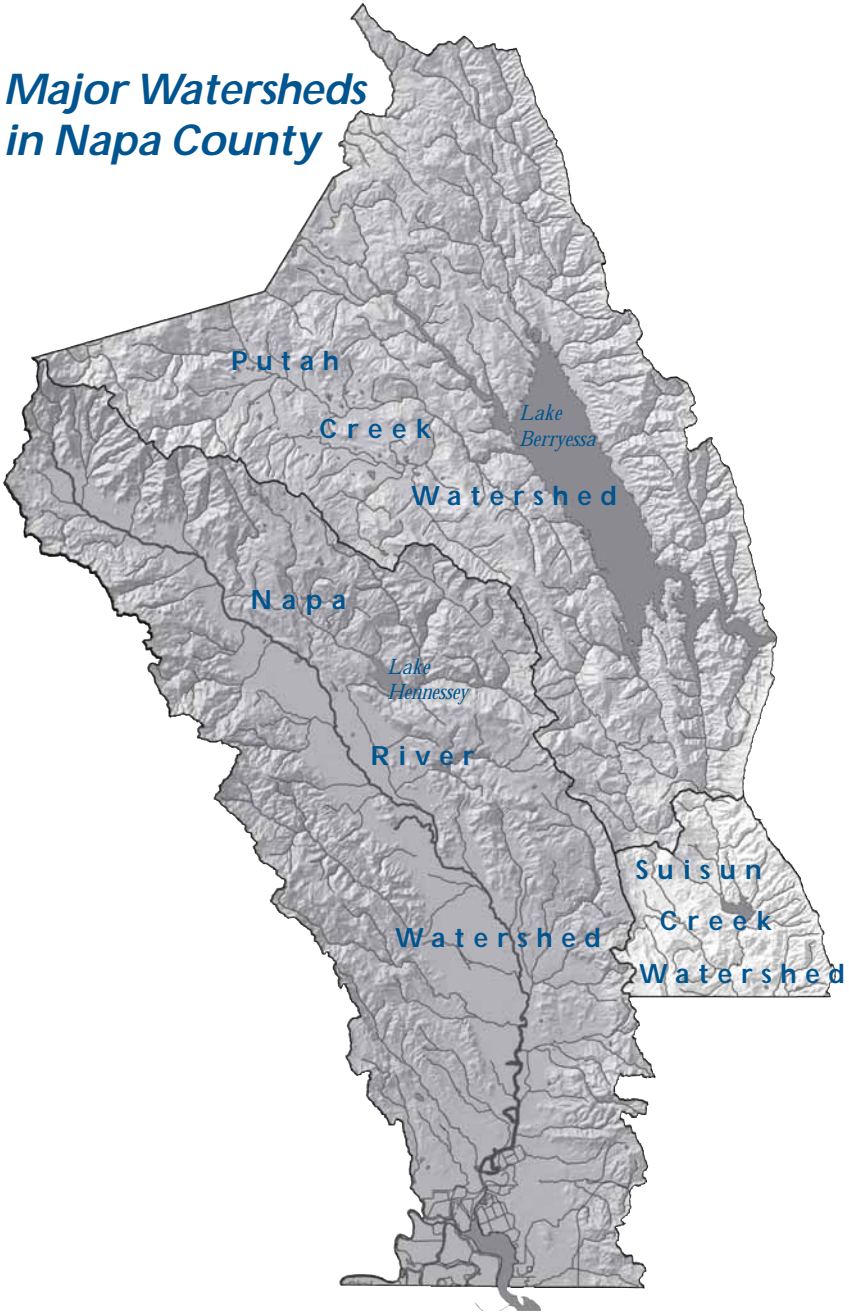
**Watershed** - all of the land and subsurface groundwater that drains to a particular point along a stream or river.

creeks. What takes place in the upper watershed will influence the downstream area. Likewise, what happens downstream may also influence conditions in the upper watershed. Taking a watershed approach means looking at all of the watershed's

components (e.g., the creek and tidal areas, the streambanks, and the adjacent lands) and considering how they work together. Taking care of local creeks will benefit the entire watershed. Creek care can happen in the context of an overall watershed management plan or on individual pieces of property.



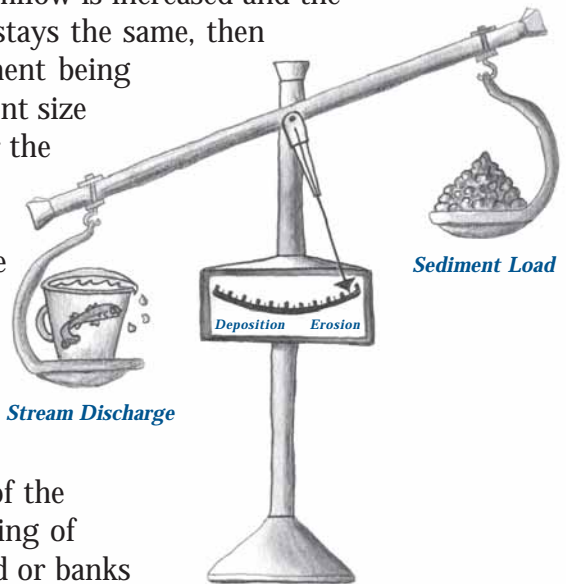
# Major Watersheds in Napa County



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## *Creek and River Dynamics*

Creeks and rivers are formed, maintained, and altered by the water and sediment they carry. The size of a creek channel is determined by four basic factors: quantity and size of sediment, streamflow, and slope. The relationship between these factors can be envisioned as a balance between quantity and size of sediment and streamflow and slope. If one of the factors changes, one or more of the others must also change. For example, if streamflow is increased and the slope of the channel stays the same, then the quantity of sediment being moved and/or sediment size must also increase for the creek to remain in balance. The likely result of this example is that the creek will move larger (and/or more) sediment downstream. This re-balancing will result in a lowering of the creek bed or broadening of the channel as the bed or banks of the creek erode.



Creeks naturally work toward a balance between sediment and streamflow. They are constantly reacting to natural and human induced disturbances in the watershed. These disturbances can significantly alter the size and shape of streams by increasing or decreasing stream flow and sediment supply.



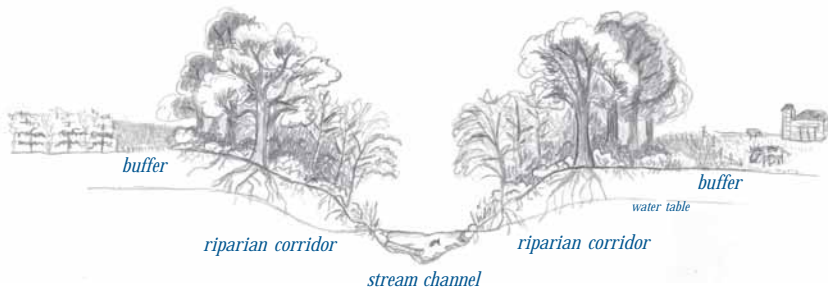
Common natural disturbances include fires, floods and landslides. Examples of human induced changes include creation of impervious surfaces (e.g., homes, roads, parking lots), clearing of vegetation and the development of on-stream reservoirs.

The creation of impervious surfaces and clearing of vegetation changes the timing of runoff, allowing more water to enter the stream in a shorter period of time, which leads to an increase in erosion and possibly localized flooding. The creation of reservoirs reduces the amount of sediment being carried by waters immediately downstream of the reservoir creating “hungry water” that will pick up sediment by scouring stream banks or channel bottoms.

Over time, changes in streamflow or sediment supply may result in changes to the ecosystem that conflict with the needs of society, such as loss of creekside property, lowering of the groundwater table, loss of wildlife habitat, reduced water quality, frequent flooding, etc.

## *Plants Along the Creek*

A border (or corridor) of diverse native plants along the creek is a key part of creek function. These riparian corridors and their associated vegetation and root masses help to stabilize creek banks, buffer the waterway from unwanted pollutants, slow flood waters, and help to recharge groundwater.



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## Common Native Riparian Plants in Napa County

### *Trees*

Arroyo willow  
Big-leaf maple  
Box elder  
California bay  
California buckeye  
California nutmeg  
California walnut  
Canyon oak  
Coast-live oak  
Fremont's cottonwood  
Oregon ash  
Red alder  
Red willow  
Sandbar willow  
Valley oak  
White alder

### *Understory Plants*

California blackberry  
California figwort  
California wild grape  
California wild rose  
Coyote brush  
Mugwort  
Nightshade  
Poison oak  
Seep-spring monkey flower  
Snowberry  
Spicebush  
Stinging nettle

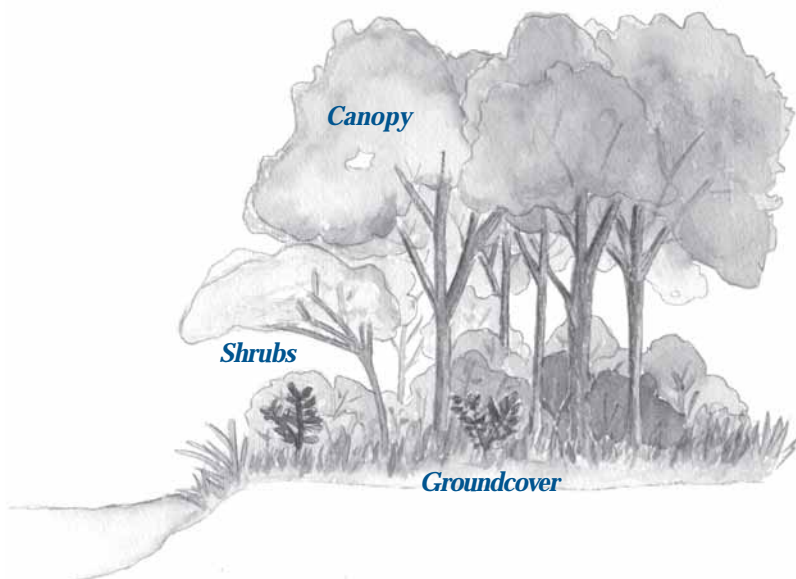


*Spicebush*

In essence, creekside vegetation regulates the quantity, quality, and timing of water running into creeks and the amount of sediment entering the creek, thereby helping the creek to maintain its natural equilibrium. Riparian corridors also provide essential habitat and nutrients for land- and water- based animals, insects, and plants.

Every riparian corridor is different. The types and species of plants that grow within a riparian corridor depend on the soil type, topography, and depth to groundwater. Most streams that have a permanent supply of water support a diversity of plant sizes, shapes, and ages including a low layer of groundcover, an intermediate layer of shrubs, and one or more canopy layers.

Many of the ephemeral streams, which flow only when it rains, do not support a tree canopy at all. The best way to determine what kinds of plants should grow along your creek is to look at examples of undisturbed streams from the same area that have similar water regimes and soil types.



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## *Creeks, Riparian Areas and Wildlife*

Functioning riparian areas along creeks provide important habitat for a particularly diverse mix of wildlife because of the availability and relative proximity of water, food, and shelter. These areas support terrestrial species that utilize the available habitat for hunting, nesting, and accessing water and they support aquatic species by protecting water quality, providing nutrients, and shading the creek.

Connected corridors of riparian vegetation promote healthy wildlife populations.

Aside from providing 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. These travel corridors, to the extent that they are connected to one another, promote greater genetic exchange within wildlife populations, which makes wildlife more resilient to environmental stresses and change.

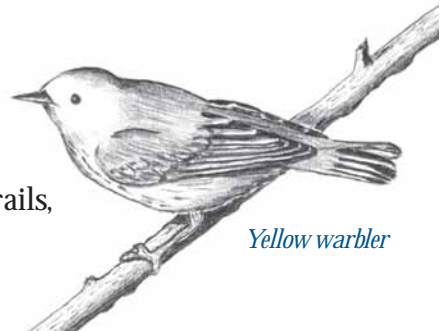
Napa County's creeks and riparian areas are home to over 200 wildlife species. With careful observation of local creeks and riparian habitats you might see some or all of the following:

### *Mammals*

Muskrat, river otter, beaver, raccoon, ringtail, mule deer, bats, fox, rabbit, bear, lion and others.

### *Birds*

Mergansers, belted kingfisher, osprey, eagles, herons, geese, grebes, owls, ducks, bitterns, cormorants, rails, gulls, songbirds and others.



*Yellow warbler*

## ***Fish***

Steelhead (rainbow trout), Chinook salmon, Sacramento sucker, prickly sculpin, Pacific lamprey, threespine stickleback, tule perch, California roach, hardhead, and others.

## ***Amphibians and Reptiles***

Pacific giant salamanders, California red-legged frogs, Foothill yellow-legged frogs, western pond turtles, garter snakes, newts, and others.

## ***Insects***

Aquatic beetles, damselflies, butterflies, dragonflies, stoneflies, and thousands more.

## ***Rare or Endangered Species***

California red-legged frog, steelhead, Chinook salmon, western pond turtle, Pacific giant salamander, California freshwater shrimp, and others.

## ***Fish: An Indicator of Creek Condition***

Several fish species make their home in Napa County's watersheds. Some are native to the local watersheds and others have been introduced. Fourteen native fish species can be found in our waterways, a diversity that is relatively high among nearby watersheds and counties.

Fish, especially those species with narrow tolerances for disturbance and habitat alteration, can be used as indicators of creek and watershed conditions.

Salmon and steelhead are used as indicators of watershed conditions because of their sensitivity to habitat conditions and because they use the entire stream system --



*Adult Steelhead Trout*

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## Native Fish in Napa County

California roach  
Chinook salmon  
Hardhead  
Pacific lamprey  
Pacific staghorn sculpin  
Prickly sculpin  
Riffle sculpin  
Sacramento pikeminnow  
Sacramento splittail  
Sacramento sucker  
Steelhead (rainbow trout)  
Threespine stickleback  
Tule perch  
White sturgeon

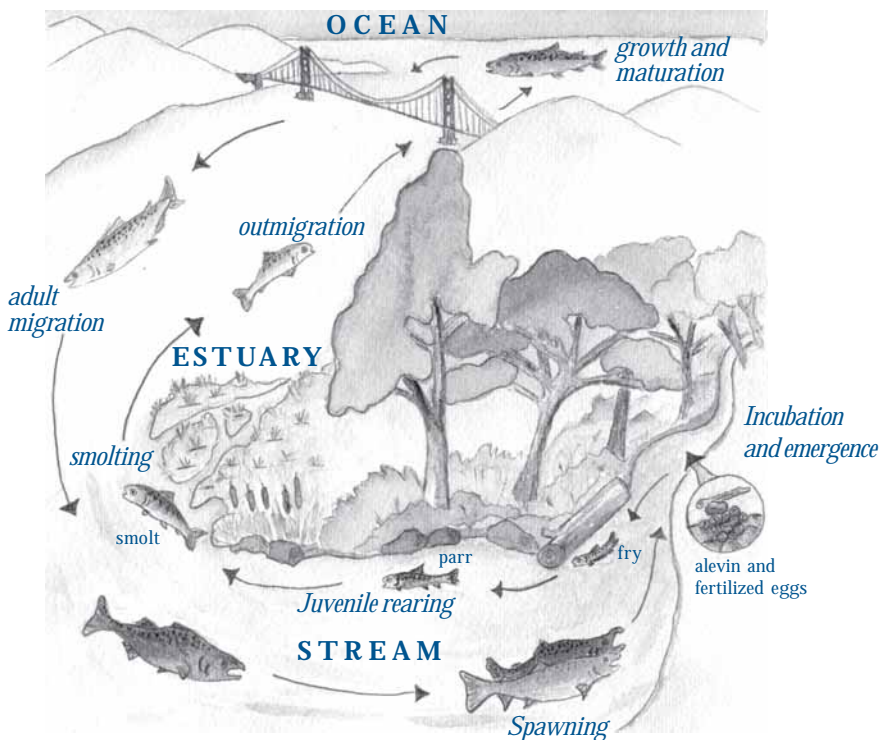
from the ocean or estuary to small headwater streams. Salmon and steelhead are anadromous, meaning that they are born in freshwater, mature at sea, and return to freshwater to lay eggs (spawn).

Very little information is available about historic populations of fish species in Napa County. The historic populations of Coho salmon and steelhead have been documented and the historic presence of Chinook salmon is likely given the characteristics of the Napa River watershed and the documented presence of Chinook in neighboring watersheds with similar characteristics. Coho salmon have been extinct in the Napa River watershed since the 1960's, steelhead are federally listed as a threatened species under the Endangered Species Act, and Chinook salmon maintain a small remnant run in Napa County.

The habitat requirements of steelhead and Chinook salmon, while somewhat different from one another, support several other fish and wildlife species found in and around our local streams. Rivers and streams that sustain salmon and steelhead provide habitat conditions that support spawning and rearing -- these conditions include adequate water flow, diverse creek structure, clean spawning gravels, abundant food and a well -- functioning riparian zone.



## Chinook Salmon Life Cycle



## Signs of a Healthy Creek

There is no single definition to what is meant by a “healthy creek.” All creeks are important, whether they flow year-

All creeks are important, whether they flow year-round, part of the year, or just during storms.

round (perennial), part of the year (intermittent), or just during storms (ephemeral). Even small swales that look like ditches are important

because they (like other drainages) carry water, soil, and nutrients into larger creeks and water bodies.

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Generally, healthy creeks in our region will have the following characteristics:

### **Cool, clean water**

Cool water is critical for many of our local fish and wildlife. For example, steelhead and Chinook salmon need water temperatures between 40° and 60° F to thrive. Temperature affects the amount of dissolved oxygen available for aquatic species -- the higher the water temperature, the less dissolved oxygen available. Waters should also be free of excessive algae, trash and toxins.

### **Adequate dissolved oxygen**

Water that is flowing usually has plenty of dissolved oxygen for aquatic species. Isolated pools or warm ponds may not. Suspended fine sediments, nutrients from fertilizers, sewage, and toxins (such as metals, pesticides, oil, and grease) can reduce the amount of oxygen available.

### **A variety of slow and fast moving water (pools and riffles)**

Riffles add oxygen to water, provide diverse habitat for aquatic insects, and move aquatic insects (fish food) downstream. Pools are a resting place for fish, often have pockets of cool water during the summer, and can provide refuge from fast moving winter storms and predators.

### **High groundwater level**

Creeks are connected to groundwater and they often move together. If the level of the creek channel drops, the groundwater level (also called water table) may also drop and may cause the creek to cease flowing until groundwater is replenished by rainfall. A lowered water table may cause problems with wells and may leave creek vegetation without access to water .

### **Dense and diverse native vegetation with stable undercut banks and minimal streambank erosion**

This type of habitat shades the creek and provides homes for many insects and other forms of wildlife.

# Stewardship of Creeks

Responsible stewardship and care for creeks is essential for creek stability, good water quality, reliable water supply, and healthy habitats. Whether or not one lives along a creek, it is important to be a good watershed steward. Those who live along a creek are in the fortunate position of being able to most directly help improve our creeks. The following recommendations are a starting point for keeping Napa County's creeks and watersheds healthy for humans and wildlife.

This guide is not meant to be all inclusive -- references to additional sources of information and contact information for organizations that might be helpful are provided in an effort to make it easy to follow up and learn more about recommendations that are of importance to you.

## *Protecting Creek Habitat & Banks*

Creeks are constantly reshaping their channels through natural processes -- scouring outside curves and depositing sediment inside of bends in the waterway. A stream's natural tendency to meander can be accelerated by human activities throughout the watershed. Increased rates and volumes of stormwater runoff into creeks, removal of natural vegetation, and upstream alteration of the creek channel may lead to erosion problems on banks that were once considered stable. Unstable creek banks can result in property loss, lead to costly bank failures, and add large volumes of fine sediment to the creek. Creeks are complex systems and repair of eroding banks requires specialized knowledge and expertise.

Following are some recommendations that can help you avoid excessive streambank erosion on your property, protect creek habitat, and protect water quality.

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## Helpful Contacts

California  
Department  
of Fish &  
Game (DFG):  
707.944.5500

Napa County  
Resource  
Conservation  
District  
(RCD):  
707.252.4188

Natural  
Resources  
Conservation  
Service  
(NRCS):  
707.252.4188

Napa County  
Flood Control  
District:  
707.259.8600

Napa County  
Agricultural  
Commissioner:  
707.253.4357

Napa County  
Conservation,  
Development,  
and Planning  
Department:  
707.253.4416

## Keep an eye on your creek banks

If you notice bank failures or areas where vegetation has been damaged or removed, you may need to take action to restore your streambank to a healthy condition. Serious bank erosion often begins when large trees fall into the creek. When water levels recede in the spring, inspect the bank to see if tree roots have been exposed, or if large cracks in the soil are developing parallel to the bank. The type of action necessary to repair eroding streambanks varies from site to site. It may mean stabilizing eroding banks or allowing the stream more room to move. Streambank work is often complex and requires several types of permits to protect surrounding areas. Contact a qualified resource professional to assist you. The Natural Resources Conservation Service (NRCS) and Napa County Flood Control District can help you get started.

## Avoid locating structures near creek banks

Locating structures such as decks and storage sheds near the creek often requires removal of vegetation and can decrease streambank stability. In addition, structures built within reach of flood water may decrease the creek's ability to accommodate flood flows and are subject to damage or complete loss. Remember that creeks are constantly reshaping their channels and plan accordingly. Local city or county building codes also require setting structures back. Check with your local building department before planning a structure close to the creek.

## Locate potential fish migration obstructions

Steelhead and Chinook salmon migrate up and down watercourses in Napa County during specific times of the year. Obstructions in the creek, such as culverts, fences, dams, etc., may limit the amount of creek habitat available to these fish or prohibit their movement in and out of the watershed. If you think there might be a fish migration obstruction on your property contact the California Department of Fish & Game (DFG) or the Napa County Resource Conservation District (RCD) to assist you.

## Approaching Streambank Erosion

Given the dynamic nature of creeks and how they function, streambank restoration or stabilization is a complex endeavor. It can cause changes in stream flow that are difficult to predict. Keep in mind that actions taken to protect your streambank may have unforeseen consequences up and downstream. You may unintentionally pass your problem on to your neighbor. For this and other reasons, creek and streambank work requires in-depth planning and permits from natural resource agencies such as the California Department of Fish & Game, Army Corps of Engineers, Regional Water Quality Control Board, and Napa County. Streambank restoration requires specialized knowledge. The soundest advice is to seek professional assistance.

### When considering streambank work:

- Consider techniques that use living plant material to provide habitat.
- Where possible, provide the creek with more room to move and meander.
- Do not use tires, old appliances, concrete debris, etc. (this practice can be dangerous and it is illegal).
- Be sure not to constrict the channel -- flooding is a potential problem on any creek.
- Monitor, care for, and fine tune your projects.
- Consult with qualified professionals (civil engineers, NRCS, biologists, and other resource specialists).
- Work with other local property owners to develop a coordinated response to approaching streambank issues.
- Complete your plans and submit them to permitting agencies well in advance (permits can be complex and often take months to acquire).

**Helpful  
Contacts  
& Native  
Plant  
Suppliers**

Appleton  
Forestry  
Nursery  
Sebastopol,  
CA  
707.823.3776

Circuit Rider  
Productions,  
Inc. Native  
Plants  
Nursery  
Windsor, CA  
707.838.6641

Pacific Open  
Space, Inc.  
North Coast  
Native  
Nursery  
Petaluma, CA  
707.769.1213

California  
Native Plant  
Society:  
[www.cnps.org](http://www.cnps.org)

## Avoid removal of natural debris

Removing branches, boulders, and rocks from a creek can harm fish and other aquatic species because natural debris provides cover for fish, aquatic insects, and other wildlife. Refer to page 23 for more information on managing natural debris in the creek.

## Preserve and promote native creekside vegetation

Native riparian vegetation growing within a creek corridor helps to stabilize streambanks and provides wildlife habitat. In times of flooding, a well vegetated streambank may provide protection for your property. When seedling trees or shrubs are present, protect them with weed control cloth and tube protectors to ensure survival. Native seedlings represent future replacements for aging vegetation and also add rooting strength to the bank. If clearing of vegetation must occur, or if you are removing non-native invasive species, leave as many native plants as possible and replant with native plants.



## Remove invasive non-native plants and replace them with native vegetation

Invasive non-native plants often crowd out native plants and do not provide the same bank stabilization and wildlife habitat benefits. Removal of non-natives often requires a permit from DFG and is allowed only during certain times of the year. Contact the NRCS, RCD, Napa County Flood Control District, or the Napa County Agricultural Commissioner for assistance. See pages 26 and 27 for a list of native and invasive non-native riparian species common to Napa County's watersheds.



## A Word on Riparian Corridor Width

There is not one generic corridor width that will keep water clean, stabilize creek banks, protect fish and wildlife habitat, and satisfy human demands on the land. The specific width and vegetation structure of a corridor depends upon the intended purpose or goal of the corridor, adjacent land uses, and the specific characteristics of the creek.

Corridors should be designed with specific goals in mind. When the goal is to address sediment delivery issues, appropriate corridor widths increase as slope increases and as sediment materials get finer. On the other hand, corridors designed to protect and enhance wildlife habitat and ecological functions generally increase in width as slope decreases or natural floodplain width increases. In general terms, wider streamside corridors are needed for ecological purposes than for sediment control and water quality purposes.

An advisable approach to establishing appropriate corridor widths is to base the width of the corridor on the intended purpose of the corridor and consider site specific features such as slope of adjacent lands, slope of the channel, presence of wetlands, width of the floodplain, existing condition of the creek, wildlife species of interest, and presence of nearby buildings or development. As a general guide, appropriate corridor widths for the purpose of protecting water quality from excess sediment, nutrients, and pathogens may range from 35 feet on smaller streams with slopes less than 15% to over 100 feet on moderate slopes. Corridor widths to protect ecosystem function and wildlife habitat may be in the range of 80 to 600+ feet, depending upon specific site characteristics and the wildlife species targeted for protection.

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## Keeping Soil On-Site

Erosion is the natural process by which soil, rock, and gravel are moved by the agents of wind, ice, water, or gravity. A certain amount of erosion is healthy for ecosystems, as it brings nutrients to creeks and creates habitat for aquatic plants and animals. However, excessive erosion can cause problems.

The amount of erosion depends on a combination of many factors, including the amount and intensity of precipitation, the make-up of the soil, the steepness of the terrain, and the

When water flows over bare ground, exposed soil may move downhill and lead to excess sediment in local waterways.

amount of vegetative ground cover. Excess erosion most often occurs on bare areas such as creek banks, pastures, roads, stockpiled soil, areas cleared for the construction of new homes and buildings, or other places where soil is not protected. When water

flows over bare ground, exposed soil may move downhill and will often end up in a creek.

The watersheds in Napa County naturally produce relatively high amounts of sediment owing to climate, topography, geology and soil conditions. However, natural sediment production has been accelerated by human activities over the past 200 years.

Some strategies to keep soil on-site include:

### Protect bare soil surfaces

Use vegetation (trees, shrubs, grasses, cover crops) to hold soil in place and allow water to soak into the ground. Consider using native vegetation where possible and if vegetation is not possible, consider straw mulch. Avoid non-native invasive species that may escape. A list of plants to avoid is provided on page 26.

## Helpful Contacts & Resources

Natural  
Resources  
Conservation  
Service (NRCS):  
707.252.4188

*Handbook for  
Forest and Ranch  
Roads.* \$25 from  
the Mendocino  
County Resource  
Conservation  
District:  
707.468.9223  
ext. 111

*Horse Keeping:  
A Guide to Land  
Management  
for Clean Water*  
Download  
for free at  
[mcstopp.org/  
horses.htm](http://mcstopp.org/horses.htm)

## Assess your roads for erosion and address road problems

Poorly constructed roads, vineyard avenues and driveways can be a significant source of erosion. Look for signs of erosion such as small gullies across the road surface and deepening ditches along the side of the road. In addition, assess the condition of any drains and culverts that transport concentrated water to make sure they are performing properly. Culverts need to be properly sized and maintained to handle storm runoff and should include some form of soil protection at each outlet where water is dispersed. If you observe erosion from your road, contact the Natural Resources Conservation Service (NRCS) or refer to the *Handbook for Forest and Ranch Roads* published by the Mendocino County RCD.

## Avoid the piling of soil, construction materials and wastes where they will be exposed to rain or carried into the creek

Cover exposed piles with plastic sheeting and locate piles away from creeks, stormdrains, and ditches.

## Assess erosion prone areas on your property and be sensitive to them

Minimize soil and vegetation disturbance around creek banks, gullies, seasonal drainages, unsurfaced roads, replanted areas, and landslides.

## Manage erosion caused by livestock and horses

Maintain plant and/or grass borders around horse paddocks to act as a filter; separate water and salt blocks to disperse animals more evenly in grazed areas; develop off-stream watering sources; seed pastures to minimize bare soil; and develop grazing management plans with the NRCS.

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## Keep culverts clear of debris

### Helpful Contacts & Resources

Napa County  
Stormwater  
Management  
Program:  
707.259.8600

*Blueprint for a  
Clean Bay*,  
available from  
the Bay Area  
Stormwater  
Management  
Agencies  
Association at  
[www.basmaa.org](http://www.basmaa.org)

BMP  
Handbooks by  
California  
Stormwater  
Quality  
Association:  
[www.  
bmphandbooks.  
com](http://www.bmphandbooks.com)

*Erosion and  
Sediment Control  
Field Manual*,  
San Francisco  
Bay Regional  
Water Quality  
Control Board

NRCS or Napa  
County RCD:  
707.252.4188

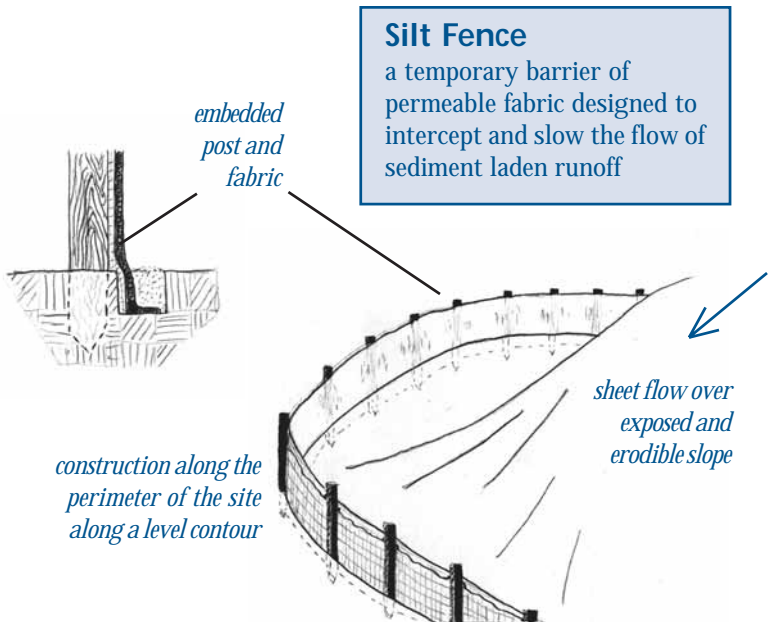
Clear leaves, fallen branches, garbage, and other debris from culvert inlets prior to the first rain in the fall and throughout the rainy season.

## Avoid concentration of water flow

If possible, spread flows out or use a detention basin to store and slowly release storm water. Where water is concentrated, protect outlets by using carefully placed rock to dissipate the erosive force of fast flowing water. Contact the NRCS for assistance.

## Use erosion and sediment control practices at construction and disturbed sites

Refer to *Blueprint for a Clean Bay* or the Best Management Practices (BMP) Handbooks published by the California Stormwater Quality Association. An example of a common erosion control practice is the application of straw mulch. Silt fences are commonly used to protect waterways or sensitive locations from sediment.



## Managing Natural Debris in the Creek

Natural debris in the creek -- branches, logs, and root wads, sometimes referred to as large woody debris (LWD) -- creates food and shelter for fish and wildlife. This woody debris may need to be repositioned, removed, or partially removed if it threatens life or property. Because removing woody debris can alter or even harm fish habitat, it is important to observe a situation before taking action. Removing debris from the creek requires a Streambed Alteration Agreement from the California Department of Fish and Game (DFG). If you are unsure about managing woody debris, contact DFG or the Napa County Flood Control District.

Following are some general recommendations:

### Helpful Contacts

California  
Department  
of Fish and  
Game (DFG):  
707.944.5500

Napa County  
Flood Control  
District:  
707.259.8600

### Natural debris should be left in the creek

unless it causes flooding or erosion that threatens life or property (a house, utility pole, or other structure).

### Consider repositioning natural debris

if it obstructs creek flow and causes flooding, or if it causes excessive streambank erosion by redirecting flow.

### If fallen trees or branches are causing bank erosion, trim the portion of woody debris above water

Try to leave the main stem or root wad intact and in place.

### Remember that most fish can swim through or around debris barriers

If you know that fish can not swim through or around a barrier, contact DFG.

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## Maintaining Landscapes & Yards

### Helpful Contacts & Resources:

Local Public  
Works &  
Water

Departments  
*American  
Canyon:*  
707.647.4500  
*Napa:*  
707.257.9521  
*Yountville:*  
707.944.8851  
*St Helena:*  
707.968.2658  
*Calistoga:*  
707.942.2780  
*Unincorporated:*  
707.253.4351

Napa County  
Master  
Gardeners:  
707.253.4421  
or toll free  
877.279.3065

*Water-wise  
Gardening in  
the Napa Valley.*  
\$5. Available  
at local city  
offices, the  
RCD, and UC  
Cooperative  
Extension.

Napa Garbage  
Service  
Recycling and  
Composting  
Facility:  
707.255.5200

Landscaping can turn a basic house into a beautiful home. Unfortunately, many landscaping techniques require large amounts of water, pesticides, and fertilizers; increase the spread of invasive plants; and can create a fire hazard.

Several resources are available for landscape planning and maintenance. Gardening, composting and irrigation workshops are often available through local cities and towns. The Napa County Master Gardeners Program is also a good resource. Additionally, *Water-Wise Gardening in the Napa Valley* is a locally developed CD-ROM with information regarding native plants, water use, and much more.

When planning and maintaining your yard, use the following tips to help yourself and your creek.

### Compost leaves, grass clippings, and other organic waste away from the creek

Never dump these or other items onto the creek bank or into the creek. Although leaves and other organic waste are biodegradable, adding them to the creek system depletes oxygen in the water and can stress or kill fish and other aquatic life. It also suppresses vegetation growth, which helps to stabilize banks.

### Properly irrigate lawns and gardens

Use meters, timers, or other measuring devices to control water use. Over-watering adds water, excess fertilizers and pesticides, and soil to ditches and stormdrains. It is also a

common cause of streambank erosion. Observe irrigation carefully, if water is running off, you are likely applying too much water in too short a time period.

Landscape irrigation  
accounts for  
approximately 60% of  
residential water use.



## Helpful Contacts & Suppliers

Appleton  
Forestry  
Nursery  
Sebastopol, CA  
707.823.3776

Circuit Rider  
Productions,  
Inc. Native  
Plants Nursery  
Windsor, CA  
707.838.6641

Pacific Open  
Space, Inc.  
North Coast  
Native Nursery  
Petaluma, CA  
707.769.1213

California  
Native Plant  
Society:  
[www.cnps.org](http://www.cnps.org)

*A Guide to  
Estimating  
Irrigation Water  
Needs of  
Landscape  
Plantings in  
California.*  
[www.owue.water.ca.gov/docs/wucols00.pdf](http://www.owue.water.ca.gov/docs/wucols00.pdf)

## Consider alternatives to impervious concrete

Pervious surfaces such as brick, interlocking pavers, flat stones, and decking allow rainwater to infiltrate the soil. Consider this type of material when installing a new patio or rebuilding a walkway.

## Avoid or minimize use of fertilizers and pesticides (including herbicides, fungicides, and insecticides)

Many home gardeners over-apply fertilizers and pesticides -- always follow application directions. Excessive fertilizer use can make its way to the creek and create algal blooms that deplete oxygen supply in the water. Excessive amounts of some nutrients are toxic to aquatic life. Avoid applying fertilizers and pesticides during the rainy season or on windy days. Pesticide drift threatens riparian plants and aquatic life. Store chemicals in a protected area to avoid runoff.

## Keep leaves and yard litter out of street gutters and ditches

so they won't clog stormdrains and/or be transported to the creek. Green waste can be taken to the Napa Garbage Service Recycling and Composting Facility.



What enters the stormdrain eventually enters the creek.

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## Helpful Contacts & Resources

State Water  
Resources  
Control  
Board,  
Division  
of Water  
Rights:  
916.657.2170

*Layperson's  
Guide to  
Water Rights  
Law*  
prepared by  
the Water  
Education  
Foundation -  
Updated  
2005.  
916.444.6240  
or www.  
watereducation.  
org

## Use water legally and with great care

Make sure that you have a permit to take water and that you do not exceed your allocation. Allow flow to continue in the creek.

## Cover intake diversion pipes with a 1/8 inch mesh hardware cloth screen

if you are pumping from the stream. This prevents fish and other critters from being sucked in. Each year large numbers of juvenile fish are lost to unscreened water diversions. Screening also reduces the cost of maintaining and cleaning out the diversion pipe.

## Landscape with low-maintenance native plants

Native plants are more tolerant of drought conditions and are better suited to local soils and pests. See below for a list of the most highly invasive ornamental plants in Napa County (i.e., plants to avoid) and the next page for a list of recommended plants.

### Plants to Avoid

| <i>Common Name</i>   | <i>Scientific Name</i>     |
|----------------------|----------------------------|
| Acacia               | <i>Acacia sp.</i>          |
| Black locust         | <i>Robina pseudoacacia</i> |
| Blue gum eucalyptus  | <i>Eucalyptus globulus</i> |
| Cape ivy             | <i>Delairea odorata</i>    |
| Cherry plum          | <i>Prunus cerasifera</i>   |
| English ivy          | <i>Hedera helix</i>        |
| Fennel               | <i>Foeniculum vulgare</i>  |
| Giant reed           | <i>Arundo donax</i>        |
| Himalayan blackberry | <i>Rubus discolor</i>      |
| Periwinkle           | <i>Vinca major</i>         |
| Poison hemlock       | <i>Conium maculatum</i>    |
| Scarlet wisteria     | <i>Sesbania punicea</i>    |
| Scotch broom         | <i>Cytisus scopariu</i>    |
| Tamarisk             | <i>Tamarix sp.</i>         |
| Tree of Heaven       | <i>Ailantus altissima</i>  |
| Vetch                | <i>Vetch sp.</i>           |

## Recommended Plants

| <i>Common Name</i>                  | <i>Scientific Name</i>                      |
|-------------------------------------|---|
| <b>Trees</b>                        |   |
| Arroyo willow                       | <i>Salix lasiolepis</i>                     |
| Big-leaf maple                      | <i>Acer macrophylla</i>                     |
| California bay                      | <i>Umbellularia californica</i>             |
| California buckeye                  | <i>Aesculus californica</i>                 |
| California walnut                   | <i>Juglans californica</i>                  |
| Coast-live oak                      | <i>Quercus agrifolia</i>                    |
| Freemont's cottonwood               | <i>Populus fremontii</i>                    |
| Oregon ash                          | <i>Fraxinus latifolia</i>                   |
| Red willow                          | <i>Salix laevigata</i>                      |
| Sandbar willow                      | <i>Salix exigua</i>                         |
| Valley oak                          | <i>Quercus lobata</i>                       |
| White Alder                         | <i>Alnus rhombifolia</i>                    |
| <b>Shrubs</b>                       |   |
| California rose                     | <i>Rosa californica</i>                     |
| Coyote brush                        | <i>Bacharis pilularis</i>                   |
| Snowberry                           | <i>Symphoricarpos albus var. laevigatus</i> |
| Spicebush                           | <i>Calycanthus occidentalis</i>             |
| <b>Small Plants and Groundcover</b> |   |
| Blue wild rye                       | <i>Elymus glaucus</i>                       |
| California figwort                  | <i>Scrophularia californica</i>             |
| Mexican rush                        | <i>Juncus mexicanus</i>                     |
| Rough sedge                         | <i>Carex senta</i>                          |
| Santa Barbara sedge                 | <i>Carex barbarae</i>                       |
| Seep-spring monkey flower           | <i>Mimulus guttatus</i>                     |

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## Water Management & Use

Small streams can be heavily impacted by water diversions, even small ones. In summer, when flow is at its lowest, some streams may only have enough water to support small “pools.” These pools sustain aquatic life until winter when heavier flows resume. It is important to avoid depleting these pools of their water. The amount of life a stream can support is directly related to the amount of water in it. Diversions and wells located near creeks decrease underground streamflows which, in turn, drain the pools of their much needed water.

Water diversions from creeks are only legal if you have a Riparian Right, an Appropriative Water Right Permit, or a Small Domestic Registration.

A **Riparian Right** is limited to parcels adjacent to creeks and stays with the property, unless deleted from the title. Storage beyond 30 days is not allowed.

With an **Appropriative Water Right Permit**, the land does not need to be next to a stream. A permit is required, and water can be stored for over 30 days.

A **Small Domestic Registration** is for landowners who use less than 4,500 gallons per day and store less than 10 acre-feet of water. For more information, contact the State Water Resources Control Board, Division of Water Rights.

**Helpful  
Contacts:**

Household  
Hazardous Waste  
Facility:  
1.800.984.9661

Napa Garbage  
Service  
Recycling and  
Composting  
Facility:  
707.255.5200

Napa County  
Stormwater  
Management  
Program:  
707.259.8600

**Certified Oil  
Collection  
Facilities** (*call  
for quantities &  
materials  
accepted*):

**American  
Canyon:**  
Public Works:  
707.647.4366

Devlin Road  
Recycling &  
Transfer Station:  
707.252.0500

**Yountville:**  
Yountville Corp  
Yard:  
707.944.2988

**Calistoga:**  
Clover Flat  
Landfill:  
707.963.7988

*Cont. on next page*

## **Home Maintenance & Waste Disposal**

Maintenance of our homes is essential. With careful implementation maintenance can be done to minimize potential impacts to local creeks. Even in small amounts, common hazardous materials such as paint, motor oil, solvents, pool chemicals, batteries, and many cleaners can contaminate a creek and harm fish and wildlife. Following are several recommendations to minimize the impacts of common household maintenance activities.

### **Keep trash and waste out of the creek, off the street, and out of ditches and storm drains**

Avoid storing trash where it might reach the creek and keep trash lids securely closed. Remove trash that accumulates in the creek, but do not remove natural debris, see *“Managing Natural Debris”* on page 23.

### **Minimize stormwater runoff**

Direct all gutters or downspouts to areas where the water can soak into the ground; minimize paved or other hard surface areas; and keep water and pipes from flowing directly to the creek or onto the creek banks.

### **Take all hazardous items to the Household Hazardous Waste Facility**

Hazardous materials includes paint, solvents, pesticides, etc. The hazardous waste facility is located at 889A Devlin Road in American Canyon and is open every weekend from 9 am to 4 pm. Refer to the Napa Recycling and Waste Services Recycling Guide in the Napa Valley Yellow Pages for additional information.

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**St. Helena:**  
St. Helena  
Center:  
707.963.2741

### **Use water-based paint and paint removers**

when possible -- they are less toxic than oil-based paints, turpentine and thinners and they can be recycled.

**Napa:**  
B&B Foreign  
Car Service:  
707.255.7588

### **Clean latex paint brushes and rollers in a sink**

so that waste water does not reach a stormdrain, ditch, or creek.

Bert Williams &  
Sons Auto Parts:  
707.255.7003

### **Place paint thinner or turpentine in a container to clean oil-based paintbrushes and rollers**

Allow the solids to settle out and carefully transfer liquid to another container for reuse. Take the solids to the hazardous waste collection site at 889 A Devlin Road in American Canyon.

Classic  
Automotive:  
707.257.6677

Imports  
Unlimited:  
707.252.1177

Kragen Auto  
Parts:  
707.224.8606  
707.255.5266

### **Use non-toxic cleaning products in your home**

See the following page for some suggestions.

Quality Tune-  
Up:  
707.252.1561

### **Dispose of water used to clean carpets, upholstery, or floors down sinks or toilets**

If you are on a septic tank, use septic safe products.

Silverado Auto  
Service:  
707.224.4708

### **Use mechanical methods to clean drains that are blocked by roots**

Avoid copper-based root control products.

**Other:**  
6450 Berryessa-  
Knoxville Rd.

### **Drain waterbed mattresses in a drain that will reach the sanitary sewer system**

Waterbed chemicals can be toxic to aquatic life.

Napa Valley  
Marina:  
707.252.8011

Pacific Union  
College:  
707.965.7150

### **Avoid hosing down or pressure washing paved surfaces like driveways**

Use a broom instead and put debris in a compost bin, yardwaste container or trash can.

Rancho  
Monticello:  
707.965.8216

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## Non-toxic Household Products

| Product             | Suggested Uses   |
|---------------------|--|
| Baking Soda         | Deoderize refrigerators, drains, carpets, and upholstery. Clean & polish aluminum, chrome, jewelry, plastic, porcelain, silver, stainless steel, and tin.  |
| Cornstarch          | Clean windows, polish furniture, shampoo carpets, and starch clothes.  |
| Lemon Juice         | Clean glass, remove stains from aluminum, clothes and porcelain.   |
| Steel Wool          | Remove rust and scour barbeque grills  |
| TSP                 | Clean drains or remove old paint (note: TSP is toxic if swallowed).  |
| Vinegar             | Dissolve mineral deposits and grease. Remove traces of soap, mildew, or wax buildup. Clean brick or stone. Shine windows without streaking.  |
| All purpose cleaner | Mixture of vinegar & salt OR 4 tbsp. baking soda dissolved in 1 quart warm water.  |
| Drain cleaner       | Try a plunger first. To open clogs pour 1/2 cup baking soda down drain, add 1/2 cup white vinegar, and cover the drain. (NOTE: do not try this approach after trying a commercial drain opener--the vinegar can react with the drain opener to cause dangerous fumes.) |
| Tub & Tile cleaner  | Try baking soda with a damp sponge or wipe with vinegar first and follow with baking soda.   |
| Ant Deterrent       | Sprinkle powdered red chili pepper, paprika, or dried peppermint where ants are entering.  |
| Cockroach Poison    | Mix by stirring and sifting 1 oz. TSP, 6 oz. borax, 4 oz. sugar, and 8 oz. flour. Spread on floor of infested area, repeat after 4 days and again after 2 weeks.   |



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## **Discharge water from your washing machine away from creeks, ditches, or storm drains**

### **Wash vehicles at commercial or coin-operated car washes**

where the water is recycled before it is discharged to a sewer system. If washing your car or other equipment at home, do so in a grassy or gravel area where soapy water can filter into the soil. Do not put soap, even biodegradable, down the storm drain, it can harm fish and other aquatic life.

### **Properly care for pools and spas**

Make sure discharges from pools and spas don't reach creeks or cause erosion. Chlorine and algaecides used in pools and spas are toxic to plants and aquatic life. Use diatomaceous earth (DE) cautiously. If DE gets into the creek it can cut the gills of aquatic animals, making them more susceptible to infection and disease. The draining of pools or spas may require a permit, contact the Napa County Stormwater Management Program for additional information.

### **Properly care for cars and boats**

For proper disposal of used motor oil and other automotive products, refer to the Napa Recycling and Waste Services Recycling Guide in the Napa Valley Yellow Pages or call Napa County Stormwater Management Program. Motor oil can coat fish gills (depriving them of oxygen) and bird feathers (interfering with their ability to keep warm and dry). Oil can also poison animals when they ingest it in an effort to clean themselves. Locally certified oil collection centers around Napa County are listed under "Helpful Contacts" on pages 29 and 30.

### **Properly maintain and care for septic systems**

Minimize the amount of liquid that goes into the system and avoid unnecessary solid waste. Have your system monitored regularly and pump as often as necessary (pumping may be required in as little as every 2 years and as many as 12). Maintain a healthy bacteria count by keeping bleach, antibacterial soap, paints, solvents and pesticides out of the system.

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## Septic Systems

Most rural residences use septic systems for sewage disposal. Septic systems operate by collecting sewage in a concrete tank and allowing the liquid portion to percolate into the ground through perforated pipe (leach lines). Solids are pumped out of the collection tank and hauled off-site for disposal.

Septic systems are safe and effective, as long as they are properly designed, installed, and maintained. If not, they can be a source of groundwater and surface water contamination. Leaky septic systems can pollute domestic water systems by contaminating the aquifer from which a residential well draws. Older homes may have a primitive system composed of a redwood or metal box with no leach lines. These systems are now illegal and efforts should be made to replace them with a new system.

Human wastes leaking from faulty or old septic systems are a source of water pollution in Napa County. Like livestock waste, human sewage contains nutrients and pathogens. Human sewage poses a more serious health risk than livestock waste because there is a greater chance that it contains human disease organisms.

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**Helpful  
Contacts &  
Resources:**

UC Cooperative  
Extension -  
Livestock &  
Natural  
Resources  
Program:  
707.435.2459

Natural  
Resources  
Conservation  
Service (NRCS):  
707.252.8144

*Horse Keeping: A  
Guide to Land  
Management for  
Clean Water.*  
2001. The  
Council of Bay  
Area Resource  
Conservation  
Districts with  
the USDA  
NRCS. \$25.

## ***Caring for Livestock & Animals***

Livestock and other domesticated animals (including horses, dogs, cats, etc.) can impact creeks by destroying plants, trampling creek banks, disturbing wildlife, and/or reducing water quality. Thoughtful control of livestock and other animals can minimize the disruptions they may cause to our local waterways. Consider the following:

### **Restrict or control livestock and horse access to creeks**

Livestock and horses can trample creek banks and contribute to water quality degradation.

### **Avoid or limit pet access to the creek**

Pets scare fish and wildlife and muddy the creek.

### **Avoid building livestock corrals and feeding/watering areas near creeks**

Develop off-stream watering sources and separate water and salt blocks to spread animals more evenly in grazed areas.

### **Pick up after your pets and store animal waste away from the creek and in a location where runoff will not enter the creek**

Animal waste increases bacterial levels and contributes excess nutrients to the creek, which cause algal blooms and deplete oxygen from the water.

### **Manage erosion from livestock & horses**

Consider seasonal grazing or exclusion of livestock from the creek corridor. Maintain plant and/or grass borders around horse paddocks to act as a filter and seed pastures to minimize bare soil.

## Preventing Catastrophic Fire

Much of Napa County is considered a high hazard fire environment. The area possesses all of the ingredients necessary to support large, intense, and uncontrollable wildfires. Individual houses, subdivisions, and entire communities could be impacted. In addition, an intense wildfire could have catastrophic effects on natural resources due to loss of upland habitat and large increases in erosion and sediment transport.

### Helpful Contacts & Resources

The following publications are available from Napa County Firewise Program and the California Department of Forestry and Fire Protection: 707.967.1426

*Living with Fire in Napa County: A guide for the homeowner.*

*Protecting the Homes and Citizens of California: Wildland-Urban Interface Building Standards.*

*A Homeowners Guide to Firewise Landscaping in Napa County.*

The ability to live more safely and reduce the risk of fire in our environment greatly depends upon the use of “pre-fire activities.”

Pre-fire activities are actions taken before a wildfire occurs that improve the

survivability of people and homes and may help firefighters better control large wildland fires and protect natural resources.

More information regarding fire preparedness can be obtained from the Napa County Firewise Program and the California Department of Forestry and Fire Protection. The following tips are provided as a place to start.

**Move woodpiles and garbage cans away from your home.** Do not put woodpiles or garbage in or near a creek, ditch, or stormdrain.

Pre-fire activities will improve the survivability of homes and may help firefighters better control large wildland fires and

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**Helpful  
Contacts:**

Napa Garbage  
Service  
Recycling and  
Composting  
Facility:  
707.255.5200

Natural  
Resources  
Conservation  
Service:  
707.252.4188

Napa County  
Resource  
Conservation  
District:  
707.252.4188

## **Keep rain gutters and roof clean of all flammable material**

Dispose of these materials properly, do not put them in or near a creek, ditch, or stormdrain. Green waste can be taken to the Napa Garbage Service Recycling and Composting Facility.

## **Dispose of dry grass, brush, and other flammable materials around your home**

Compost debris or take it to a disposal location such as the Napa Garbage Service Recycling and Composting Facility. Avoid disposing of debris in or near a creek, ditch, or stormdrain.

## **Inspect and clean your chimney every year**

Trim away branches within 10 feet. Install a spark arrester with 1/4" or smaller mesh screen. Dispose of chimney and branch debris properly and away from creeks, ditches, and stormdrains.

## **Do not store flammable material within 10 feet of a propane tank**

If possible, locate propane tanks at least 30 feet from any structures and out of the reach of flood waters.

## **Learn about and implement "defensible space"**

Remove dead and dying grass, shrubs, and trees; reduce the density of vegetation and ladder fuels; replace hazardous vegetation with less flammable vegetation. Keep in mind the need to protect bare soil from erosion and to minimize use of water during the summer months when creek flows are already low. See *Landscape & Yard Maintenance* (page 24) and *Keeping Soil On-Site* (page 20) for more information. Contact the Natural Resources Conservation Service or Resource Conservation District for additional information on erosion control.

## **Creek Friendly Recreation**

When enjoying the watersheds of Napa County, at home or elsewhere, remember that the ways we recreate can impact local creeks and disrupt wildlife habitat. Following are some simple tips to keep recreation fun and safe for the watershed.

### **Look for fish, don't catch them**

Most creeks in Napa County are closed for trout fishing for much of the year because these fish are experiencing declines in population. Consider fishing in areas with healthier populations of fish.

### **Supervise children**

Children are naturally curious, but they can unintentionally kill or harm aquatic life.

### **Avoid or limit pet access to the creek**

Pets scare fish and wildlife and muddy the creek water.

### **Pick up after your pets**

Animal waste increases bacterial levels and contributes excess nutrients to the creek, which cause algal blooms and deplete oxygen from the water.

### **Avoid walking on bare creek banks**

especially in the rainy season. This will help prevent erosion.

### **Avoid walking in streams**

especially during spawning season (November through April), when young fish are born. Avoid walking in pools where fish live during the summer.

### **Stay on the trail**

Hikers and bikers should avoid using short cuts and illegal trails. These "trails" are not properly designed or maintained and using them contributes to erosion problems.

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# Resource Directory

## *Technical Assistance*

### **California Department of Fish and Game**

707.944.5500

[www.dfg.ca.gov](http://www.dfg.ca.gov)

P.O. Box 47

Yountville, CA 94559

The Department's mission is to protect and conserve plants, fish, wildlife, and the habitats upon which they depend. In addition to assisting with required permits, department staff can provide technical advice on ways to reduce potential impacts to fish and wildlife when one desires to alter the bed, bank or channel of a stream.

### **Napa County Agricultural Commissioner Napa County Weed Management Area**

707.253.4357

[www.co.napa.ca.us](http://www.co.napa.ca.us)

1710 Soscol Ave, Suite. 3

Napa, CA 94559

The Napa County Agricultural Commissioner is responsible for the implementation of several programs within Napa County including pesticide safety, organic registration, and pests and diseases. The department also coordinates the Napa County Weed Management Area (WMA) which was created to address concerns regarding non-native plant species in Napa County by providing a forum to make it easier to identify Napa's weed problems, share information, and qualify for grants and other funding.



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**Napa County Conservation, Development, and Planning Department (CDPD)**

707.253.4416

[www.co.napa.ca.us](http://www.co.napa.ca.us)

1195 3rd Street, Room 210

Napa, CA 94559

CDPD manages Napa County's "Conservation Regulations" and in partnership with Napa County Resource Conservation District can provide technical assistance regarding erosion control techniques to protect lands from excessive soil loss and to maintain and improve water quality.

**Napa County Department of Environmental Management (DEM)**

707.253.4471

[www.co.napa.ca.us](http://www.co.napa.ca.us)

1195 3rd Street, Room 101

Napa, CA 94559

Environmental Management provides assistance with water wells and septic systems for individual homes and provides educational workshops and materials for businesses and the public on waste reduction and other topics.

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## **Napa County Firewise Program**

707.967.1426

<http://www.co.napa.ca.us/firewise/index.html>

1199 Big Tree Road

St. Helena, CA 94574

In May 2005, the communities of Napa County launched Napa Firewise, a five-year prevention and education program. The program is intended to raise community awareness of the dangers of wildland fires and provide residents with the knowledge necessary to protect themselves.

## **Napa County Master Gardeners**

707.253.4221 or toll free 877.279.3065

<http://groups.ucanr.org/mgnapa/index.cfm>

1710 Soscol Ave.

Napa, CA 94559

Master Gardeners provide information on plant health and gardening practices for vegetables, trees, soils, lawns ornamental horticulture, insects, diseases, and use of pesticides.

## **Napa County Resource Conservation District (RCD)**

707.252.4188

[www.naparcd.org](http://www.naparcd.org)

1303 Jefferson Steet, Suite 500B

Napa, CA 94559

The RCD is a non-regulatory agency whose mission is to promote responsible watershed management through voluntary community stewardship and technical assistance. RCD staff assist landowners and community members with stewardship and conservation through education, technical assistance, and funding for on-the-ground projects.

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## **Napa County Stormwater Management Program**

707.259.8600

804 First Street

Napa, CA 94559

The Stormwater Management Program provides educational materials on protecting local waterways for the general public and businesses.

## **Napa County Flood Control & Water Conservation District**

707.259.8600

[www.co.napa.ca.us](http://www.co.napa.ca.us)

804 First Street

Napa, CA 94559

The Flood Control District administers a number of County storm drainage easements. District staff can provide technical assistance with regard to erosion repair on streams and removal of woody debris. The District also provides some stream channel maintenance and stream bank repairs, and emergency labor and technical assistance.

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## **UC Cooperative Extension Livestock & Natural Resources Program**

707.435.2459

<http://cesolano.ucdavis.edu>

501 Texas Street

Fairfield, CA 94533

The primary focus of this program is to disseminate research-based information to help livestock producers make informed decisions on livestock and natural resource management. Another role is to conduct research projects that provide useful information for local producers and resource managers. The goal of the program is to help local ranchers maintain, and hopefully improve, the viability of livestock production without compromising the valuable resources that sustain the natural and productive environment in which we live and work.

## **USDA Natural Resources Conservation Service (NRCS)**

707.252.4188

1303 Jefferson Street, Suite 500B

Napa, CA 94559

The NRCS works with private landowners to conserve and protect soil, water, air, plants, and animals. NRCS provides no-cost technical consultation to landowners and landusers to address soil erosion, water quality protection, and restoration/management of riparian areas and wetlands. Grants and educational opportunities are available to agricultural producers through various USDA programs.

## **Watershed Information Center & Conservancy of Napa County (WICC)**

707.259.5936

[www.napawatersheds.org](http://www.napawatersheds.org)

1195 3rd Street, Room 210

Napa, CA 94559

## Useful Publications

*Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction-Related Activities.* 2004. Bay Area Stormwater Management Agencies Association. *This publication offers several good ideas for minimizing impacts from construction sites. It is meant for general contractors, home builders and subcontractors, but is useful for anyone involved in a construction project.* The publication can be downloaded from the Napa County Stormwater Management Program on the Watershed Information Center and Conservancy WebCenter at [www.napawatersheds.org](http://www.napawatersheds.org) or by contacting the Napa County Stormwater Management Program at 707.259.8600.

*Fish Friendly Farming Certification Program and Farm Assessment and Conservation Plan Workbook.* 2004. Laurel Marcus. *The program and workbook focus on management practices for vineyards.* Contact the California Land Stewardship Institute for more information or visit [www.fishfriendlyfarming.org](http://www.fishfriendlyfarming.org)

*Handbook for Forest and Ranch Roads.* 1994. William Weaver, PhD., and Danny Hagans for the Mendocino County Resource Conservation District. \$25. Call 707.468.9223 ext. 111.

*Horse Keeping: A Guide to Land Management for Clean Water.* 2001. The Council of Bay Area Resource Conservation Districts, Petaluma, California. *This guide provides practical management information to San Francisco Bay Area horse owners on what they can do to help protect the environment.* Order form available at Napa County Resource Conservation District. \$25 + tax & shipping.

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*The House and Garden Audit: Protecting Your Family's Health and Improving the Environment.* 2001. Laurel Marcus. Available from Laurel Marcus and Associates, call 510.832.3101.

*Layperson's Guide to Water Rights Law.* 2005. The Water Education Foundation. Order online at [www.watereducation.org](http://www.watereducation.org) or call 916.444.6240.

*Stream Corridor Restoration: Principles, Processes, and Practices.* 1998, revised 2001. The Federal Interagency Stream Restoration Working Group. This workbook is available on-line at [http://www.nrcs.usda.gov/technical/stream\\_restoration](http://www.nrcs.usda.gov/technical/stream_restoration).

Watershed Information Center & Conservancy (WICC) of Napa County. [www.napawatersheds.org](http://www.napawatersheds.org) hosts several useful watershed publications.

*Water-Wise Gardening in the Napa Valley.* 2004. City of Napa. *This CD-ROM helps one to better plan and maintain a beautiful and low-maintenance landscape that is water efficient. It includes detailed information for over 1,000 plants and a virtual encyclopedia of water-wise landscape design, irrigation, and maintenance tips.* This resource is available through the Cities of American Canyon, St. Helena, Calistoga, and Napa; the Town of Yountville; the Napa County Resource Conservation District; UC Cooperative Extension; Master Gardeners of Napa County; and the Napa Chapter of the California Native Plant Society. The cost is \$5.

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## *Permitting Agencies*

When modifying a stream in any way you will likely need a permit from one or more of the resource agencies listed below. Permitting agencies can provide some technical assistance in how to comply with their permit requirements and it is advisable to contact them early in your planning process.

### **California Department of Fish and Game**

707.944.5500

Pertinent to streambed alteration as it influences fish and wildlife habitat.

### **Napa County Conservation, Development, and Planning Department**

707.253.4416

Pertinent to stream work that includes earth disturbing activities.

### **Napa County Department of Environmental Management**

707.

Pertinent to

### **National Marine Fisheries Service**

707.525.6050

Pertinent to stream work that could impact threatened steelhead and chinook salmon populations.

### **San Francisco Bay Regional Water Quality Control Board**

510.622.2300

Pertinent to stream work as it influences water quality, including potential sediment input.



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**State Water Resources Control Board -  
Division of Water Rights**

916.341.5300

Pertinent to water diversions and use.

**US Army Corps of Engineers**

415.977.8462

Pertinent to work done in waters under their jurisdiction.

**US Fish and Wildlife Service**

916.414.6600

Pertinent to stream work that could impact threatened or endangered species.

# Acknowledgements

This publication is a modification of the following creek care guides:

*Creek Care: A Guide for Rural Landowners and Residents of Petaluma and Sonoma Creek Watersheds.* Southern Sonoma Resource Conservation District in cooperation with Prunuske Chatham, Inc.

*Creek Care: A Guide for Urban Marin Residents.* 1997. Marin County Stormwater Pollution Prevention Program in cooperation with Prunuske Chatham, Inc.

*The Napa County Resource Conservation District greatly appreciates the work of Martha Neuman with Prunuske Chatham, Inc.; the Southern Sonoma County Resource Conservation District; and the Marin County Stormwater Pollution Prevention Program. We are thankful for their permission to modify their existing guides to better suit the needs of Napa County watersheds.*

## Additional Sources

*Creek Care Guide for Residents and Businesses.* 1994. Rivers, Trails and Conservation Assistance Program, National Park Service.

*Creek Care Guide for Residents and Businesses.* City of Arlington, Texas.

*Common Riparian Plants in Napa County.* 2005. Working document provided by Todd Adams.

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*A Homeowners Guide to Firewise Landscaping in Napa County.* 2005. Napa County Fire Wise Project.

*Living Lightly in Our Watersheds.* Malibu Creek Watershed Council.

*Stream\*A\*Syst: A Tool to Help You Examine Stream Conditions on Your Property.* 2001. Oregon State University Extension Service and USDA Natural Resources Conservation Service.

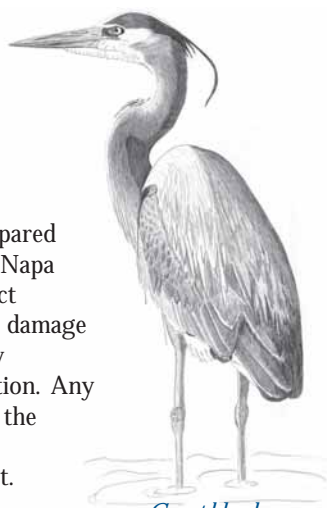
*Safe Substitutes at Home: Non-toxic Household Products.* Gary Davis and Em Turner. University of Tennessee - Knoxville Waste Management Institute. Working Paper.

*Stream Care Guide: Management Tips for Streamside Property Owners.* 1999, revised 2002. Placer County Resource Conservation District.

*Stream Corridor Restoration: Principles, Processes, and Practices.* 2001. The Federal Interagency Stream Restoration Working Group.

*River Dynamics & Erosion; An Introduction to Riparian Buffers; Riparian Buffers as Habitat; Soil Erosion & Soil Stability; Napa County Fisheries; and Noxious Riparian Weeds.* 2005. Napa County Resource Conservation District.

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*Great blue heron*



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