



**SAN MATEO COUNTYWIDE STORMWATER
POLLUTION PREVENTION PROGRAM (STOPPP)**

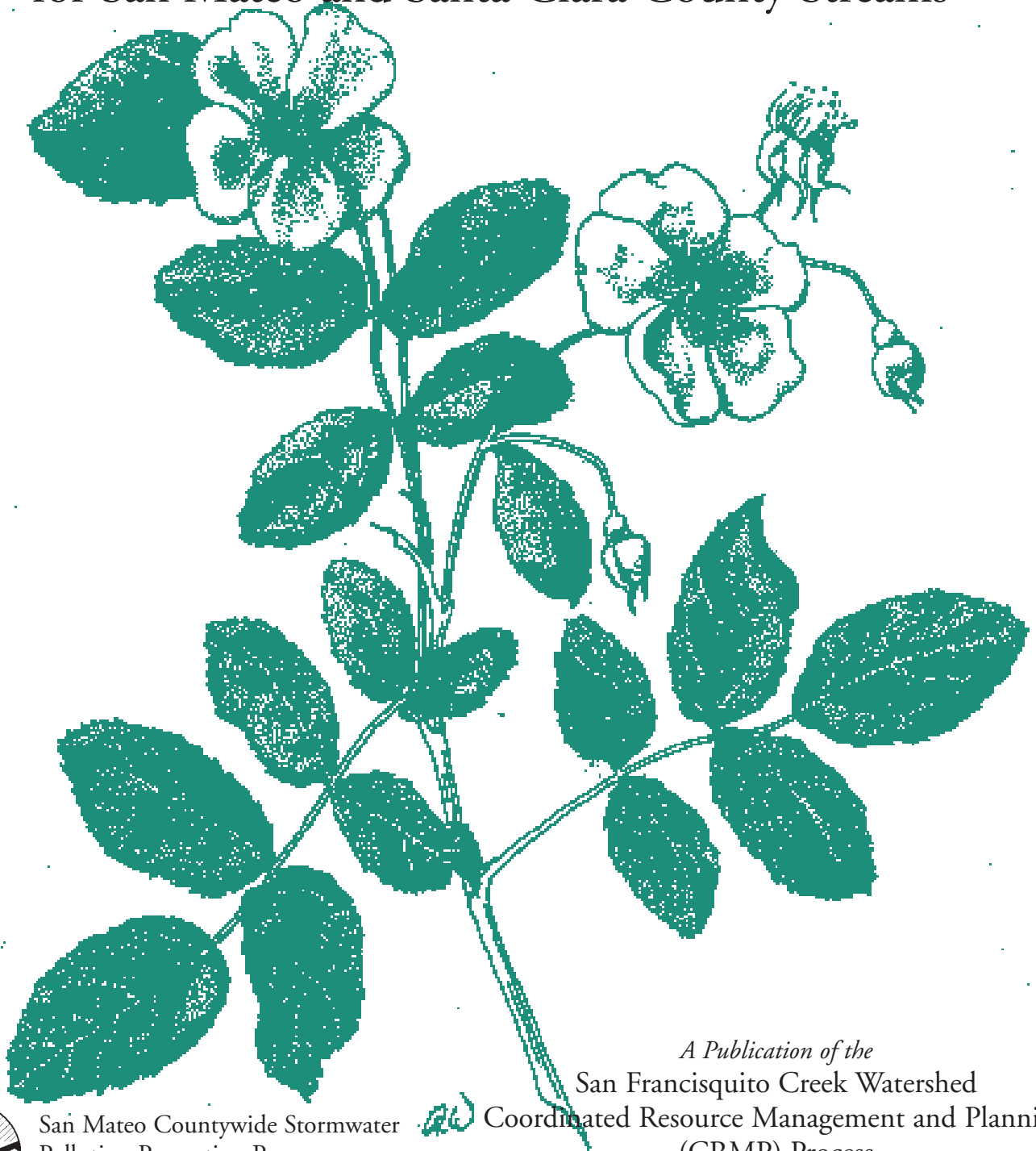
A Program of the City/County Association of Governments (C/CAG)

555 County Center

Redwood City, CA 94063

STREAMSIDE PLANTING GUIDE

for San Mateo and Santa Clara County Streams



A Publication of the
San Francisquito Creek Watershed
Coordinated Resource Management and Planning
(CRMP) Process

Edited by: Karen Cotter



San Mateo Countywide Stormwater
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RESOURCE DIRECTORY

Handbooks on Stream Care and River Watershed Management

- *A Casebook in Managing Rivers for Multiple Uses*, National Park Service, Division of Recreation Resources Assistance, P.O. Box 37127, Washington, DC 20013.
- *Creek Care Guide for Residents and Businesses*, Rivers, Trails and Conservation Assistance Program, National Park Service, Division of Recreation Resources Assistance, P.O. Box 37127, Washington, DC 20013.
- *Groundwork: A Handbook for Erosion Control in North Coastal California*, by Liza Prunuske, Marin County Resource Conservation District, P.O. Box 219, Point Reyes Station, CA 94956.
- *How Greenways Work: A Handbook on Ecology*, by Jonathan M. Labaree, Rivers, Trails and Conservation Assistance Program, National Park Service and Quebec-Labrador Foundation's Atlantic Center for the Environment, Ipswich, MA.
- *Stream Care Guide for Streamside Property Owners and Residents*, by Nancy Reichard, Natural Resources Division, Redwood Community Action Agency, 904 "G" Street, Eureka, CA 95501.
- *A Citizens Stream Restoration Handbook*, by Karen Firehock and Jacqueline Doherty, Save Our Streams Program, Izaak Walton League of America, Inc., 707 Conservation Lane, Gaithersburg, MD 20878.
- *Ecology of Greenways*, by Daniel S. Smith and Paul C. Hellmund (eds.), University of Minnesota Press, 1993.
- *Stream Care Guide for Santa Clara County*, Santa Clara Valley Water District, (408) 265-2607, ext. 2255.
- *A Landscaping Guide to Native and Naturalized Plants for Santa Clara County*, Santa Clara Valley Water District, (408) 265-2607, ext 2255.
- *Guide to Creek & Wetland Project Permitting*, San Mateo Countywide Stormwater Pollution Prevention Program, (650) 593-3820.
- *North Coast Stream Care Guide*, Natural Resources Services Division, Redwood Community Action Agency, 904 G. Street, Eureka, CA 95501, (707) 269-2059.
- *Guidelines for Bank Stabilization Projects: In the Riverine Environments of King Country*, King County, WA, (206) 296-8332.

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LINKING UP WITH OTHERS WHO CARE ABOUT STREAMSIDE RESTORATION AND HABITAT PROTECTION

This brochure focuses on planting in the creek corridor. Some restoration activities within the riparian corridor and/or within the tops of the banks require a permit before you can begin work. Federal, state, and local agencies have jurisdiction over some portions of the riparian habitat and therefore may require permits or review of any work to occur there. It is important to research permit requirements before beginning work.

Do not attempt to alter the topography of the streambed or streambanks unless you have consulted with appropriate resource agencies such as the California Department of Fish and Game and the U. S. Army Corps of Engineers.

Listed below are agencies and information sources to help you with planting and enhancing your riparian stream habitat and, if necessary, obtaining any required permits.

Federal Agencies

- U.S. Army Corps of Engineers (permits only) (415) 977-8461
- USDA Natural Resources Conservation Service (408) 636-8029
- U.S. Fish and Wildlife (916) 979-2710
- National Marine Fisheries Service (707) 575-6050

State Agencies

- California Department of Fish and Game (707) 944-5525 or (415) 688-6363
- State Water Resources Control Board
 - Water Rights Permit Division (916) 657-2170
 - Urban Streams Restoration Program (916) 327-1664
- Regional Water Quality Control Board (510) 622-2800
- California Coastal Commission (415) 904-5267
- Bay Conservation and Development Commission (650) 557-3686

Regional Districts

- San Mateo Flood Control District (650) 363-1823
- Santa Clara Valley Water District (408) 265-2600 ext. 2253

Local Jurisdictions (Planning Departments)

- Atherton (650) 688-6523
- Belmont (650) 595-7416
- Brisbane (415) 508-2120
- Burlingame (650) 696-7250
- Colma (650) 985-2590
- Daly City (650) 991-8034
- East Palo Alto (650) 853-3189
- Foster City (650) 286-3232
- Half Moon Bay (650) 726-8250
- Hillsborough (650) 375-7400
- Menlo Park (650) 858-3400
- Millbrae (650) 259-2341
- Pacifica (650) 738-7342
- Palo Alto (650) 329-2441
- Portola Valley (650) 851-1700
- Redwood City (650) 780-7234
- San Bruno (650) 877-8876
- San Carlos (650) 802-4263
- San Mateo (city) (650) 522-7200
- San Mateo County (650) 363-4161
- Santa Clara County (408) 299-2454
- South San Francisco (650) 877-8535
- Woodside (650) 851-6796

Local Non-Profit/Others

- California Native Plant Society (650) 856-2636
- California Exotic Pest Council (949) 487-5473
- Society for Ecological Restoration (661) 634-9228
- Jasper Ridge Biological Preserve - Tours (650) 327-2277
- San Francisquito Creek Watershed CRMP (650) 962-9876 www.peef.org/crmp/directions
- San Mateo County Resource Conservation District (650) 712-8938
- San Pedro Creek Watershed Cooperative (650) 359-6904 www.pedrocreek.org

WHERE TO FIND NATIVE PLANTS

Demonstration Gardens:

Native Hill at Foothill College is sponsored by the Horticulture Department and the California Native Plant Society. Turn left at the college entrance. Continue to the Ornamental Horticulture unit. Native Hill is on the right, adjacent to the bus stop. Bring 4 quarters for parking; the garden is always open.

The **Woodside Public Library Garden** is behind the library at 3140 Woodside Road in the town of Woodside. They are open weekday and Saturday afternoons, and Monday and Wednesday evenings.

The **Environmental Studies Area** at De Anza College is in Cupertino on McClellan Road, just west of Stelling Road. Park in the lot next to the tennis courts (8 quarters). The garden is open (with tours) the first Sunday of every month, 10 am to 2 pm, or by appointment. 408/864-8346.

Yerba Buena Nursery is located at 19500 Skyline Boulevard between Page Mill Road and Woodside Road (2.2 miles north of Page Mill on Skyline). This 2-acre garden will give you an opportunity to see the mature forms of plants you may wish to buy. Knowledgeable salespeople will help you. This is definitely worth a visit and is open all year except major holidays. 650/851-1668.

Native Plant Sales: The California Native Plant Society, at both the Peninsula Conservation Center (650/962-9876) and Foothill College, and the San Francisco Bay Wildlife Refuge in Fremont (510/792-4275) hold annual and semi-annual native plant sales.

California Native Plant Nurseries: Always plant with locally collected plant material. Use non-local nurseries to help find locally collected material and answer questions.

Baylands Nursery
East Palo Alto (650) 323-1645

Bay West Nursery
Santa Cruz (831) 476-8865

Berkeley Horticultural Nursery
Berkeley (510) 526-4704

Carman's Nursery
Los Gatos (408) 356-0119

Cornflower Farms
Elk Grove (916) 689-1015

Elkhorn Ranch Restoration Nursery
Moss Landing (831) 763-1207

Go Native Nursery
Moss Beach (650) 728-2286

Las Pilitas Nursery
Santa Margarita (805) 438-5992
www.laspilitas.com

Mostly Natives
Tomales (707) 878-2009

Native Revival Nursery
Aptos (831) 684-1811

Pacific Coast Seed
Livermore (925) 373-4417

Redwood Nursery
Santa Cruz (831) 438-2844

Skylark Wholesale Nursery
Santa Rosa (707) 539-1565

Soquel Nursery Growers
Soquel (831) 475-3533

Sunset Coast Nursery
Watsonville (831) 726-1672

Yerba Buena Nursery
Woodside (650) 851-1668

WHY IS STREAM CARE IMPORTANT?

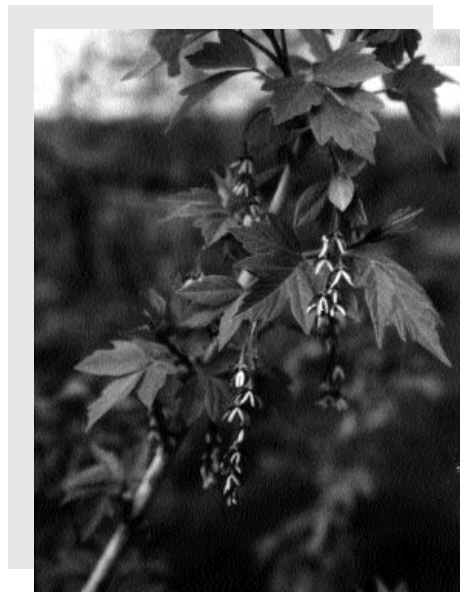
A stream is more than just a channel for rainwater to pass through on its way to the sea. It is a complex, living system where many plants and animals make their home. The stream corridor, including the vegetation along the bank, is known as *riparian* habitat. This high-moisture environment supports a great diversity of wildlife. The corridor is an invaluable natural resource that serves as a conduit for floodwater, replenishes surface and ground water, and contributes a host of aesthetic and recreational benefits.



Since the great majority of streamside property is privately owned, much of the responsibility for the life and health of our streams lies with you, the streamside resident.

Proper management of your stream and its vegetation can prevent or minimize erosion, preserve water quality, contribute to the survival of fish and wildlife, and help avoid flood damage. By protecting and preserving both property and the environment, streamside stewardship represents an excellent opportunity to create a "win-win" situation.

This brochure is a guide to protecting one of the most valuable elements of a living stream — the riparian vegetation. On the next few pages you will find ways you can protect the plants within a riparian habitat, tips on taking care of your stream, a listing of suggested plantings, and advice on how to join others who care about riparian habitat protection. Using this brochure, you can help restore and enhance one of California's most vital and endangered resources, the living creek environment.

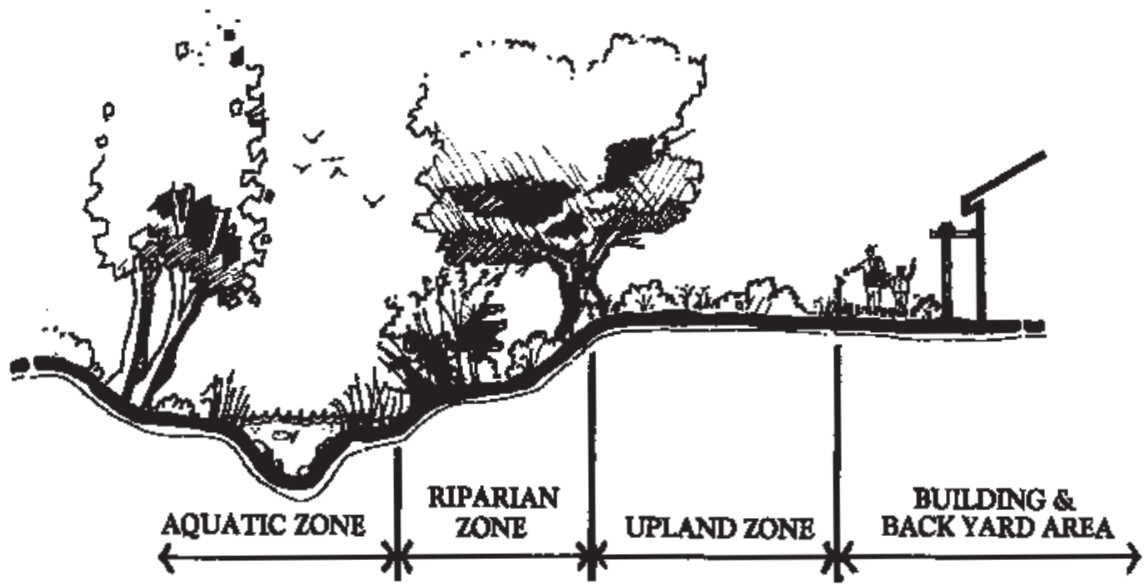


CARING FOR A LIVING STREAM AND PROTECTING THE RIPARIAN ZONE

To be a good stream steward, you need to protect your riparian habitat and make it an inviting place for fish and wildlife. Prime goals of stream care include:

- ✦ Minimizing erosion or contamination from property adjacent to streams;
- ✦ Preserving the stream and the riparian zone in as natural a state as possible; and
- ✦ Repairing disturbed sites by restoring streamside vegetation.

Of course, it is always easier to prevent erosion and damage to a riparian habitat than it is to repair it once damaged. Learn to be aware of damage to a creek ecosystem and be prepared to try some of the stream-saving ideas presented in this brochure.



A stream corridor is made up of essentially three zones: the aquatic zone, the riparian or streamside zone, and the upland or buffer zone.

The aquatic zone is the surface water environment: the water, the creekbed and its flora and fauna. The riparian zone is the border of moist soils and water-loving plants next to the aquatic zone. It may be only a few feet wide or extend for hundreds of feet, but it is a very important part of the stream ecosystem. The upland zone is the area immediately adjacent to the riparian zone and can extend for hundreds of feet in width. This upland area is where you can best protect and enhance the creek habitat. The upland zone is the region that allows you to enjoy the creek while providing an important buffer that minimizes disturbance to wildlife.



STREAMBANK EROSION

Streambank erosion is a natural process. Natural erosion rates can benefit streams by providing a source of boulders, cobble and gravel for fish habitat. However, accelerated erosion rates (resulting from human activities) can overload the natural system and have a negative impact on fish habitat.

Where accelerated erosion is occurring, it is wise to implement streambank stabilization measures. This can be accomplished by strategically placing boulder or log structures, in addition to revegetating the area.

Prior to any work in a stream, consult the San Mateo Countywide STOPPP-Guide to Creek and Wetland Project Permitting. This brochure will give you direction to the agencies that need to be contacted to determine if permits are required. In addition, it is highly advisable to seek professional advice regarding your project design and implementation. See the resources section on pages 13 and 14 of this booklet for assistance.

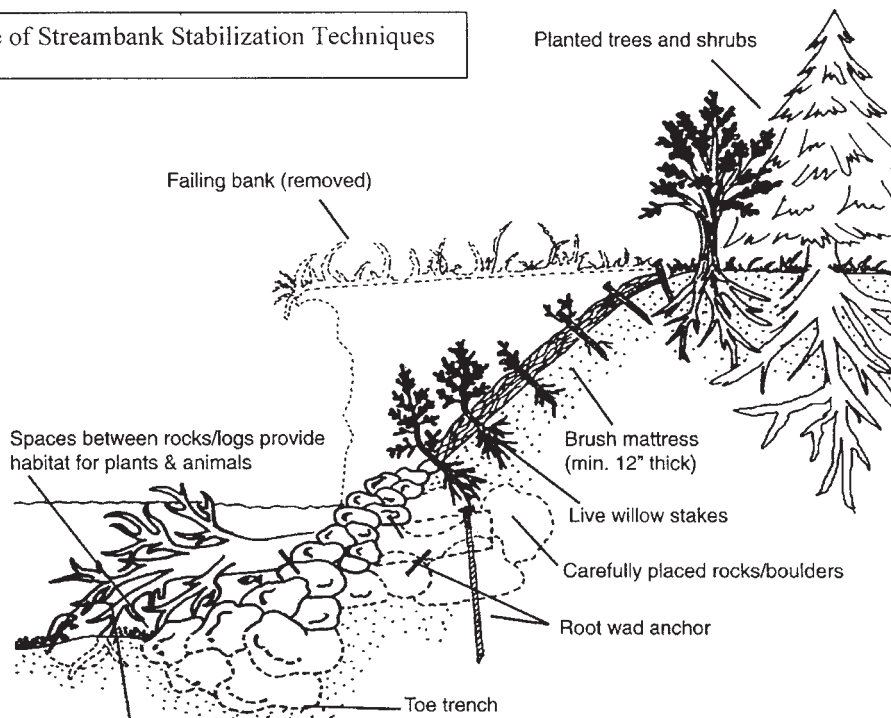
General methods of streambank stabilization include:

Revegetation: The best way to prevent surface or bank erosion is to keep it vegetated. Most other methods of streambank stabilization are temporary means to allow vegetation to establish and form long-term protection. Some appropriate riparian species for this area are listed in this guide. Always look at the nearby native plant communities before choosing species for revegetation. This will enable you to select species adapted to the local microclimate.

Armoring: Application of various materials (rock, logs, trees, etc.) to strengthen a streambank against further degradation and to dissipate water's erosive force against the soil.

Deflection: Placing rock/log structures upstream of an eroding area to direct water force away from the unstable area toward a more stable area.

Example of Streambank Stabilization Techniques



Root wad (optional): Added to create stream complexity favorable to fish habitat. In urban high flood hazard areas, modify structure by either placing a smooth log, or not placing anything, to avoid the possibility of jamming the channel (consult a professional restorationist).

Oregon Ash (*Fraxinus latifolia*). A true riparian tree, this will do well with water in rich, moist bottomlands and along low streambanks. It is one of the last of the trees in the Peninsula region to leaf out in the spring, and it is also one of the first to drop its leaves. Only occasionally found in the stream bottoms near the Bay, this medium-sized tree grows to 80 feet. The leaf is compound pinnate, composed of 5 to 7 leaflets, which makes it a fine-textured tree. Male and female flowers occur on different trees and appear as inconspicuous clusters just before the tree leafs out in spring. The fruit is winged. The wood is well-liked for fireplace burning, as it produces a pleasant-smelling smoke.

Western Sycamore (*Platanus racemosa*). One of the most picturesque trees, though not native to San Mateo. The sycamore requires plenty of space to grow and the roots must reach the water table for healthy growth. A healthy tree will grow to at least 90 feet. Its large leaves, as much as 18 inches across, fall throughout much of the year. If planted next to a well-manicured garden, frequent raking may be needed. The sycamore is also susceptible to the sycamore blight fungus or anthracnose, which can cause defoliation and leaf curl even in the late spring. The blight will not kill the tree, but the leaves look as though they have been frozen. The tree usually recovers and develops a second crop of leaves later in the spring.



GUIDELINES FOR STREAM PLANTING AND ENHANCEMENT

The following guidelines will help you to enhance the stream corridor and, as a result, protect the creek habitat.

- ✦ It is very important to plant locally collected plant material. Local plant material is more likely to be adapted to local site conditions, more likely to be part of the existing "gene pool," and therefore more likely to survive.

- ✦ Observe adjacent or nearby creek habitats and determine which native plants grow in your immediate vicinity, and where they grow in relation to the stream. This is one of the best sources of knowledge for determining appropriate selection and location of plantings.

- ✦ Never use fertilizers or pesticides in the riparian or aquatic zones; the runoff into creeks can kill insects, fish and birds.

- ✦ Keep domestic animals away from the riparian zone; dogs and cats prey on riparian wildlife, while livestock trample or eat riparian plants leading to erosion and disturbance of fish and other wildlife.

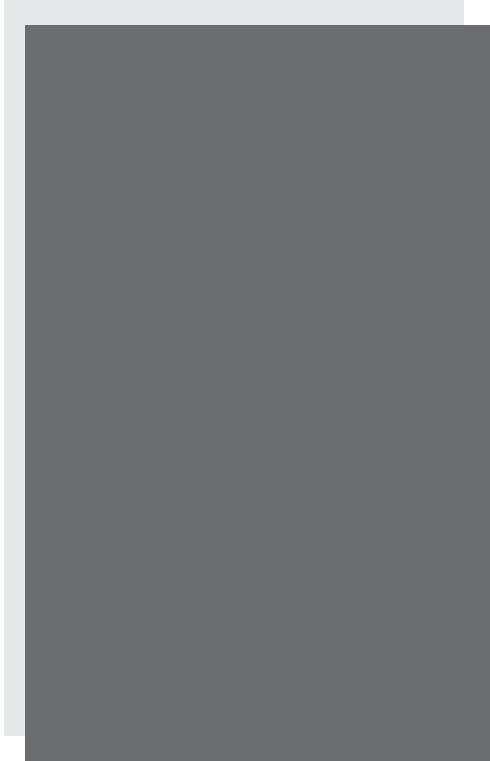
- ✦ Minimize soil compaction by controlling use of trails and other recreational activities.

- ✦ Control erosion by protecting areas where flowing water meets bare soil, such as on dirt roads, trails, driveways, earthen drainage ditches, or patches of bare or sparsely vegetated earth. In these areas, reduce the force of runoff against the soil by reducing its speed, redirecting it to vegetated areas, shielding the soil with protective materials such as mulch, or replanting with native trees, shrubs, or groundcover.

- ✦ Protect existing vegetation. Construction, compaction, modifying the soil grade or drainage patterns, or tilling should never occur beneath the drip-line (from the trunk to the edge of vegetation canopy). If utility line installation or other construction is needed in this area, work the area by hand not machinery.

- ✦ Do not rake up leaf litter and fallen branches of native plants. This material provides food and shelter for beneficial insects which are an important part of the food chain. Also, native plants need no pruning.

- ✦ Do not dump yard wastes into the creek corridor as they smother existing plants, causing erosion, and spread invasive, non-native plants. In addition, do not dump organic debris, such as grass clippings, into the creek. As it decomposes it robs the water of oxygen, affecting fish and other aquatic organisms.



✂ Remove non-native, invasive plants gradually and replace with natives. Work in small sections when removing plants; replant immediately to reduce erosion, maintain shade and minimize disturbance to wildlife. Take out unwanted non-natives before they are large enough to set seed. Learn to recognize native seedlings and encourage them. Some undesirable non-native, invasive plants are listed below:

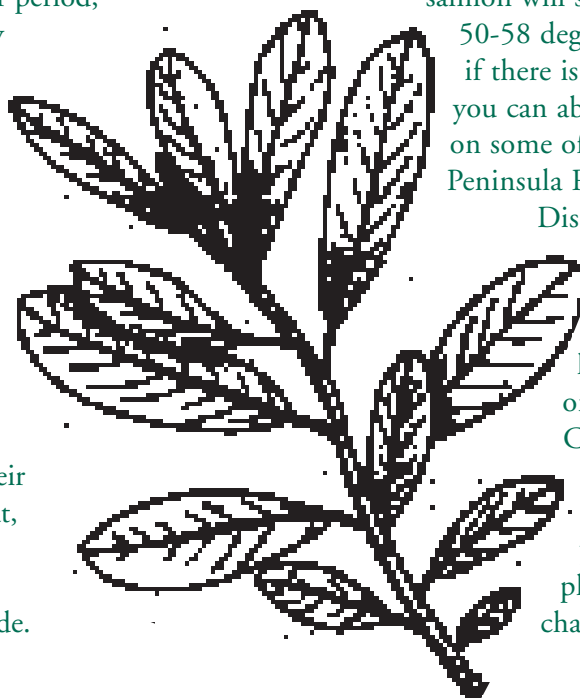
Broom	English Ivy
Tamarisk	Acacia
Black Locust	Tree-of-Heaven
Periwinkle	Giant Reed or Bamboo
Pampas Grass	Poison Hemlock
German Ivy	Eucalyptus

WATERING

Most homes along the creek sit high above average water table levels. As a result, most trees and shrubs that you plant will eventually reach the water table, but it may take several years of supplementary watering to get them established. Do not water during the hottest part of the day, no matter how tempting. Harmful soil fungi and microorganisms multiply in hot, wet conditions. Native plants not accustomed to these organisms are often damaged. Instead, water only occasionally and deeply. Extend both ends of the rainy period by watering in spring and autumn. During the dry summer period, water slowly and deeply in early morning to ensure deep percolation.

KNOW YOUR HABITAT

View this project as an opportunity to learn. Keep lists of birds, butterflies, etc. Watch how they use their habitat — what they eat, what provides shelter. Keep temperature readings in the sun and shade.



There is a big difference! Native trout and salmon will survive if the water is at 50-58 degrees. This can only happen if there is shade. Learn as much as you can about native plants. Walk on some of the trails on our Mid-Peninsula Regional Open Space District lands. Make reservations for a Jasper Ridge Biological Preserve tour. Go on field trips with the local chapter of the California Native Plant Society. Closely observe plants that grow in native habitats similar to your own backyard. Get to know your plants through-out the changing seasons.

RIPARIAN TREES AND SHRUBS FOR STREAMSIDE PLANTING

In most circumstances, areas within the creek banks are regulated by local or state agencies and, therefore, a permit is required before work is begun. To find out more refer to the section "Linking up with Others Who Care About Streamside Restoration and Habitat Protection."

The following trees and shrubs are found closer to the water and low on the banks. In general, riparian plants enjoy lots of water and will thrive in either sun or shade.



Willow (*Salix* spp.).

Willow species create wonderful bird habitat, providing shelter, food and nesting material.

Arroyo willows (*Salix lasiolepis*) reach 35 feet in height and are the tallest growing of our local native willows.

Scouler's willow (*Salix scouleriana*) can reach 30 feet in height, and may be difficult to distinguish from arroyo willow. Both have leaves with pale undersides, but the Scouler willow leaf is always broadest above the middle, often with a rounded tip. Other willows to consider using are yellow willow (*S. lasiandra*), and red willow (*S. laevigata*); both grow as small trees or large shrubs. Willows host the larvae of the western tiger swallowtail butterfly.

Brown Dogwood (*Cornus glabrata*) and **Creek Dogwood** (*Cornus californica*). The brown dogwood grows 4 to 15 feet high and is multi-branched. Full-grown creek dogwood is a wide, 10-foot shrub, found very close to the water. The brown dogwood produces white fruits, while the creek dogwood has bluish drupes. The fruits are eaten by birds and disappear quickly. The smooth, deep wine-red branches of the creek dogwood are lovely year-round, and in April they are topped by flat bunches of small, sweet-smelling, creamy flowers. Both dogwoods are deciduous and provide good fall color.



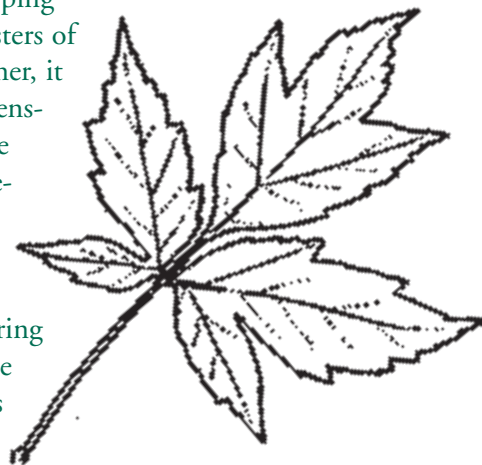
White Alder (*Alnus rhombifolia*).

Very fast growing to 50 -70 feet, this is a handsome tree with drooping catkins of pollen-producing male flowers appearing in winter. The female flowers develop into woody, cone-like fruits that stay on

the tree, opening to release tiny, winged nutlets that are very attractive to birds.

Box Elder (*Acer negundo*). This is a fast-growing, handsome, rather round-topped tree, growing 40 to 70 feet high. In spring there are abundant drooping maple-like clusters of fruit. In summer, it is one of the densest native shade trees, with lovely, velvety foliage.

Autumn finds the leaves coloring unevenly before dropping. It is a good deciduous tree to plant where you need summer shade and winter light, and will do best where there is ample water.



SMALL SHRUBS AND PERENNIAL HERBS FOR UPLAND PLANTING

Sticky Monkey Flower (*Mimulus aurantiacus*). A small, showy shrub growing 2-3 feet tall, this monkey flower is our only local woody species of *Mimulus*. This shrub blooms over a long period, from spring to late summer. For best flowering, cut it back each winter for a compact form, although it is not necessary to do so. You will get a large, more open shrub when it is left unpruned. It attracts two local butterflies, the buckeye and the chalcone checkerspot.

Deerweed (*Lotus scoparius*). Good on steep banks, this small shrub likes sunny locations in poor soil. It plays an important role in stabilization of poor soils.



Reaching only 1-2 feet in height, it will spread horizontally, and if in a suitable location, will self-seed. The tiny yellow pea-flowers are clustered in the leaf axils (between leaf and stem) and have a long blooming period.

Like the buckeye, deerweed drops its leaves in late summer. It attracts both the Acmon blue and Behr's blue butterflies.

California Blackberry (*Rubus ursinus*). You can easily distinguish this native blackberry from the non-native invasive Himalayan blackberry because the native species has three leaflets, not five. Also, the native plant is much weaker, usually trailing along the ground and never sending up strong, arching branches as does the non-native. California blackberry makes a good ground cover and slope stabilizer in shady areas. The berries are a favorite food for many wildlife species as well as for people!

Oceanspray (*Holodiscus discolor*). This is a multi-branched, deciduous shrub that can grow to 20 feet. It has small, delicate flowers in showy clusters, and can make quite a display when in flower in May and June. It does best in moist, rich soil in partial shade; however, it is drought-tolerant. If planted in your garden, it looks best when pruned back after flowering, but if it is planted within the creek banks, it is best left alone.

Douglas's Iris (*Iris douglasiana*). Good in high, dappled sunlight under oaks, this lovely iris will provide color for about a month starting in late March. The underground rhizomes are easily divided in the fall, and you can increase your clumps relatively quickly. This is a particularly good-looking ground cover that needs no water once established.



Native Americans used the fibers from the leaves to make a surprisingly strong string or rope. The string was used to form fishing nets and game snares.

Red-flowering Currant (*Ribes sanguineum* var. *glutinosum*). This is perhaps the most beautiful of all our native species of currants.

It is widely available from nurseries, and is relatively problem-free. It likes partial shade and is drought-tolerant, but in the streams of San Mateo and Santa Clara counties it will do best with added water. The flower clusters are stunning and attract hummingbirds, and other birds enjoy the berries.



Creeping Snowberry (*Symphoricarpos mollis*). An evergreen, low-growing and spreading shrub, snowberry will do best in light shade or on a north-facing slope. It will do best with some summer water. It spreads laterally, and in the right location, can form low, dense thickets that are ideal for use on stream banks for erosion control. It has small bell-shaped, pinkish flowers which develop into shiny white berries. It is highly valued for food and cover for small mammals and some species of fruit-eating birds.

NATIVE TREES FOR UPLAND PLANTING

The species suggested below are suitable for home planting in the upland buffer zone, between your house and the top of the creek bank. Plant trees no more than 10-15 feet back from the top of the bank to provide shade over the water. Do not plant trees so close to the edge of the bank that they may wash out in a storm.

Coast Live Oak (*Quercus agrifolia*) and **Valley Oak** (*Quercus lobata*). The coast live oak has a broadly rounded crown and with age can develop a massive trunk and branches. An evergreen, it grows 50-70 feet high and will be an outstanding addition to your property. It can be relatively fast-growing if located favorably. The valley oak is deciduous. It often reaches a greater height (70-90 feet) than the coast live oak, has lobed leaves, and furrowed bark. Valley oaks like the deep, rich soil of floodplains. Like the live oak, the valley oak thrives in sun to partial shade.

Both oak species produce a cornucopia of foods for wildlife (i.e., acorns, leaves, twigs, sap, roots, and pollen). Oak trees form the basis of an elaborate food web, with herbivores eating oak products and carnivores eating herbivores.

Acorns are consumed by at least 30 species of birds in California and are a particular mainstay of scrub jays and acorn woodpeckers. However, the rich and varied invertebrate population of oak communities is a far more important food resource for most birds. Bushtits, chickadees, wrens, warblers, and titmice eat insects directly from the tree. Ground-foraging thrushes, thrashers, and towhees forage for insects in the leaf litter. Woodpeckers, flickers, and creepers probe the bark for insects, and raptors eat the birds that prey on the insects.

More than 80 species of amphibians and reptiles make use of oak trees here in California, foraging for food in the leaf litter and soil and making use of fallen dead wood, hollows, and cavities as shelter. Carefully pick up an undisturbed fallen log and count the species you uncover! Butterflies need oaks, too. The larva of the California sister eats the young leaves of the evergreen oaks and the California hairstreak lays its eggs on the valley oak. Both oak species are larval food plants for the mournful dusky-wing skipper. The California oak moth is not the harmful pest some would have you believe. Instead of spraying insecticides, allow nature to control this insect as it has for hundreds of years. The oak trees will flourish, as will those predators who eat the moths and its larvae. Adult oaks have a remarkable capacity to re-grow following defoliation by insects, and the insect droppings contribute to the cycling of nutrients in the ecosystem.

California Buckeye (*Aesculus californica*). A small tree, 20-30 feet high, often with several trunks, the buckeye grows in sun to partial shade. It is one of the Bay Area's most showy native trees. The masses of creamy-white flowers appear on long, erect spikes during May and June. However, its late-summer deciduous behavior makes newcomers to the Bay Area think their tree is dying. In reality, it is employing an adaptive strategy to the long, dry summer by dropping its large green leaves to reduce dehydration. The beautiful fruits — grey-green pods that hang on the bare, white-trunked tree — split open in November to reveal the shiny brown buckeye nut.

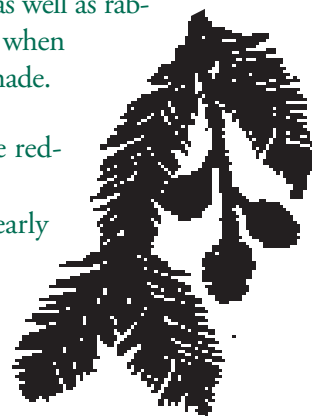
The buckeye leaf is food for echo blue butterfly larvae and its flowers are an outstanding nectar source for adult butterflies of many varieties. The seeds, which are toxic, were used by the Ohlone Indians for food only after leaching with boiling water or roasting to remove the toxin. Ground-up seeds were used as a fish poison. The trees are often found at Ohlone midden sites (refuse heaps) in the Bay Area, possibly because the enriched soil benefited the trees, or possibly because the Ohlone chose to congregate near buckeye groves.





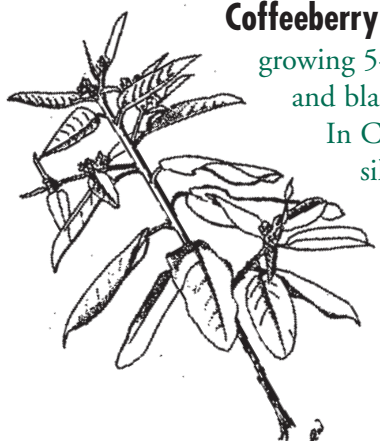
California Bay (*Umbellularia californica*). Also known as pepperwood and Oregon myrtle, this is an evergreen tree with pungently aromatic leaves. Its leaves may be used as a seasoning and are slightly stronger than the related Mediterranean bay (*Laurus nobilis*) commonly used in cooking. Small, yellow-green flowers appear in clusters in winter and early spring, and later develop into oval fruits resembling olives. This is a particularly good choice for planting in shaded areas. Eventually the bay will reach heights around 70 feet, sending up many trunks and covering a vast area. It tolerates summer drought, but additional watering makes it grow considerably faster than 12 inches per year. It can be used as a dense screen if trimmed as a hedge.

Blue Elderberry (*Sambucus mexicana*). A small deciduous tree, up to 30 feet in height, and very showy in both flower and fruiting stages. The flat-topped clusters of bluish berries are attractive to songbirds and band-tailed pigeons, as well as rabbits, squirrels, and mice. People enjoy the fruits too, but only when boiled with sugar. Elderberry can be grown in sun or partial shade.

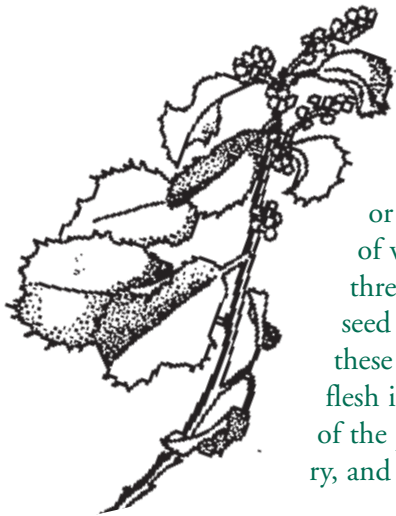


Coast Redwood (*Sequoia sempervirens*). We know that the redwood on San Francisquito Creek at El Camino Real (the namesake of Palo Alto) was here as a native because many early explorers commented on it, though it is unusual to find it growing on the valley floor. In addition, a redwood grove is located on San Francisquito creek just below Searsville Lake. While not particularly good to plant under, due to its deep shade and possible toxins in the dropped needles, the coast redwood nevertheless provides good nesting shelter for several species of birds. Also, the tiny seeds that fall out of the cones attract birds. Redwoods tolerate summer weather and can grow rapidly up to 100 feet when extra water is provided. They can be grown in sun, partial shade, or shade but prefer areas subject to fog.

LARGE SHRUBS FOR UPLAND PLANTING



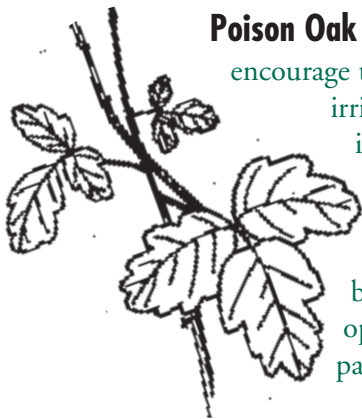
Coffeeberry (*Rhamnus californica*). A large, open-branched evergreen shrub growing 5-10 feet tall in partial shade. It has insignificant-appearing flowers and black berries which are a good food source for fall-migrating birds. In California, coffeeberry is the preferred larval host of the ceanothus silk-moth, the largest of the Lepidoptera (the order of insects that includes butterflies and moths). This moth also eats ceanothus (see wild lilac or blue blossom), which is in the same plant family. Coffeeberry is also eaten by the larvae of the California tortoise-shell butterfly.



Hollyleaf Cherry or Islay (*Prunus ilicifolia*). This dense evergreen is an excellent screen plant and can grow quite high for a shrub (40 feet at times, but more commonly 20-30 feet). It likes sun, partial shade, or shade. A member of the rose family, it has dense spikes of white flowers which are very attractive to insects. Two to three large red or dark purple drupes (fleshy fruits with one seed encased in a hardened stone, like a cherry) mature on these flower spikes and are eaten by a variety of wildlife. The flesh is sweet, but very thin, and the stone is large. The larvae of the pale swallowtail butterfly eat the leaves of islay, coffeeberry, and blue blossom.

Wild Lilac or Blue Blossom (*Ceanothus thyrsiflorus*). One of the tall species of ceanothus (10-15 feet), this is probably the only one of the almost 60 ceanothus species in California that is native to the local streamside. It likes partial shade to full sun. The blue flowers occur in showy, dense clusters blooming from March to May; the fragrant flowers are a great attraction to insects. The larvae of the Western brown elfin and California tortoise-shell butterflies feed on the young leaves.

California Wild Rose (*Rosa californica*). A shrub, 3-6 feet high, with pretty pink flowers followed in the fall by bright red hips rich in vitamins A and C. Padre Font, an early European visitor to California, wrote in his diary of gathering and eating the hips right from the bush. The wild rose likes open, sunny locations, and will grow larger and flower longer if given extra water.



Poison Oak (*Toxicodendron diversilobum*). Some may choose not to encourage this plant because it contains compounds that can strongly irritate the skin of many people. Others, however, who want an impenetrable thicket that will discourage trespassing, just may want to help it along. It certainly has many desirable qualities, not the least of which is its beautiful color in late summer and early fall. Birds love its clusters of small white berries. It will grow as a dense shrub 4-5 feet high in sunny, open locations and also as a climbing vine in shady and partially shaded areas.

Toyon (*Heteromeles arbutifolia*). This is a very common and beautiful evergreen with clusters of white flowers in early summer and bright red berries in November. The berries attract the early winter flocks of robins and cedar waxwings and the flowers attract many insects. Long before the advent of pyracantha and cotoneaster in the Bay Area, the toyon was considered our local Christmas berry. Toyon makes a good visual screen, growing 10-15 feet in height. It likes sun or partial shade and tolerates summer weather. Watch for the echo blue butterfly. It eats the buds, flowers, and young fruits of not only the toyon but also the buckeye, bay, coffeeberry, and blue blossom.