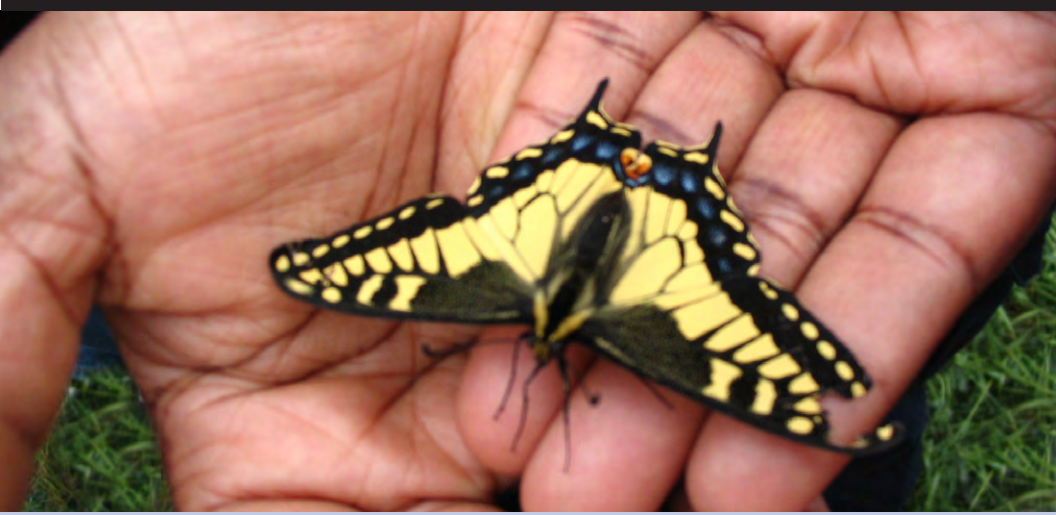
CITY OF SAN PABLO
City of New Directions

SAN PABLO
CREEKSIDE PROPERTY OWNER'S
~GUIDEBOOK~

CONTENTS

COVER PHOTO: Wildcat Creek looking upstream to the Marin Avenue bridge



WHAT'S THIS *all about?*

CREEKS

They are such an integral part of our lives! We need to take care of them!

AS RESIDENTS of Contra Costa County, we are surrounded by creeks. They are a source of enjoyment and a necessity for the wildlife that inhabits the area. In addition, they form a critical element of the City storm drain system. We are constantly interacting with our creeks because we share the same land. We plant and remove vegetation, build additions to our properties along the banks, and our children might even play in the creeks during calm days.

Because creeks are such **an integral part of our lives** we need to take care of them. Unfortunately, we may sometimes do the wrong things, such as leaving litter and debris in or around the creeks. Likewise, we may damage the creek ecology by allowing chemicals to enter them through runoff, either directly into them or via the storm drains. There are other times when damages to creeks and properties are nobody's fault as when flooding and erosion disrupt our lives.

How do we know **the right things to do,** and **how do we handle the problems we face** as creekside property owners? That is what this brochure is all about.

THE CREEKSIDE OWNER'S GUIDEBOOK WILL PROVIDE YOU WITH INFORMATION ON:

- Why creeks flood
- Causes and effects of erosion
- Causes and effects of vegetation loss
- Resources that are available to you
- How and why creeks and stormwater should be managed
- Agency contacts and procedures for property improvements

The information presented in this guide is intended as general educational material and reasonable efforts have been made to provide accurate information.

THE CREEKS *of Contra Costa County*

THERE ARE two types of creeks flowing through Contra Costa County: intermittent and year-round.

INTERMITTENT CREEKS

- Flow seasonally
- Are dry during Summer and Fall
- Have a water supply largely from groundwater and runoff from rain
- May or may not be channelized
- Carry water which flows to the sea
- May flood during and after storms

YEAR-ROUND CREEKS

- Flow year-round
- Have a water supply regulated by dams or reservoirs
- May or may not be channelized
- Carry water which flows to the sea
- May flood during and after storms

A creek flowing along your property is a valuable amenity. A healthy creek flowing along an owner's property has traditionally increased the value of that property. You and your neighbors share responsibility for keeping the creek and its corridor healthy, both for people's enjoyment and for the wildlife that depend upon the fragile waterway as well as for proper stormwater runoff function. Since so much of creekside property is in private ownership, much of the responsibility for the health and function of creeks and the survival of creek-dependent wildlife lies with you, the creekside residents. Mismanagement of the creek can often lead to drainage problems, erosion, property damage and a decrease in property value.

Creekside property in most cases has the historical creek centerline as the property line (despite the perception that a fence at the top of the creek bank defines a property). Ownership of the creekside property carries special responsibilities and risks.

CREEK CARE *is everyone's job*

AS MEMBERS of the Contra Costa Clean Water Program, the City of San Pablo and other cities in Contra Costa County are committed to maintaining the health of their creeks. This is carried out mainly through the National Pollutant Discharge Elimination System program (NPDES).

The purpose of the NPDES program is to meet the requirements of the Joint NPDES Municipal Regional Permit mandated by the State and Federal governments. The mission is to reduce and eliminate pollutants entering the stormwater system, which will enhance the quality of life for residents and preserve riparian (waterway) environments. "Best Management Practices" have also been established to further ensure that industries and residents maintain a healthy riparian environment.

Creeks are monitored by the respective cities with periodic inspections, and residents are expected to comply with federal and local ordinances. Refer to the **ORDINANCE** section for more details. Each city may also engage in Public Education programs to promote a clean creek environment. Each city's program may vary. Activities may include public school education, volunteer cleanups and storm drain stenciling. Contact you local agency for specific details.

Although public agencies may inspect the creekside environment, it is vital that you also make every effort to keep your creekside clean and stable. Likewise it is important to consider how your actions in or near the creeks will affect your neighbors upstream and downstream. This will help to ensure that your creeks stay healthy and that you and your neighbors can enjoy them.

Remember that trash and chemicals left on the street go into the gutter and then into stormdrains, creeks and the Bay!

HOW HEALTHY *is your creek?*

SIGNS OF A HEALTHY CREEK

WATER QUALITY AND FLOW

- Cool, clear water free of contaminants & algae
- Flowing, non-stagnant water

CREEK BED AND BANKS

- Stable vegetated banks which may include some natural erosion of the creek bank. (Refer to EROSION section for details).
- Presence of slow pools & fast water.

PLANTS AND WILDLIFE

- Native riparian (water side environment) canopy and vegetation
- Thriving aquatic organisms (only during times of stream flow)

SYMPTOMS OF AN AILING CREEK

- Excessive algae, sediments, sewage, garbage
- Animal waste, fallen trees, metals or toxins
- Hot water or murky, cloudy water

- Excessive erosion along creek banks and high rate of sedimentation impeding stream flow.
- Litter, yard clippings, trash, tires & dumped debris

- Lack of diversity in plants and organisms
- Invading non-native plants that take over native species in riparian corridor
- Barren creeks
- Diminished or nonexistent aquatic organism populations

WHO SHARES *the creek with you?*

TYPICAL ANIMALS inhabiting the creek environment include fish, newts, frogs, raccoons, skunks, possum, squirrels, and deer at higher elevations. Birds include egrets, herons, red tail hawks, red shouldered hawks, and other species. Creek proximity to urbanization will influence the type and extent of a particular species.

Native streamside plants are good sources of food and shelter for wildlife. A canopy of trees and shrubs shades out summer sunlight, keeps water temperatures cooler for heat-sensitive organisms, and limits overgrowth of vegetation in the flow region of the creek. A well-vegetated stream can also serve as a travel corridor, helping land animals and birds move safely from one protected area to the next. Typical native plant species include willow and coast live oak, intermixed with box elder, elderberry, California Bay, coyote brush, blackberry, and watercress. Poison oak is also common — avoid touching it!

WATCH OUT *for erosion!*

SOIL EROSION can be a natural process. In stable watersheds, the rate of erosion is slow, and natural healing processes can keep up with it. Nevertheless, human use of the land has accelerated the rate of change within the watershed beyond nature's healing capabilities. **High flow rates from an intense rain can make significant changes in creek banks despite steps taken to prevent it. This is a risk that is inherent to all creekside properties.**

Increased volumes of runoff from rain, removal of natural vegetation and upstream changes to the creek channel may lead to erosion problems on banks that were once stable. Improper construction of decks and structures along the creek bank can also cause the creekside to be unstable. Unstable banks can lead to bank failures and add large volumes of sediment to the creeks. This can lead to the loss of clean creek water and creekside vegetation, and may affect aquatic life. Severe property damage can also be the result. **Therefore, any development at or near the creeks needs to be reviewed by your City or local jurisdiction.** Refer to the **RESOURCE** section for the agency contacts.

WATCH OUT *for erosion! (Con't)*

Native riparian plants growing within a creek corridor provide important habitat and help to stabilize banks. Replant barren slopes with native plants as quickly as possible (once proper permits have been obtained). In times of flooding, a well vegetated creek bank may be your property's best protection.

VEGETATION TENDS TO PREVENT EROSION BY:

- Binding and restraining soil particles in place
- Filtering soil particles out of runoff
- Intercepting raindrops
- Slowing velocity of runoff
- Maintaining infiltration capacity
- Protecting slopes against undercutting & slumping banks
- Absorbing and using water

Keep an eye on the bottom of the slope! Check for erosion regularly and correct problems promptly. **If debris poses a serious flooding or erosion hazard, careful removal is necessary.** When flowing water meets unprotected soil, erosion almost always results. Barren slopes on any portion of your property (not just creek banks) can lead to sedimentation problems in the creek. Too much sediment (soil, sand, and fine gravel) fills in the creek bed and reduces its ability to carry flood waters.

On slopes above the waterline that are not too steep, a covering of straw on nearly bared earth will prevent erosion until vegetation can grow back. Putting tires or slabs of concrete over the bank will usually create more erosion rather than lessen the problem (it is also in violation of various ordinances).

If you have an erosion problem, consult your City or local agency representatives and a qualified professional in bank stabilization and repair. Check with your local representative from the California Department of Fish and Game—you may need to obtain a Streambed Alteration Agreement. The San Francisco Bay Regional Water Quality Control Board also requires "401 Certification" for most creek projects. The US Army Corps of Engineers may require a permit for work done in waters under their jurisdiction. City and local flood control agencies also have local creek ordinances with which you must comply. Local, state and federal permit processes are there to help ensure that riparian habitats and creek flows are protected and that property owners do not inadvertently worsen the situation. Remember, these agencies are there to assist you! See **RESOURCES** section.

THEN THERE'S *the flooding...*

RAIN in Contra Costa County is seasonal in nature. Generally, approximately 90 percent of the rainfall is received from November to April, and as a result of the intense concentration of rainwater, flooding usually occurs during those months.

Runoff upstream is relatively rapid because of steep slopes, while runoff from the flat lowlands is slower because of gentle slopes. This will vary with the soil and ground cover permeability. Runoff flows into streets, collects in storm drains and then discharges to the creeks. Some infiltration into the ground occurs, but factors such as topography, development, and impermeable surfaces (surfaces that do not allow the water to pass through, such as streets and parking lots), result in runoff volumes in urban areas which can be relatively high. During peak rainy seasons, the sudden increase in runoff into the creeks causes the water levels to rise dramatically, resulting in floods at lower elevations.

Other factors may increase the chance of flooding. Debris such as garbage, rocks or fallen trees reduces the flow of creek water. High tide can also influence the possibility of flooding within cities near the ocean.

Divert water and do not block the creek. Water diversions and blockages significantly alter water flow. **The safest approach to good creek care is to avoid changing the creek, unless it is needed to correct a bank problem.** Do not dump any debris into the creek. If you do notice any debris within your section of the creek, take time to remove it and do so safely. Refer to the **RESOURCES** section for more assistance.

IF FLOODING IS EXPECTED IN YOUR AREA:

- Have a family disaster supply kit in your home, including plenty of pure water, a first aid kit, radio and fresh batteries, a flashlight, and adequate supply of prescriptions.
- Know about neighbors or relatives who may require help and check on them.
- Buy flood insurance; note the 30-day waiting period.
- Keep gutters, storm drain inlets, driveway culverts and creeks clear and free of debris. If you observe plugging in a storm drain inlet in the public right-of-way, report it to your City.
- Keep your car fueled.
- Keep sandbags, plywood, plastic sheeting, lumber and other emergency materials handy for waterproofing.

SAFETY TIPS IF YOU FIND YOURSELF FLOODED IN YOUR HOME:

- Listen to the radio for news about what to do, where to go, or places to avoid.
- Stay off the roads, but if you must walk or drive, stay on firm ground. Standing water may be electrically charged from power lines. Do not drive through running water.
- Stay away from creek banks! They may be very unstable and slippery!
- Turn off the electricity at the main breaker or fuse box, even if the power is off in your community.

It may be wise to get a copy of the book **Repairing Your Flooded Home** from the American Red Cross. The booklet contains safety information regarding flood situations. Refer to **RESOURCES** for contacts.

WHAT'S IN *the water?*

WHAT MANY people do not realize is that storm drains actually lead directly to local creeks and into the San Francisco Bay. Unlike the water that runs down your kitchen sink (which connects to the sanitary sewer system), stormwater and everything it picks up along the way goes directly to our creeks—with no treatment whatsoever. Pollution within our creeks harms the quality of the soil and kills creekside vegetation and wildlife. It can cause algae to grow, taking away nutrients and oxygen that are vital for other organisms. Lastly, chemicals can harm children who play in the creeks as well as cause odor problems.

HERE'S A LIST OF GOOD PRACTICES IN KEEPING THE WATER CLEAN:

- Never dump gasoline, motor oil, antifreeze, battery acid, or other automotive fluids into a creek, gutter or storm drain. Dispose of properly by recycling at the West County Permanent Household Hazardous Waste Facility.
- Use up leftover paints, or share with a friend or neighbor. Dispose of/recycle unusable paints and paint products at the West County Permanent Household Hazardous Waste Facility.
- Use water-based latex paints whenever possible and do not clean paint brushes in a gutter or near a storm drain or creek.
- Never dump carpet cleaning water into a creek or storm drain. Dispose of these solutions down a sink or toilet. Even biodegradable products can harm wildlife since they can take years to degrade.
- Avoid hosing down paved surfaces or washing your car in the driveway or street. Wash cars on a lawn, unpaved surfaces or at a commercial car wash (where the water is treated and recycled).
- Use cat litter or other absorbent materials to remove spills from paved surfaces. Place the waste in a bag and take to the West County Permanent Household Hazardous Waste Facility.
- Do not place any grass clippings or organic waste (such as animal wastes) on the creek bank, as they upset the ecological balance.
- Do not discharge swimming pool water with active chemicals into the creek or storm drains.
- Do not allow sediment and erosion runoff to flow into the creek.
- Report any illegal dumping to your City Police or Public Works Department or local authorities.

Refer to the **RESOURCES** and **ORDINANCES** sections for a list of who to call.

CREEK-FRIENDLY
construction, gardening & landscaping

DURING CONSTRUCTION or landscaping projects, every precaution should be taken to protect nearby creeks from the effects of erosion. This means:

- Scheduling these projects for the late spring or summer months (May through September), when chances of rainfall and erosion are minimal.
- Covering exposed soil with straw, jute netting, wood fiber, woven straw blankets, landscape fabric, or other non-toxic permeable materials.
- Planting fast-growing native grass seed mixtures or other native plants as temporary ground cover on larger exposed surfaces.
- Constructing a backup system to hold back soil and sediment.
- Keeping stockpiled materials such as topsoil, sand, mulch and bark under wraps and well away from streamsides.

When gardening and landscaping, consult a local nursery, California Native Plant Society, California Exotic Pest Plant Council or the California Department of Fish and Game if you have questions regarding plants to determine acceptable landscaping along your creek.

EXAMPLES OF THESE NATIVE PLANTS ARE:

California Bay Laurel	Box Elder
Willow	White Alder
Oak	Blackberry
Buckeye	Elderberry
Big Leaf Maple	Western Redbud
Manzanita	Ceanothus

PLANTS TO AVOID USING ARE CONSIDERED INVASIVE AND ENCROACH INTO NATIVE SPECIES, INCLUDE:

Algerian Ivy
Vinca
Giant Reed
Blackwood Acacia
Eucalyptus
Dumb Cane (Arundo donax)
Pampas Grass

CREEK-FRIENDLY
construction, gardening & landscaping (con't)

You can find out how to compost at RecycleMore (see **RESOURCES**).

Consider using compost and organic soil amendments instead of chemical fertilizers. Anything that was alive will naturally decompose. However, some organic wastes should not be composted at home. **DO** compost these items: grass clippings, leaves, plant stalks, hedge trimmings, old potting soil, twigs, annual weeds without seed heads, vegetable scraps, coffee filters, and tea bags. **DO NOT** compost these items: diseased plants, weeds with seed heads, invasive weeds, pet feces, dead animals, bread and grains, meat or fish parts, dairy products, grease, cooking oil, or oil foods.

Avoid irrigating native creekside plants. Watering such species in the summer may encourage exotic and non-native plants to thrive. Native plants are adapted to seasonal rainfall.

Limit use of gardening chemicals. When used incorrectly, pesticides can pollute water and kill beneficial as well as harmful insects. Natural alternatives prevent both of these events from occurring and save you money. Also consider using plants that naturally repel insects. Pesticides, herbicides and chemical fertilizers should be used only as a last resort. Remember, any fertilizer applied too often or in overly large amounts or during the rainy season will wind up in your creeks. Pull weeds before they flower to reduce the need for herbicides. Consult your local nursery for advice on proper gardening techniques. If you must use pesticide, be sure to leave a buffer zone between sprayed areas and streams and avoid application during rainy, wet times when chemicals can run off readily into the water.

In the past, many people "tidied up" their property by removing any plants that "cluttered" stream banks. This can set the stage for serious erosion problems. Also, if they chose to landscape their property with non-native plants, may streamside landowners may have unintentionally edged out helpful natives. Note that fallen logs or displaced tree root balls can provide resting/hiding places for fish; it can be beneficial to leave them in place so long as they do not obstruct the normal creek flow.

Retain native trees which shade the creek. Cutting these down destroys the vital canopy which keeps the creek bed from getting clogged with excessive vegetation.

Never dispose of lawn clippings in a creek. While they are biodegradable, organic wastes use the oxygen that aquatic organisms and native plants need to survive. If you have a large amount of waste to dispose of, contact the City or Richmond Sanitary Service for disposal instructions.

BUILDING *something?*

DO NOT locate structures or storage containers near the creek bank. Any structure built within reach of flood waters is subject to damage or loss and may decrease the creek's ability to handle flood flows safely. Structures such as storage sheds, patios, and decks typically remove the creek's natural protective vegetation and often decrease the stability of vulnerable slopes. Construction disturbs the soil and vegetation, adding to sediment buildups in the creek.

The best way to accommodate flood waters is to avoid constructing improvements in the flood zone and to maintain the area in its natural state. If you do need to construct near the creek, certain procedures and setback ordinance must be followed. Consult your city for further details. Here are some typical steps to building by the creek:

NEW STRUCTURES

1. Contact planning department for zoning requirements.
2. Consult with a qualified registered engineer to prepare plans for review by Building Inspection Department & Public Works Department. Submit duplicate copies to State Department of Fish and Game and State Water Board for review.
3. Upon city and other agencies' approval, permits are issued with conditions.
4. City inspects site during construction and prior to project close-out.

CREEKBANK STABILIZATION

1. Seek out a qualified registered civil engineer experienced in the area of proposed design.
2. Discuss plans with Public Works Department
3. Engineer prepares plans for project.
4. Follow steps 2–5 above (New Structures).

Plans should indicate significant natural features and indicate proposed tree species. Contact you City agency for specific plan requirements, including setbacks from top of creek bank.

REMEMBER *these ordinances...*

CITY ORDINANCES - SUMMARY

Most cities have stormwater ordinances that limit water discharges into the streets, gutter and storm drain system to rain water only.

Landscape irrigation runoff is normally an allowable discharge to the stormwater system but overwatering is discouraged.

Most cities also have ordinances which require property owners to remove obstructions from the creek (such as fallen trees which can create dams or alter the natural course of the creek).

San Pablo Municipal Code Chapter 8.40 covers "Stormwater Management and Discharge Control Requirements." The purpose is to protect the health, safety and general welfare of the City's citizens by prohibiting non-stormwater discharges to the City's stormwater system; protecting against the discharge to the stormwater system as a result of spills; dumping or disposal of materials other than stormwater; and reducing pollutants in stormwater discharges. Municipal Code Chapter 13.04, "Stormwater Drainage" includes permit requirements (Municipal Code Chapter 17.40.030 D4 includes creek setback requirements) for work within creeks and prohibits obstruction of watercourses. For more information, you can call the San Pablo Public Works Department at 510-215-3060.

CALIFORNIA FISH AND GAME CODE

Do not dump materials where they can pass into creeks and Bay (fines may be up to $25,000.00).

RESOURCES *that can help you...*

FEDERAL AND STATE AGENCIES

California Department of Fish and Game	888-773-8450
California Department of Water Resources	916-653-5791
• Urban Streams Restoration Program	916-651-9621
San Francisco Bay Regional Water Quality Control Board	510-622-2300
U.S. Fish and Wildlife Service	800-344-9453
U.S. Army Corps of Engineers	415-503-6804
FEMA National Flood Insurance Program	800-638-6620
FEMA Disaster Information Hotline	800-621-3362

COUNTY AGENCIES

County Public Works Department	925-313-2000
• For motor oil, paint, batteries, and antifreeze recycling centers	925-646-4322
Contra Costa Health Services Department	
• Environmental Division (Hazardous Materials)	925-335-3232
Contra Costa County Clean Water Program	
• Illegal dumping Hotline	800-663-8674

CITY AGENCIES

San Pablo Public Works Department	510-215-3030
San Pablo Police Department	510-215-3130
• To report illegal dumping in progress	

NONPROFIT ORGANIZATIONS

The Watershed Project	510-665-3430
Urban Creeks Council	510-356-0591
California Native Plant Society	916-447-2677
San Francisco Estuary Institute	510-746-7334
American Red Cross Disaster Service	510-595-4400
Kids for the Bay	510-985-1602
SPAWNERS	510-665-3538
To obtain Repairing Your Flooded Home guide	800-733-2767

OTHER RESOURCES

RecycleMore	510-215-3125
West County Permanent Household Hazardous Waste Facility	888-412-9277
Richmond Sanitary Service	510-262-7100

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Creekside Owner's Manual was a Contra Costa County Clean Water Program project completed jointly by the City of San Pablo and the City of Orinda. Information in this guide was obtained from sources within the Contra Costa County as well as from other publications, including those by the National Park Service, the American Red Cross, King County of Washington State, FEMA, US Department of Agriculture, and Marin County Resource Conservation District.

MAP *of Major Creeks in San Pablo*