

Creek Chronicles *Friends of Corte Madera Creek Watershed*

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A hundred years ago, recreational fishing was one of the attractions of San Anselmo. Postcard image courtesy Jim Staley

Where Have All the Fishes Gone?

by Parker Pringle

The number of steelhead trout in the watershed has declined precipitously over the past 50 years—and coho have disappeared for good—as longtime Ross Valley residents can attest. Why has this happened? The short answer is changes in land use, which have caused a host of changes to creek habitat.

Before the arrival of Europeans, the creek was sinuous, shallow, shaded and cold. It had braided channels that were close to flood plains and terraces carved out by high waters. There were endless riffles, loved by trout and the aquatic invertebrates they eat. The streambeds were cluttered with fallen trees and branches. Willows, alders and bay trees covered the creek with shade, and trout hid in the undercut banks beneath their roots. The massive estuary, with its acres and acres of wetlands stretching from San Clemente Creek to

Ross Landing (present-day Kentfield), teemed with life and provided abundant food for trout and salmon, allowing them to grow fast and strong before their voyage into the Pacific Ocean.

Rain falling on the hills and valleys would be soaked up by the ground and released slowly into the creek throughout the dry season, resulting in year-round flows.

Looking at it another way, there weren't any roads, houses, wells, cars, or sewers; and not too many people, either.

Logging and grazing first changed the creek by removing trees and giving an advantage to annual grasses from the Mediterranean over native bunchgrasses. The result was increased runoff; the higher flows caused downcutting of the creekbeds, separating them from their floodplains. Then

(Continued on Page 2)

Creek Viewing in the Upper Ross Valley

by Gerhard Epke

Corte Madera Creek and its tributaries meander discreetly through our neighborhoods. In many areas the creek is buried in pipes, sequestered in backyards, or concealed by thick vegetation for hundreds of feet. Fortunately there are still many beautiful places to access the waters, sense the riparian ecology, and view the various structures that influence the character of the watershed. This article, the first of a series, lists a number of those special places in the upper Ross Valley.

Sleepy Hollow Creek

1. San Domenico School This beautiful campus is at the headwaters of Sleepy Hollow Creek and has miles of hillside trails as well as great creek access. Visitor parking is just past the horse stables alongside the creek.

2. Sleepy Hollow Creek at The Alameda This quiet road follows the creek for a while and provides a steep access path to sedge-covered sand bars and bedrock visible under bay laurel trees.

3. Sleepy Hollow Creek at Drake High School This portion of the creek is squeezed into a narrow channel, but if you walk to the south side of the creek, near the footbridge, you can see the results

(Continued on Page 4)

Inside

Keith Fraser, Fisherman.....	Page 3
Water Quality Update.....	Page 6
Friends' Calendar.....	Page 7

Where Have All the Fishes Gone?

(Continued from Page 1)

urbanization of the watershed compounded the changes to the creek, leading to the extirpation of the coho and the continuing decline of the steelhead trout.

Today the creek bed is much lower than it used to be. It's disconnected from its flood plains and high-water terraces. It has become channelized by incremental armoring of the creek banks, and straight where it used to be braided and sinuous. Trout have fewer places to escape the high velocity flows of a flood or hide from predators when the water is low in the summer. There is less oxygen in the water. There is less food because native vegetation and its associated insect life have been diminished. The water temperature is higher. There is hardly any large woody debris, which would provide all of the above-mentioned benefits.

Schools, businesses, and homeowners pump groundwater from wells, reducing the amount of water

flowing in the creek. Ross Creek, for example, which receives a steelhead run, has numerous wells along its banks, and goes dry in the early summer downstream of Natalie Coffin Greene Park, making survival difficult for the young fish hatched in the creek. The dam at Phoenix Lake cuts off Ross Creek from its cold, shaded, undeveloped headwaters, long inaccessible to steelhead.

Much of the watershed's creek banks are lined with non-native ivy, fences, rip-rap, or concrete walls—all of this where there used to be riparian forest that produced food, shade, and shelter.

Steelhead heading to the ocean enter an estuary that has been diked, filled, and dredged. To get to the estuary, steelhead need to navigate past children's dams, avoid the maws of invasive species like the bullfrog and largemouth bass, and run the gauntlet of the concrete flood channel in Ross and Kentfield, where they are easy prey for

herons, egrets, and mergansers.

Spawning steelhead migrating upstream from the ocean, and rainbow trout (the same species as steelhead) migrating within the creeks, face formidable barriers at all levels of stream flow. When the creek is high, the fish ladders can become impassable. When the creek is low, the fish ladders can become impassable again. Bridges, culverts, the concrete channel, dams at former stock ponds and swimming holes, and the little dams children build: all impede the migration of steelhead and contribute to their decline.

Some of these changes to the creek have come suddenly and dramatically. The construction of the concrete flood channel in the 1960s in Ross completely altered, almost overnight, a critical stretch of Corte Madera Creek and may have been the final nail in the coffin of the coho salmon. Other changes have been gradual, happening over decades, many of them continuing at the present time. In this category are the changes to the streambed caused by increased flow during storms and the piecemeal armoring of stream banks. The creek continues to be changed in a negative way by this process.

Peter Moyle, a U.C. Davis fisheries scientist, says that it is likely that steelhead will disappear from most small watersheds like Corte Madera Creek in the next 25 to 50 years. Even though steelhead are a hardy species, it's not hard to believe that such a terrible event could happen, considering that their numbers have fallen by about 90% since 1950. The roads and the roofs and the cars and the people aren't going anywhere. Still, there is hope that if we can reduce some key impacts of human presence—fish passage barriers, groundwater pumping, armoring of stream banks—we may be able to keep a steelhead population alive in Ross Valley creeks for future generations to marvel at.



*The paving over of the Ross Valley is the major cause of the decline of fish numbers in our creeks, because fast rainwater runoff alters winter and summer flows, and re-contours the stream channels.
Photo by Charles Kennard*

A Fine Line: Fisherman Keith Fraser

by Ann Thomas

For Keith Fraser a long life of advocacy for fish and wildlife began during his childhood years living next to San Anselmo Creek. The long-time proprietor of San Rafael's Loch Lomond Live Bait Shop, a founder of United Anglers and author of a book on sturgeon fishing, lived for six years on Agatha Court in the late 1940s and early 1950s and after school he would climb through a hole in the bridge at Saunders and go down to the creek to fish.

It was a time before Drake High School existed, when fruit orchards and a baseball field surrounded homes, when he could watch spawning steelhead and salmon thrashing in the water after a good rain, as they dug pits in which to lay their eggs.

"If you knew where the fishing holes were and used the right bait," he said, the fishing was good. He caught an occasional steelhead, which he almost always released. Normally his catch would be five to eight or nine inches but some of the fish would rival what anglers got in the Sierra Nevada.

Keith attended Red Hill School, then high school at Tam, switching to Drake for his sophomore year. He recalls that he "must have played a thousand sets of tennis at Red Hill" and was active in sports during his high school years.

He was "brought up to be careful with fish," a practice which presaged a lifetime of advising sportsmen on a "catch and release" philosophy and fishing practices that protect and preserve the abundance of wildlife and fish. A former base-



Keith Fraser and Emma the egret both have had life-long interests in fish and fishing. Photo by Ann Thomas

ball coach at San Rafael High School, he opened the bait shop in 1970 and in that time has become renowned not only for angling expertise but also for the procession of sea birds that regularly visit his shop. These include herons, a great American egret and gulls, all attracted by the snacks that Keith generously dispenses from the bait tanks full of shiners and live perch.

He is concerned that "pollution, poaching and water export" have led to a decline in sports fisheries. Among the advice he gives is to keep waterways clean. "The enemy of fish in the creek is contaminants," he said. "People dump stuff all the time."

Construction Starts on Lansdale Fish Passage Project

The California Department of Fish and Game has provided funding to the Town of San Anselmo to improve fish passage through the culvert under Center Boulevard at Lansdale Station. Construction started in late June and will be completed by mid-October.

The large drop at the downstream end of the culvert and the flat bottom inside the culvert are barriers to migrating fish. To fix those problems, the project will install a pool-and-drop structure downstream of the bridge to help fish enter the culvert and a series of low baffles inside the culvert to keep water depth suitable for fish. Friends of Corte Madera Creek Watershed is managing the project, in cooperation with the Town.

See the pictures in color!

Email Friends, putting the word EMAIL in the subject line, to info@friendsofcortemaderacreek.org to receive *Creek Chronicles* via e-mail only. The color version can also be seen on our website.

Creek Viewing in the Upper Ross Valley

(Continued from Page 1)

of 15 years of restoration work by students and Charlie Kennard. Look for Friends' sign facing Sir Francis Drake Boulevard.

Fairfax Creek

4. White Hill School The school playing field is the location of a detention basin, but it is also a great access to a long native tree lined stretch of Fairfax Creek. Look for places where students working with Friends have been planting

native species since 2005. Note: Access to the campus from Glen Drive is closed for the summer during construction.

5. Olema Road and Westbrae Dam Friends of Corte Madera Creek has been doing a restoration project in the area around 300 Olema Road and the native vegetation is thriving and providing nice habitat, visible through a chain-link fence. If you walk a few yards downstream and look into the creek

across from the Fairfax town limit sign, you can see the Westbrae Dam. This structure may have been built to form a stock pond or swimming hole, and blocks any movement of fish upstream all year and downstream in the summer. If the big culvert at the mouth of Fairfax Creek is altered to allow steelhead upstream (and to reduce flooding in downtown Fairfax), this dam will get on the radar for removal.

6. Peri Park Here, among tall redwoods, is some of the most accessible creek frontage in the watershed—for better and for worse, because it is heavily impacted by kids and dogs. One can walk up the creek for a few blocks, but in the downstream direction the creek disappears into a long tunnel before it joins San Anselmo Creek. Deep inside this tunnel is where legendary teenage mutant ninja turtles live.

San Anselmo Creek

7. Cascade Falls and the Elliott Nature Preserve At the end of Cascade Drive in Fairfax is a trailhead which provides access to the most picturesque headwaters of Corte Madera Creek. There are some quiet trails here that lead up to Cascade Falls. There is little car parking, so cycle to the trailhead.

8. Confluence of San Anselmo and Fairfax Creeks This vital intersection, always in deep shade, is difficult to access but you can glimpse it from two footbridges: the downstream footbridge is tucked at the end of Bridge Court; the upstream bridge is adjacent to 97 Dominga Ave.

9. Pacheco Dam, and downstream, Pastori Bridge, on San Anselmo Creek These two features are both on Marin Town and County Club property, site of the former home of Lord Fairfax, and



San Anselmo Creek in the Elliott Nature Preserve. Photo by Gary Leo



Confluence of San Anselmo and Fairfax creeks. Photo by Charles Kennard

(Continued on Page 5)

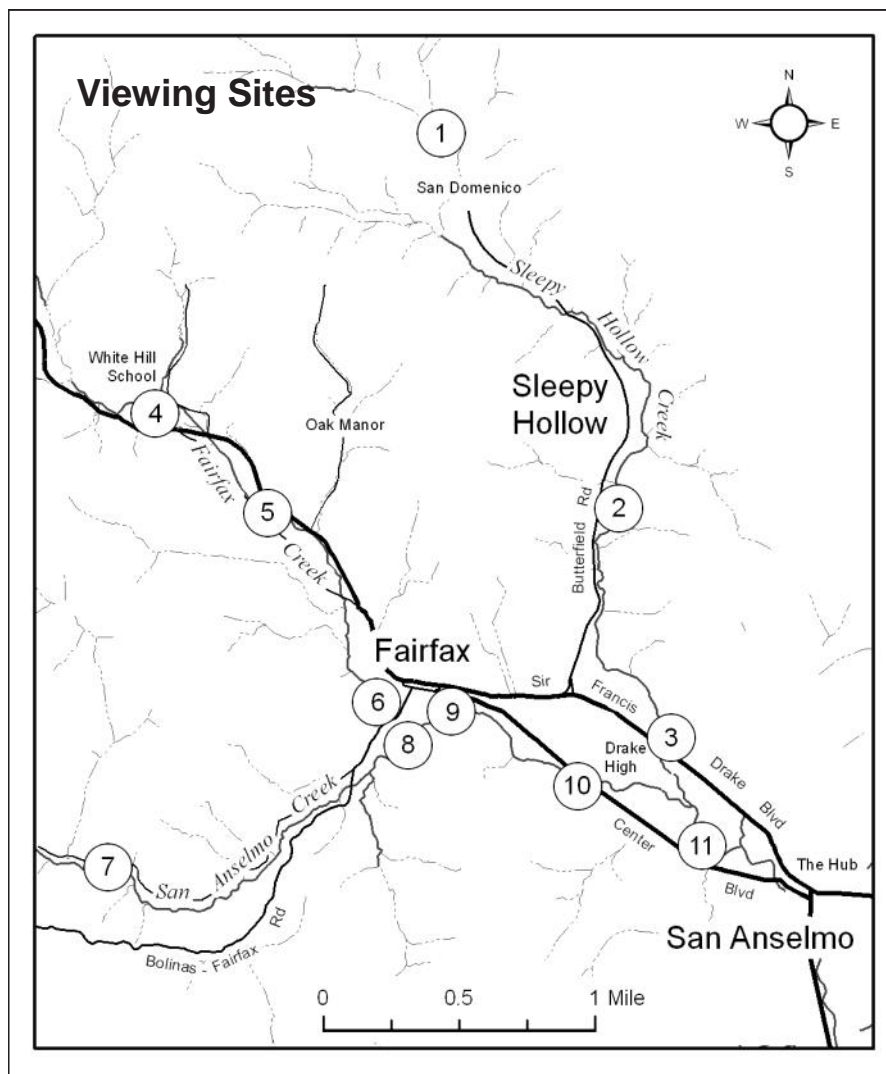
Creek Viewing in the Upper Ross Valley

(Continued from Page 4)

of a formal and fatal duel in 1861. The private property as well as the creek can be clearly seen from public roads, from the walkway above the creek at the back of the Fair-Anselm Shopping Center, and from the parking lot between the shopping center and the Fairfax Post Office. The original mouth of Fairfax Creek is a gully behind the Fairfax Post Office: Fairfax Creek used to flow through downtown Fairfax, behind the Fairfax Theater, and along what is now Mono Street. When the culvert at Town Hall is overwhelmed, the water returns to its old course and floods downtown Fairfax.

10. Lansdale Bridge Friends of Corte Madera Creek has been working with San Anselmo to build a fish ladder at the foot of the tunnel, construct baffles inside the culverts, and install native plants along its banks. To access the creek, take Forest Ave. up from the playground and turn right on Glen Road, and Creek Road to a flat parcel owned by the Town.

11. Saunders Bridge and the Drake High School Confluence This bridge across San Anselmo Creek causes local flooding of parts of the Drake High School campus, Saunders Avenue, and Agatha Court. The fish ladder below the bridge is a steep-pass denil fish ladder, of the same design as those below Pastori Avenue and Canyon Road. These ladders were designed for Alaskan rivers, where salmon spawn when river flows are low. They work very poorly here, catching debris at every storm and can rarely be used by spawning steelhead. To fix both problems will require a new bridge. Friends has conceptual designs for both; all we need is the money to build them.



Sleepy Hollow Creek at the San Domenico School campus. Photo by Gary Leo

Water Quality Monitoring Expands

by Sandy Guldman

Our collective memory has nearly forgotten that oysters and clams were once abundant in our estuary, attested to by records of numerous Indian shell mounds in the lower part of the valley. In the later decades of the nineteenth century enterprisers shipped Corte Madera Creek clams from Larkspur to San Francisco, and this continued until 1906, when sewage levels in the creek made them unsafe to eat. Undoubtedly siltation of the shellfish beds was also a problem.

We are fortunate that Corte Madera Creek no longer receives pollution from industrial or agricultural operations. However, the creeks are chronically polluted by stormwater runoff from paved areas, landscaping that is over fertilized and/or over-irrigated, a leaky sewer system and pet waste. Washing cars carelessly, dumping leftover paint into storm drains, and draining swimming pools into the street are other practices that harm the creek. Another pollutant, high water temperature, is caused by low summer flows and lack of riparian vegetation. Quantifying pollutants from

all these sources would require a sampling program well beyond our resources.

We know there are high bacterial counts, and that in the summer, the temperature tends to be too high and dissolved oxygen too low for steelhead. Our water quality testing has evolved to reflect our resources. We no longer conduct tests for bacteria, because the Ross Valley Sanitary District has a regular monitoring program to monitor bacteria in the streams at five locations. We focus our efforts on parameters that are most important for steelhead trout: temperature and dissolved oxygen. Last summer we added tests for iron and manganese in Ross Creek, as levels high enough to be harmful to steelhead were found in the upstream section of the creek. This spring, in collaboration with the Phoenix Lake Retrofit Project, we have added two temperature loggers (recorders), one in Corte Madera Creek downstream of the confluence with Ross Creek and one in San Anselmo Creek just upstream of the Ross Creek confluence. (This peculiar

nomenclature reflects the convention that Corte Madera Creek begins where Ross Creek joins with San Anselmo Creek.). We have also placed temperature loggers in Fairfax Creek, San Anselmo Creek in Fairfax, and Sleepy Hollow Creek, to update temperature information first gathered in 1999. Each time we download a temperature logger, we also measure dissolved oxygen.

Also in collaboration with the Phoenix Lake Retrofit Project, samples taken from Phoenix Lake will be analyzed for chlorophyll-a, a measure of algal growth, and for iron and manganese. Also, a “Secchi disk” will be used to measure water transparency. The disk is mounted on a pole or line, and lowered slowly down in the water. The depth at which the pattern on the disk is no longer discernable is taken as a measure of the transparency of the water. This measure is known as the Secchi depth and relates to how much algae and sediment impair water clarity. We will post the results of our 2012 water quality monitoring on our website in December.

The Phoenix Lake Retrofit Project—in addition to its main purpose of providing a flood-water detention basin—will be designed to improve water quality in the lake and creeks downstream of the lake. So measurements taken this summer will provide a baseline for comparison to conditions in Phoenix Lake, Ross Creek, and Corte Madera Creek after Phoenix Lake is modified.

So if you see someone stooping over the water of Ross Creek this summer, or pushing out in a boat onto Phoenix Lake, it may well be Parker Pringle or Sandy Guldman from Friends testing the waters for a variety of conditions.



Friends of Corte Madera Creek maintains equipment that measures water quality parameters affecting aquatic life in many of our creeks and in Phoenix Lake. Here, Parker Pringle installs a temperature recorder in Ross Creek. Photo by Sandy Guldman

Calendar of Events

July – December 2012

Please check www.friendsofcortemaderacreek.org for updates

- July 11** **Saving our Steelhead: Cascade Canyon**, Wednesday, 10:00 a.m. – 1:00 p.m. Join Marin County Parks, Marin County Department of Public Works, and Friends to discuss the ongoing effort to keep these upland habitats connected to the tidal waters of the bay. With luck, we'll be able to see a young steelhead in the pools. Please do not bring animals, except for service animals. Have questions? Contact David Herlocker at dherlocker@marincounty.org or 415 893-9508. High fire danger may cancel: call 415 893-9527 after 7:00 a.m. on the day of the event for a recorded message if the event is to be canceled. Meet at Doc Edgar Park, one block from the intersection of Bolinas Road and Cascade. From there we will carpool to the preserve, so please be on time.
- July 19** Monthly Board Meeting, Thursday, 7:00 p.m., San Anselmo Historical Society Room, 110 Tunstead Avenue, San Anselmo.
- July 26** **Marin County Parks Nature for Kids: Creek Critters at Cascade Canyon**, Thursday, 10:00 a.m. – 1:00 p.m. Under the guidance of Dave Herlocker, we'll learn about creatures that spend at least part of their lives in water: frogs, salamanders, and insects. Please do not bring animals, except for service animals. Have questions? Contact Dave at dherlocker@marincounty.org or 415 893-9508. High fire danger may cancel: call 415 893-9527 after 7:00 a.m. on the day of the event for a recorded message if the event is to be canceled. Meet at the gate at the end of Cascade Drive. Parking is limited so please carpool if you can.
- August 11** **Marin County Open Space Peaks and Panoramas Hike 2: Loma Alta**, Saturday, 11:00 a.m. – 1:00 p.m. Meet a ranger for a guided climb to the top of Loma Alta. The peak is known for its 360° views including Novato, Fairfax and San Francisco. We'll discuss the ecology and history of the area and raptors that frequent this site. Wear sturdy walking shoes/boots, sunscreen, and a hat. Bring plenty of water, snacks, and a camera. Meet at the green gate at the top of White Hill in Fairfax.
- August 16** Monthly Board Meeting, Thursday, 7:00 p.m., San Anselmo Historical Society Room, 110 Tunstead Avenue, San Anselmo.
- August 24** **Marin County Parks Cascade Canyon Walk**, Friday, 10:00 a.m. – 1:00 p.m. The walk, led by Dave Herlocker, will be in the upper canyon where the creek still flows. There should be plenty of butterflies and we might see early migrants like western tanagers and Cassin's vireos on their way south. Please do not bring animals, except for service animals. High fire danger may cancel: call 415 893-9527 after 7:00 a.m. on the day of the event for a recorded message if the event is to be canceled. Meet at the gate at the end of Cascade Drive. Parking is limited so please carpool if you can.
- September 15** **Coastal Cleanup**, Saturday, 9:00 a.m. to noon. Join us to participate in Coastal Cleanup Day, the premier volunteer event focused on the marine environment in the country. Check the updated calendar at our website in August for location and details.
- September 20** Monthly Board Meeting, Thursday, 7:00 p.m., San Anselmo Historical Society Room, 110 Tunstead Avenue, San Anselmo.
- October 18** Monthly Board Meeting, Thursday, 7:00 p.m., San Anselmo Historical Society Room, 110 Tunstead Avenue, San Anselmo.
- November 15** Monthly Board Meeting, Thursday, 7:00 p.m., San Anselmo Historical Society Room, 110 Tunstead Avenue, San Anselmo.
- December** No events are planned for December.

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Friends of Corte Madera Creek Watershed was formed in
1994 and became a non-profit organization in 1996. Our
goals are to protect the health of creeks in our water-
shed and to help the public learn to care for creeks.



Join Friends on Facebook

Thank You to All Our Helpers, Volunteers and Funders

Friends of Corte Madera Creek Watershed wishes to thank the following individuals, organizations, and agencies for their contributions:

- LeeAnne Chappell for a creating our wonderful new website
- Iron Springs Brewery in Fairfax and Marin Produce for hosting a Give-back Tuesday for our benefit
- San Anselmo Historical Society and the Town of San Anselmo for providing space for our monthly board meeting
- Marin Municipal Water District, especially Eric Ettlinger, for helping us install and download our string of temperature loggers in Phoenix Lake
- California Department of Fish and Game for funding construction of the Lansdale Fish Passage Improvement Project, the Town of San Anselmo for taking the lead, and property owners near Lansdale Station who are working with us
- Marin County Parks for collaborating with us on enhancing the marsh habitat at Hal Brown Park at Creekside
- White Hill Middle School students, parents, and teacher Caley Hirsch for habitat restoration with us along Fairfax Creek
- Marin Catholic High School freshmen, teacher Mary Churchill, and Project Regeneration for great work at the Ecology Study Area
- The Coastal Conservancy, North Bay Watershed Association, Marin Fish and Wildlife Commission, and California Alpine Club Foundation for funding our studies, designs, and habitat enhancement and restoration projects
- Marin Sanitary Service for donation of a dumpster rental
- The many creek-side property owners who gave Friends permission to treat invasive cordgrass on their property
- Other dedicated volunteers who make our activities possible
- The many people who make financial contributions that allow us to continue our day-to-day work