

Forest & River News

Grassroots Conservation & Restoration in the Redwood Region

PHOTO: THOMAS B. DUNKLIN



EDITOR'S NOTE

Well into the 20th century, coal miners brought canaries into coal mines as an early-warning signal for toxic gases. The birds, being more sensitive, would become sick before the miners, who would then have a chance to escape into fresh air. More recently, indicator species (like the canary) are being used as measures of habitat or ecosystem quality.

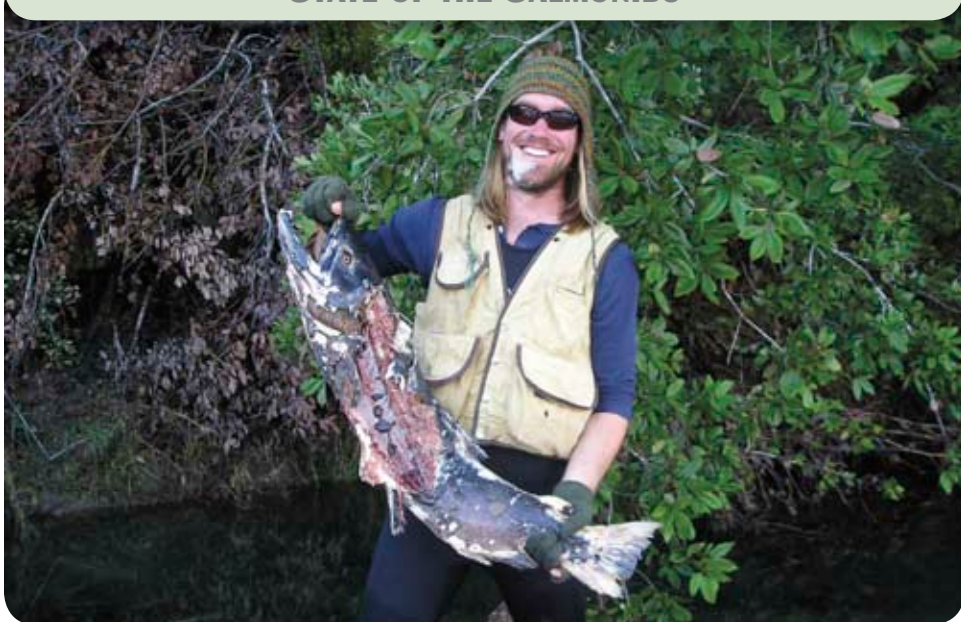
Pacific salmon and steelhead have existed for at least two million years in the Pacific coastal waters of North America from Baja California through Alaska. And there is no greater indicator of the quality of our water, and the health of our watersheds.

The serious decline of salmon and steelhead which is now occurring can be seen as the proverbial canary in a coal mine—the signal of our declining watershed health.

In this issue we explore the state of the salmonids in our region, and it is not good news.

And unlike the coal miners, we cannot simply escape to clean healthy water. Immediate action is needed, and everyone must play a part if we are all to survive.

STATE OF THE SALMONIDS



Mattole Coho Salmon Population Critically Low, Chinook on the Decline *Urgent Action Needed*

By Amy Baier,
Mattole Salmon Group

The Mattole River Watershed encompasses 300 square miles of northern Mendocino and southern Humboldt counties in northwestern California. Much of the drainage is remote, located within the King Range National Conservation Area and other state and federal holdings, and is of biological significance, draining directly into a State-designated Area of Special Biological Significance, Critical Coastal Area, and Marine Protected

Area. The Mattole is unique to many of the salmon-bearing streams in the Pacific Northwest due to its lack of dams and any significant introduction of hatchery-raised fish.

The Mattole River is home to three independent populations of threatened salmonids, including Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*), California Coastal (CC) Chinook salmon (*Oncorhynchus tshawytscha*),

photo: Will Kelly, MSG Staff Member, with a recovered Mattole Chinook carcass

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and Northern California (NC) steelhead (*Oncorhynchus mykiss*). Of these, coho salmon are acknowledged to be the most imperiled of the Mattole River's three native salmonid species and are listed as threatened under the California Endangered Species Act. All three species of Mattole salmonids are considered Functionally Independent Populations of their respective Evolutionarily Significant Units (ESUs). Historic estimates for the Mattole watershed were approximated at 12,000 for steelhead, 5,000 for Chinook, and 20,000 for coho salmon.

Natural disturbances coupled with past land uses have drastically depleted favorable salmonid habitat. Frequent geologic activity, winter storm events, and steep, unstable terrain create high rates of natural upheaval. Extensive timber harvest throughout the basin occurred in the 1950s and 1960s, and the subsequent increase in erosion has resulted in loss of deep pool habitat and increased instream temperatures, both of which are unfavorable to salmonid rearing.

Since 1980, the Mattole Salmon Group (MSG) has been working to restore self-sustaining native salmonid populations in the Mattole. The citizen-run salmon restoration effort in the Mattole was one of the first of its kind on the northern

California coast. Our approach over the years has been multi-faceted. While restoring habitat throughout the basin, we have implemented small-scale stock enhancement programs to improve survival. Long-term monitoring of both habitat conditions and salmonid populations has provided us with information on the health of our watershed and the salmonids in it, and allowed us to adapt our recovery strategies.

MSG monitoring efforts have included annual spawner surveys since the 1981-1982 season, downstream migrant trapping since 1985, and juvenile dive surveys in conjunction with temperature monitoring since 1994. In recent years, focused salmonid population and water quality monitoring has been integrated in areas determined to present specific limits to salmonid survival, including in the Mattole estuary and headwaters.

Water quality and concurrent salmonid population monitoring indicates that rearing habitat is a crucial limiting factor for Mattole salmonids. Temperature monitoring indicates that viable temperatures for juvenile salmonid rearing exist only in the upper mainstem. Coho, as the most thermally sensitive of the three Mattole salmonids, have become restricted to a limited amount of

cool habitat and have also become more and more dependent on a small area of the Mattole headwaters and a few upper tributaries. Low summertime flow and the resulting poor water quality, especially low dissolved oxygen levels, further deplete available habitat in the coolest areas of the mainstem. Summer rearing habitat for Chinook salmon now also appears to be focused in the headwaters, as water quality conditions in the estuary do not support salmon survival.

The most recent salmonid monitoring has indicated significant declines in both the coho and Chinook populations. Mattole coho, in particular, are literally on the brink of extinction. The Mattole Salmon Group firmly believes that immediate action is needed for salmon recovery in the Mattole.

The 2009-2010 season was the 29th consecutive year of MSG spawning ground surveys in the Mattole, and its 15th year of comparing Escapement Indexes. A dry winter allowed repeated and extensive survey effort, yet the 2009-2010 season was notable for low observations of both live coho and Chinook and their nests (redds). Redd counts are used as an indicator of adult escapement in index reaches because of the inconsistency of live spawner sightings and the low number of carcass recoveries.



Juvenile Chinook and coho have become increasingly dependent on a small area of cool-water habitat in the Mattole headwaters (above). Water storage and conservation is necessary to address further habitat loss due to low flows in this critical rearing habitat.



The Mattole Estuary, while beautiful, no longer provides adequate rearing habitat for salmonids.

Coho salmon escapement in 2009-2010 was at the lowest point of the past 15 years, with only three live fish and one redd observed, all in a single creek. Similarly, following results of the 2009-10 season, the MSG concludes the Mattole Chinook run is diminishing as well. The number of Chinook redds observed in 2009-2010 was the lowest of the past 15 years, and the Escapement Index (redds per mile surveyed) was the second lowest for that period. Live fish observations of Chinook were much lower (100) during the 2009-10 season than any season since 2000-01.

2010 spring monitoring further indicated decline of Mattole salmon. Dive surveys were conducted in upper and lower sections of all tributaries with coho presence documented by MSG surveys since 2000. Of 45 tributary locations surveyed throughout the watershed, coho were found in 4 locations, all in the headwaters, and 3 of these occurred in one tributary. This was Thompson Creek, the same tributary of all adult observations last winter. Less than two hundred juvenile coho were found in 2010 thus far, despite the most comprehensive juvenile coho monitoring effort of the past thirty years. Following last winter's survey effort and recent spring and summer monitoring, we conclude that two coho redds were successful last year.

High spring flows in 2010 caused difficulties for downstream migrant

trapping, resulting in a late trap season. A total of 3 coho and 6,758 Chinook were caught. Juvenile population estimates are not made for coho due to low catch numbers from high spring flows and low outmigration numbers in general. Chinook population estimates were made and have ranged from a low of 7,432 (2004) to a high of 345,619 (2001) over the 2001 to 2009 monitoring seasons. Final data analysis from this season's trapping efforts is not yet complete, but initial comparison shows the 2010 Chinook catch total was the lowest of the past four trapping seasons. In comparison to the 6,758 Chinook captured in 2010, the Chinook catch totals were 15,988 in 2009, 18,457 in 2008, 10,953 in 2007, and 8,008 in 2006.

Adult summer steelhead per mile, observed during the MSG's Summer Steelhead Dive in 2010, was the second lowest on record in 15 of surveys. Fourteen adults and 43 12"-16" steelhead (half-pounders) were observed, despite more miles surveyed than ever before. Due to the timing of spawner surveys, population estimates were not made for winter-run steelhead.

Although populations are severely depressed, ocean conditions are thought to be improving, and the continued restoration of freshwater habitat is necessary. In addition, human intervention and direct enhancement

is necessary to ensure species survival. As such, the Mattole Salmon Group is working with state and federal agencies on the Mattole Recovery Rearing Program for Mattole coho and Chinook in the headwaters. In this program, Coho salmon would be captured soon after hatching and reared in artificial ponds throughout the summer, and sometimes winter months, to ensure freshwater survival and improved ocean survival. Chinook would be reared over summer when instream flows in the headwaters are not sufficient to ensure survival. The Mattole Salmon Group is also working on our Chinook Survival Enhancement Program which diverts, at river mile four, a portion of Chinook salmon which would otherwise perish in the estuary or the ocean due to non-properly functioning conditions in the estuary.



Summer Steelhead Dive Training at the MSG Giles Mead Office and Rearing Facility. Note rearing ponds in background.

For Mattole coho, the outlook is dire. We are at a crossroads when it comes to the survival of coho in the Mattole. Doing nothing certainly risks their extinction. Doing something necessitates careful contemplation and aggressive action. The endangered status of coho in the Mattole River and on the North Coast must be acknowledged and acted upon. If we do not implement necessary recovery actions right now, we may not only lose Mattole coho, but the entire SONCC ESU. The urgency is real and scary.

🌲 Please visit www.mattolesalmon.org to lend support to coho recovery, and contact us at (707) 629-3433 for more information on how you can help.

Restoring Coho Salmon in the Klamath River, One Beaver At A Time

By Will Harling, Executive Director,
Mid Klamath Watershed Council

After a sleepless full moon night with our 18-month-old daughter, I bundled her onto my back and walked down to the Klamath River in the pre-dawn light, fishing pole in one hand, balancing out the diaper bag in the other. I had a spot in mind, just downstream of the Orleans Bar River Access, where the river slides over a broad riffle so shallow that the fish are forced into a narrow slot that one could cast across, even with a groggy, grumpy, sleep-deprived toddler strapped to one's back.

The relatively wide Orleans Valley gives the river a chance to meander a little, reclaiming its sinuosity lost over the past six million years as the Klamath Mountains began to rise from underneath, forcing the river into steep sided canyons tracing fault lines in the uplifted bedrock just upstream and downstream of the valley. I watched fall chinook salmon

moving upstream to spawn, leaving wakes in the glassy water as they navigated up through the shallows. I knew the Klamath's famed half-pounder Steelhead run was coming in with them. Across the river, I also noticed a furry head moving slowly upstream. The light brown tuft of hair visible above the water looked just like what I thought a beaver would look like, but couldn't be sure.

Just then I heard a rustle of grass and a swish of a tail on the near shore. I backed into the willows to watch. Sure enough, a beaver was swimming up towards us along the edge of the river just 20 feet away. As it cleared the riffle, it moved out into the river and I slowly followed it upstream. Big whiskers and a large black snout, those dark beady eyes and two cute little ears quickly disappeared when it spotted me, and a loud thwack of its tail as it dove alerted its kin that danger was near. Walking home, giddy with excitement from this rare close encounter, I noticed

all the stripped willow sticks along the shore, even a clump of uneaten willow shoved under an algal mat, possibly left for a mid-night snack.

Beaver are slowly coming back to the Klamath, recovering from intense trapping that began in the mid-1800's and continued for nearly a century after, until beavers were almost extinct. In 1850 alone, famed frontiersman and trapper Stephen Meek and his party reportedly trapped 1800 beaver out of Scott Valley, which at the time was called Beaver Valley. The last beavers in Scott Valley were trapped out by Frank C. Jordan in the winter of 1929-1930 on Marlahan Slough¹. Beaver throughout much of the Klamath basin suffered a similar fate, and even today as they return to less inhabited areas along the mainstem river and its tributaries, they are still shot and trapped in streams where their dams pose a perceived risk to residential and agricultural property.



Figure 1. Map of proposed engineered log jam project near the mouth of Boise Creek. Beavers evidently received the proposal but decided to implement it in-house.

It is no coincidence that fish biologists looking to restore threatened coho in the Scott River and the larger Klamath system have identified Marlahan Slough as a key habitat to restore. Low-gradient sloughs, blind channels, off-channel ponds, braids, and other low-velocity habitats are ideal for rearing coho, and beaver dams just make them better. Recent studies from Washington and Oregon by NOAA scientist Michael Pollock and others are further defining the intimate relationship between beaver, beaver ponds, and coho smolt production². A recent multi-year study being prepared for publication by the Karuk Tribe, Yurok Tribe, Larry Lestelle, and others, on the ecology of coho in the Klamath River identifies the lack of low-velocity habitats, primarily during winter flood events, as a major potential limiting factor to coho distribution and abundance³. Further studies are needed to relate the loss of beaver and associated habitats to the loss of coho in the Klamath River, but based on other studies, it appears that beaver ponds would provide much needed overwintering and summer rearing habitat for juvenile coho. Coho, out of all the salmon in the Klamath River, have borne the brunt of human development. Low-gradient valleys and deltas that provide the best farm and ranch lands, and ideal places to build homes, are also the very same habitats that coho require for spawning and rearing. In addition to the loss of beaver, coho have been impacted by channelization for flood protection and floodplain development, excessive temperatures and disconnected habitats resulting from overallocation and use of surface flows. Additionally, large, mainstem dams create environments conducive to the production and spread of fish diseases, and nutrient-loading from fertilizers, and loss of wetlands that lead to poor water quality (low dissolved oxygen, unstable pH, etc.). Further impacts include historic mining (channelized, simplified instream habitats), logging

Beaver dam across Boise Creek at the exact location of a proposed engineered logjam project. The beaver dam routed a portion of Boise Creek around an adult salmon barrier through a series of beaver ponds to the Klamath River, restoring fish passage to over three miles of good coho spawning habitat.
PHOTO: BROCK DOLMAN, OCCIDENTAL ARTS AND ECOLOGY CENTER



(excessive sedimentation and decreased input of wood), road construction (excessive sedimentation, instream barriers, disrupted groundwater flow), and disrupted fire regimes (decreased input of wood).

A recent study by Pollock et al. summarized the specific affects of the loss of beavers and the dams they are famous for on fishes⁴:

Beaver dams alter the hydrology and geomorphology of stream systems and affect habitat for fishes. Beaver dams measurably affect the rates of groundwater recharge and stream discharge, retain enough sediment to cause measurable changes in valley floor morphology, and generally enhance stream habitat quality for many fishes. Historically, beaver dams were numerous in small streams throughout most of the Northern Hemisphere. The cumulative loss of millions of beaver dams has dramatically affected the hydrology and sediment dynamics of stream systems. Assessing the cumulative hydrologic and geomorphic effects of depleting these millions of wood structures from small and medium-sized streams is urgently needed. This is particularly important in semiarid climates, where the widespread removal of beaver dams may have exacerbated effects of other land use changes, such as livestock grazing, to accelerate incision and the

subsequent lowering of groundwater levels and drying of streams.

With coho numbers critically low throughout the basin, restoration actions are being planned and implemented to improve coho habitat by the Yurok Tribe, Karuk Tribe, Mid Klamath Watershed Council (MKWC), US Forest Service, and others. Many of these projects replicate habitats that would have been created historically by beavers. This spring, MKWC proposed a project near the mouth of Boise Creek, a tributary to the Klamath near Orleans on property owned by the Coates Vineyard and Winery, that would have used an engineered log jam to re-route the creek around a bedrock cascade barrier at the mouth through a series of existing ponds maintained by several families of beavers (Figure 1). However, before the project could be implemented, beavers constructed a five foot tall dam across the creek at the exact location of the proposed log jam, diverting a portion of Boise Creek through their ponds, and into the Klamath River at a location that provides adult and juvenile fish access. MKWC and Karuk Tribe biologists have observed thousands of juvenile chinook and coho utilizing these ponds through the summer, and moving through the ponds into Boise Creek above the barrier! This fall and winter, we will see if the



Panoramic view of off-channel pond at Stender property on Seiad Creek. The pond connects to Seiad Creek on the left and is fed by a perennial stream that goes subsurface 200 meters upslope of the pond. We anticipate beavers may inhabit this and other created ponds over time. PHOTO: WILL HARLING, MKWC

beavers have also effectively redesigned the creek to allow for adult spawning chinook and coho salmon to access more than three miles of high quality spawning habitat above the barrier.

In other areas, MKWC is working to create high quality off-channel pools that will provide winter and summer rearing habitat in low-gradient Klamath tributaries. MKWC, through funding from the US Fish and Wildlife Service and the PacifiCorp Coho Enhancement Fund, is currently implementing a series

of off-channel ponds along Seiad Creek, a tributary to the Klamath River that has small but stable runs of spawning coho. Seiad Creek is unique in that it has a large alluvial floodplain for three miles upstream of its mouth that has been constrained by flood control berms to allow for settlement. Historically, Seiad Creek would meander more than a mile upstream or downstream in relation to the Klamath River, creating complex slow water habitats preferred by coho salmon. Based on anecdotal information from

landowners along the creek, beaver once played a major role in damming Seiad Creek and flooding off-channel habitats along the creek.

With cooperation from several landowners along Seiad Creek, MKWC is currently completing excavation of two ponds, and will complete one more this year and one next year as part of a larger floodplain reconnectivity project in coordination with the Karuk Tribe. When designing off-channel habitat projects, having more ponds along a

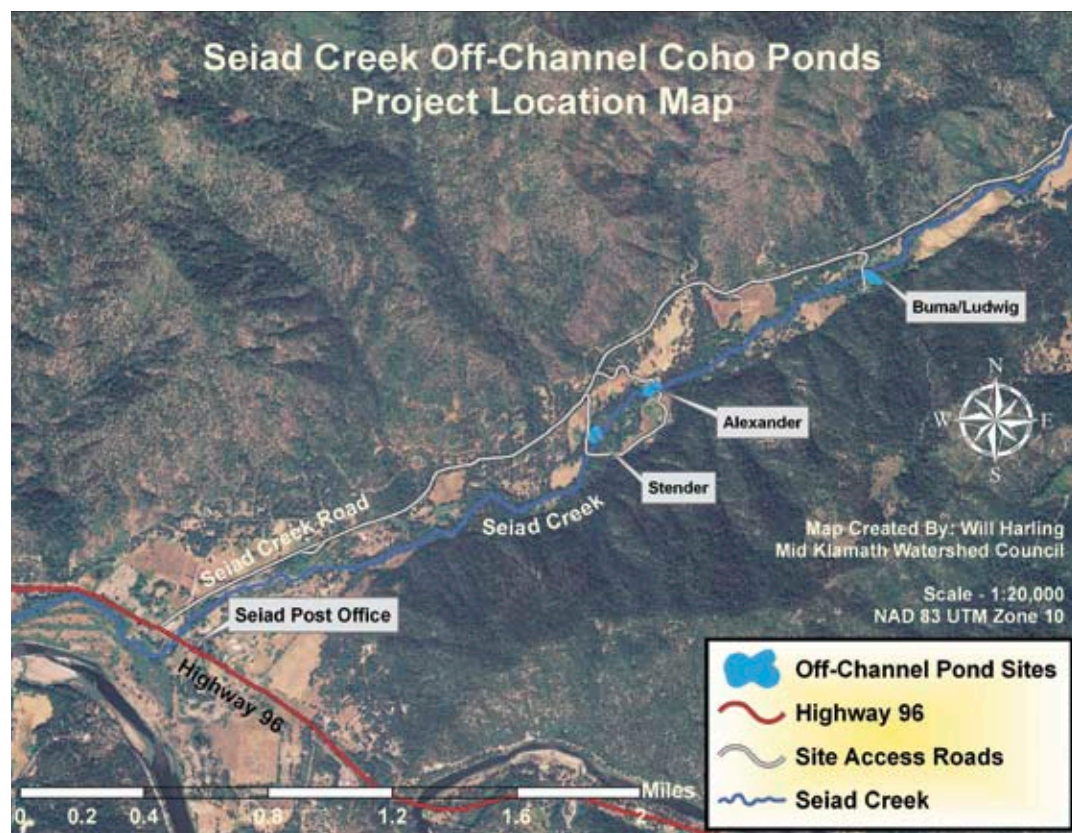


Figure 2. Map of off-channel ponds currently being built on Seiad Creek. Having multiple ponds along a larger reach of a tributary vs. individual larger ponds gives migrating fish more opportunities for migrating fish to find and use them. MAP: WILL HARLING, MKWC

longer section of creek is better than planning fewer larger ponds. Only a certain percentage of fish will encounter the pond entrance, so having more ponds increases the potential for fish finding and occupying created off-channel habitats (Figure 2). Garnering landowner support along prioritized tributaries is critical to the success of habitat restoration projects.

Seiad Creek provides an example of what can be accomplished on larger tributaries, such as the Scott River (once called Beaver River) which has also been degraded through channelization, dewatering, beaver extirpation, and upslope management. Innovative research by Michael Pollock and others on a small tributary to the John Day River in eastern Oregon is demonstrating how degraded stream and riparian habitat can be restored by working with beavers to aggrade streams, connect off-channel habitats, restore groundwater and increase stream sinuosity. At a presentation in Whitethorn organized by Tasha McKee from the Sanctuary Forest this past September, Dr. Pollock showed how wood posts pounded into an



Directional posts form the structure of a beaver dam that diverts high flows onto a flood terrace and away from an eroding bank on a small tributary to the John Day River in eastern Oregon. Dr. Michael Pollock and other are pioneering research demonstrating how degraded stream and riparian habitat can be restored by working with beavers to aggrade streams, connect off-channel habitats, restore groundwater and increase stream sinuosity.

PHOTO: WILL HARLING, MKWC

incised stream channel at key locations allowed beavers to recolonize sections of the stream and create stable dams that would otherwise be washed out during

high flows, resulting in increased off-channel habitat, decreased erosion, and aggradation of the stream channel.

The restoration of threatened coho salmon populations in the Klamath River system may be intricately tied to enhanced beaver populations and restoration projects that mimic the positive benefits of beaver dams. Educating the public about the critical role of beaver in restoring coho salmon populations in the Klamath River and other coho salmon streams in Northwest California may also help to decrease take of beaver as a nuisance species and allow them to reclaim their role as an ecological process shaping our streams and valleys.

🌲 For more information: www.mkwc.org



Flood control berms along lower Seiad Creek currently constrict the historic floodplain, blocking fish access to important rearing habitat. A collaborative project between the Karuk Tribe, MKWC and landowners would remove these berms and restore connectivity to these habitats, while protecting community resources at risk.

PHOTO: WILL HARLING, MKWC

- 1 Tappe, D.T. The Status of Beavers in California. Game Bulletin #3. State of California Department of Natural Resources. 1942.
- 2 Pollock et al. The Importance of Beaver Ponds to Coho Salmon Production in the Stillaguamish River Basin, Washington, USA. North American Journal of Fisheries Management. 24:749–760, 2004.
- 3 Soto et al. The Role of the Klamath River Mainstem Corridor in the Life History And Performance of Juvenile Coho Salmon (*Oncorhynchus kisutch*). Draft Report to US Bureau of Reclamation. 2009.
- 4 Pollock et al. Hydrologic and Geomorphic Effects of Beaver Dams and Their Influence on Fishes. The Ecology and Management of Wood in World Rivers. pp. 213-233. American Fisheries Society Symposium [Am. Fish. Soc. Symp.]. Vol. 37.

Coho Confab 2010

Each year, Trees Foundation hosts the Coho Confab, an annual symposium to explore watershed restoration. This year our summer intern, Matt Dicks, a college senior at Humboldt State University in the Department of Environmental and Resource Sciences, attended the Confab. We asked him to write about his experience. The following section includes Matt's article, and updates from two of the Confab's field tours.

My Confab Experience

By Matt Dicks

The 13th annual Coho Confabulation 2010 was an incredible success. A huge "Thanks" goes to everyone involved—from those who organized this gathering to those who lead the tours and workshops, and the volunteers that prepared all the excellent food. (Please view the schedule at the Trees Foundation website for specifics). This year everyone gathered in the Russian River Watershed, which consists of 1,500 square miles throughout Mendocino and Sonoma Counties. Bringing together experts with active participants from private and public organizations and agencies, one could see and feel successful collaboration. Confabulation, defined, allows for the informal free exchange of ideas and strategies; toss in coho to the title and we're all focused on creating and sustaining healthy watersheds. Collaboration is an essential key to developing realistic goals for everyone's respective watersheds.

There is not a single cause that can be pinpointed and corrected when trying to figure out why the health of our watersheds is lacking. A general listing includes—intense resource extraction, urban and agricultural runoff, overfishing, and dams, all of which make one think of human interactions. Tours and Workshops at the confabulation focused on fish hatchery programs, bioengineering, dam removal, rainwater filtration and conservation, aquatic invertebrate and vertebrate identification, in-stream monitoring techniques, landowner tools to protect salmon, in-stream flow restoration, and grant funding. All these can be extrapolated on immensely; the time allotted for each

session over the weekend was a sufficient introduction into the vastness of each expert's profound knowledge regarding the interconnectedness of the biosphere and humans.

Defining "Coho" within the title Coho Confabulation can assist with clear and conscious future negotiations in all collaboration efforts. Coho is short for the common name of the anadromous fish "Coho Salmon" or "Silver Salmon," scientifically known as *Oncorhynchus kisutch*. However, just because Coho is in the title of this gathering doesn't mean that the whole gathering is about this particular species of salmonid. Coho are definitely important for many social, economic, and cultural reasons, but they are also listed as endangered on the Endangered Species List mandated by the Endangered Species Act of 1973. Also, Coho are considered both keystone and indicator species, which places them in a vital niche when describing the food web and the ecological balance of the watershed. Native cultures too have heavily relied on salmon long before European settlement. Focusing on a valuable life form such as the coho will ensure that the surrounding ecological communities will thrive.

Deciding on which tour to attend is not as easy as it may seem. Every tour is so important; how could anyone miss even a moment of the knowledge available? I spun into the bioengineering tour on the main-stem of the Russian River to begin the weekend. This was a bank stabilization project using willow walls, adjacent to a recreation facility. While trying to view this project practically, I

kept thinking how on a geologic time scale if this river wants to carve into the bank the river is flowing into; though of course we are working with human recreation and the currently existing infrastructure of the campground. Combine this with previous human-induced watershed degradation and we get to the point that something has to be done to ensure ecosystem function for the future generations. This tour began with descriptions of bioengineering projects that have seen success with "Willow Wall" and/or "Willow Mattress" construction mainly used to stabilize stream bank erosion. A digital slide show was used, complete with outlines and pictures to orient people to the current project. Also presented was a video showing of a bioengineering project from beginning to end which took a couple months to construct and was played in fast forward with coordinated music. The difference from beginning to end was phenomenal.

The Bioengineering tour proceeded to the site which was within a couple hundred yards of the initial speech. The feeling was like walking into Willow Wall majesty. Willows are used for bank stabilization primarily because of their quick root growth from cuttings. These roots also help create a swirling of water which in turn spirals vital nutrients to the river bottom. I am not a willow wall expert but I will try to explain a few key points for a successful project. The Willow Wall is made up of bundle upon bundle of willows stacked one on top of another to form the desired shape. Granted, a smaller willow wall can be created by pressing individual willow cuttings into the ground. Each bundle in this project

contained up to 50 willow trees though maximum success rates have been acquired at 20-25 willow trees per bundle (each cutting/tree averaging about one inch in diameter). Where to find these willows? At the nearest accessible stream bank is the answer. Since this is a relatively new technique, willow nurseries are still in their infancy. Obtaining willows close to the project site is better because this can end up being a major monetary cost if the travel time is significant. Once the willows have been bundled and stacked and sufficient amounts of earth have been placed in the rooting area, coco mats and an irrigation system are placed a top of the wall.

It is important to keep water on the roots for two years, assuring consistent healthy growth of the willows. At this point a deer fence can be considered unless the Sand Bar Willow (scientifically known as *Salix sessilifolia*) is planted, because common knowledge has proven that deer do not eat this particular species of willow. From this point, sprinkling some native wildflower seeds in the area will only help with increasing species diversity and enhance the already beautiful natural landscape for years. It's important to consult the Best Management Practices (BMPs) when developing any new project, especially when stream sediment may/will increase. Friday's events concluded with excellent speeches about the economics of ecological restoration, core recovery targets, and holistic perspectives of the watershed.

Saturday began with an amazing opening circle, allowing everyone time and space to get acquainted with the area and to prepare a lunch for the day's tours and workshops. The Occidental Arts and Ecology Center (OAEC) was the site of the first tour I attended. This amazing place is a grand example of what a few people can do for their respective watershed. Rainwater catchment and water conservation practices were the vision for the day. Culvers took on a



A participant takes photos of the Willow Wall during the Bank Stabilization Tour at the 2010 Coho Confab.
PHOTO: FRANCINE ALLEN

new shape as they were placed not only to keep water from the roads but used along the hillside to help slow the water flow and decrease sediment into the creeks. By strategically placing these water catchments perpendicular to the hill slope, one can see that water will be directed deep into the ground rather than quickly skimming across the top. "Slow it, Spread it, Sink it" was a slogan used by the OAEC to describe this human interaction. I have come to understand that since we cannot instantly re-grow the ancient resilient dynamic climax forest, our next best option is to mimic the processes that we understand as important. In this circumstance, observation has lead one to see rainwater quickly moving from the hillside to the river and onto the ocean at remarkable rates. Water catchments are a simple solution to this complex circumstance.

The OAEC also had a very nice example of water conservation that incorporated the roof of the goats' shelter for the purpose of giving the chickens drinking water. Simply explained, this invention incorporated a corrugated tube spliced and placed at the lower edge of a roof

which was long enough to reach a water tank. The chickens' water utilized a floating device that would maintain a pre-determined water level that was supplied from the tank. With respect to all the vegans out there, the OAEC also demonstrated their use of water conservation by storing it in water tanks for summer time use in the garden. Ponds too can create habitat for wildlife and provide functional water storage. Increasing various types of water storage was the main point I gathered from this tour. The practical example demonstrated at the OAEC was definitely inspiring.

Moving into the afternoon, a whole new perspective was being placed on the confabulation in the version of "Workshops." The tours definitely brought us into observable range of some very state-of-the-art ecosystem projects, but the workshops were designed to get our feet wet. Aquatic invertebrate identification is part of the standard data gathered to monitor restoration efforts.

Some techniques from these workshops include measuring stream depth and width, which is differentiated from channel depth and width. Measuring the canopy cover above the river is important because of the evaporation rates that correlate to the stream bank vegetation. Acquiring sediment samples taken of the river bottom are part of the checklist too. Knowing the flow rate of the river at each transect establishes the base line data needed for a larger perspective. The slope of the river relates to the flow rate but is a different measurement all together. Documenting the invertebrate and vertebrate populations gives a direct indication of stream health. Initially walking up to the river, many invertebrates are not easily noticeable, though with a bit of skill in flipping over a few stones and scooping up the water within all the movement and finally using a magnified glass, one can find a nice variety of life forms in a healthy reach. Most of the rivers have been impacted

by unsustainable logging, which has transformed the aquatic areas relatively quickly when compared to the geologic time scale. Evaluating stream health can give us the basic knowledge needed to make the decisions about how to enhance the health of our watersheds and therefore increase the populations of invertebrates and vertebrates.

Saturday concluded with a Barbeque set to the tone of “Organic” for both Vegetarians and Carnivores. The live music that followed dinner enlightened the atmosphere and was very entertaining. A nice campfire topped

the evening off for everyone to enjoy and converse. Sunday was going to be full of more exciting tours. Another “Thanks” to all the speakers at this year’s Coho Confabulation. There were so many awesome tours and workshops over the weekend that attending them all would have been impossible. Though with everyone so motivated to enhance the ecosystems of the earth, many opportunities were available to exchange knowledge of the concurrent tours and workshops. Many ecological services go without a value within our economic system. Processes such as photosynthesis

and the hydrological cycle have been taken for granted. Non-timber forest products are available but have been set to the wayside within many general plans. Cultural services such as the “placed based experiences” happening within Mother Nature are priceless and therefore currently undervalued. Coho are one of many aquatic species that provide essential nutrients to our watersheds’ plant and animal kingdoms. We come a step closer to allowing our ecosystems to thrive once again every time gatherings such as the “Coho Confabulation” manifest.

Report from Austin Creek

During the 13th Annual Coho Confab, the Sotoyome Resource Conservation District (RCD) led a field tour out to Austin Creek to show interested Confab attendees the important and innovative environmental projects which are happening in the watershed. Participants traveled to the old steel HWY 116 bridge over Austin Creek, off of Cazadero Road, where they were offered an introduction to the tour by Kara Heckert, managing director of the Sotoyome RCD. Kara introduced the guest speakers of the tour who were: Homer Canelis, a property owner of land where the restoration work in lower Austin Creek is occurring; Brian Cluer, Ph.D., Fluvial Geomorphologist with National Oceanic and Atmospheric

Administration (NOAA); Andy Casarez, Physical Scientist with Sotoyome RCD; and Fred Euphrat, Senior Consultant in Fisheries and Aquaculture to Senator Pat Wiggins.

On the tour, participants learned that the Austin Creek watershed is comprised of 68.7 square miles, ranging from three feet above sea level at its mouth to the ridge-lined headwaters which reach over 2,100 feet, all emptying into the Russian River estuary approximately five miles from the Pacific Ocean. One of largest tributaries to the Russian River, Austin Creek provides critical summer flows to the Russian River estuary in addition to its function as a spawning and rearing habitat for salmonids.

High levels of sediment affect both water quality and aquatic habitat in Austin Creek. The Austin Creek watershed has undergone significant disturbance due to timber harvest, mining, and rural residential development activities. This disturbance, coupled with steep terrain and highly erodible geology, results in an erosion-prone landscape. Based on findings in the Sotoyome RCD’s 2005 Austin Creek Watershed Assessment, a dense network of unpaved rural roads in the Austin Creek watershed has caused excessive erosion and sediment delivery to nearby streams. Additionally, the excessive erosion and subsequent aggradations in lower Austin Creek have impaired the ability of coho salmon to enter Austin Creek to spawn. It has also resulted in habitat simplification throughout the watershed, reducing the ability of salmonids to successfully rear in lower Austin Creek.

The Sotoyome RCD is creating a program designed to determine specific sediment sources, focusing primarily on 90 miles of unpaved road segments and other sources of anthropogenic erosion. This series of site-specific sediment source inventories will include a prioritization of treatment sites based on cost-effectiveness and an estimate of the total yards of sediment prevented from



A wood structure
on Austin Creek
PHOTO: COURTESY SOTOYOME
RCD ARCHIVES

entering the stream. From this inventory, additional funding will be pursued to implement these recommendations. With 92% of the watershed in private landownership, a crucial outreach program, targeted towards landowners with potential sedimentation issues on their property, will be completed. To date, the Sotoyome RCD has already received interest agreements from landowners representing 85 miles of rural roads that could be assessed. In addition, the Sotoyome RCD will coordinate efforts with the Sonoma County Transportation Department on the assessment of county

roads currently being conducted by Pacific Watershed Associates (PWA) within the watershed, making for a comprehensive first phase of a watershed-wide road assessment.

Also included in the program is the geomorphic study of the lower reach of Austin Creek that includes the placement of log, root wad, or boulder structures that scour gravel, generate pools, and improve vital migration and rearing habitat for salmonids. This is part of the ongoing Lower Austin Creek Migration Improvement Program. The Sotoyome RCD will continue to work with gravel

mining interests, government agencies, local residents, and non-governmental organizations to not only place new structures, but also to modify existing structures to increase their function, and create additional alcoves via innovative techniques of gravel extraction.

Working to increase habitat lost due to aggradation in Austin Creek's lower reaches while simultaneously reducing upslope sediment inputs contributing to the habitat loss will result in a compounding beneficial effect on salmonid habitat and a maximization of watershed restoration efforts.

Grape Creek Update

During the 13th Annual Coho Confab, Friday's Dry Creek Tour included a visit to Grape Creek, a Dry Creek tributary where cooperative fishery restoration efforts are in full swing. The tour was led by Valerie Minton and Kara Heckert of the Sotoyome Resource Conservation District (RCD). Grape Creek is a current steelhead stream, and a recent historic coho stream, with coho observed in a 1998 survey by the Department of Fish and Game. Limiting factors for salmonids in this system include pools and pool cover, excessive fine sediment, fish passage, and instream flow. A wide range of collaborative efforts have emerged to address these issues through stream restoration, flow restoration, and coho population augmentation and monitoring. The Grape Creek watershed is entirely privately owned, so landowner participation is a critical element in all of these efforts.

Stream restoration efforts have included fish passage improvement, in-stream structures to promote pool formation and pool cover, streamside revegetation, and erosion control both on streambanks and on upslope sources such as rural roads. The in-stream project that was included in the tour was one of the projects called for in the Russian River Biological Opinion,

and was completed by the Sotoyome RCD, in partnership with the Sonoma County Water Agency.

Flow restoration efforts have focused on restoring in-stream flow while securing water for landowners. In-stream flow gauges in the watershed are providing baseline data, helping partners to identify areas where improvements are needed, and providing data that will assist landowners in water rights applications where they are necessary for flow restoration projects. Flow restoration projects that have been implemented so far include rainwater catchment, winery facility water conservation, and frost protection alternatives that do not rely on water. Currently leading these efforts in Grape Creek is the Russian River Coho Water Resources Partnership, a group of non-profit and government agencies funded by the National Fish and Wildlife Foundation to develop a systematic approach to improve streamflow and water supply reliability to assist in the recovery of endangered coho salmon.

Population augmentation and monitoring efforts are headed up by the Russian River Captive Broodstock Program. As a result of the cooperative restoration efforts in the Grape Creek watershed, 2010 marks



A recently installed large wood and boulder structure provides habitat for Grape Creek Salmonids.

PHOTO: COURTESY SOTOYOME RCD ARCHIVES

the first year that coho were stocked in the Grape Creek watershed through this program, with 500 juvenile coho stocked in each of two reaches of Grape Creek. Throughout the summer, comprehensive survival and habitat condition data were taken in order to quantify the ability of coho to survive in the varying summer conditions of this watershed. This data will provide vital information linking flow conditions to coho survival, and it will provide a baseline against which the success of future flow restoration efforts can be measured.

For more information: sotoyomercd.org

Mill Valley StreamKeepers

By Joyce Britt and Betsy Bikle

Mill Valley StreamKeepers (MVSK) is a non-profit 501(c)(3) organization that grew out of the Mill Valley Watershed Project, which began in 1994. Our purpose is to protect and restore the watershed of the city of Mill Valley, Richardson Bay, and adjacent unincorporated areas. Because Richardson Bay is part of the San Francisco Bay, we are involved with organizations working to promote the health and functioning of the North Bay and, in fact, the whole coastal/Bay region.

MVSK is a collaborative effort in the community to reach citizens and other groups, as well as local agencies—both municipal and county—to accomplish our goals. We get grants to do scientific studies as a basis for our work. These studies have included stream monitoring, hydraulic fish passage studies, and benthic macroinvertebrate sampling. Our direct activities include creek side plantings, creation of raingarden exemplars, initiating and co-sponsoring events and



On Earth Day weekend, volunteers “beautify” riparian areas back to “native” nature.

PHOTO: B. BIKLE

presentations regarding the importance of the ecosystem of the watershed, creek-side walks, creek monitoring, watchdogging development issues at public

meetings, reviewing EIRs, engineering reports, and landscape design, keeping in constant contact with city and county personnel charged with watershed issues, and serving on committees and boards of city, county, and regional environmental groups. Together with the Bay Model Association and the Marin Clean Water Stewardship Project, we produced a watershed map of Mill Valley, which is displayed in City Hall, the Community Center, and the Library. One of our goals is that every residence in Mill Valley will have this map and understand what it means. Education and outreach to the public are essential to our mission of protection and preservation. MVSK understands that land use issues are not trivial and present challenges in raising public awareness about the necessity of viewing our watershed as a community asset which all of us own and must protect. To that end, we promote enforcement of and education about the



Just inside the front door of the Mill Valley Public Library, for two to four weeks, the display case reveals MVSK educational and eyecatching watershed information.

PHOTO: B. BIKLE

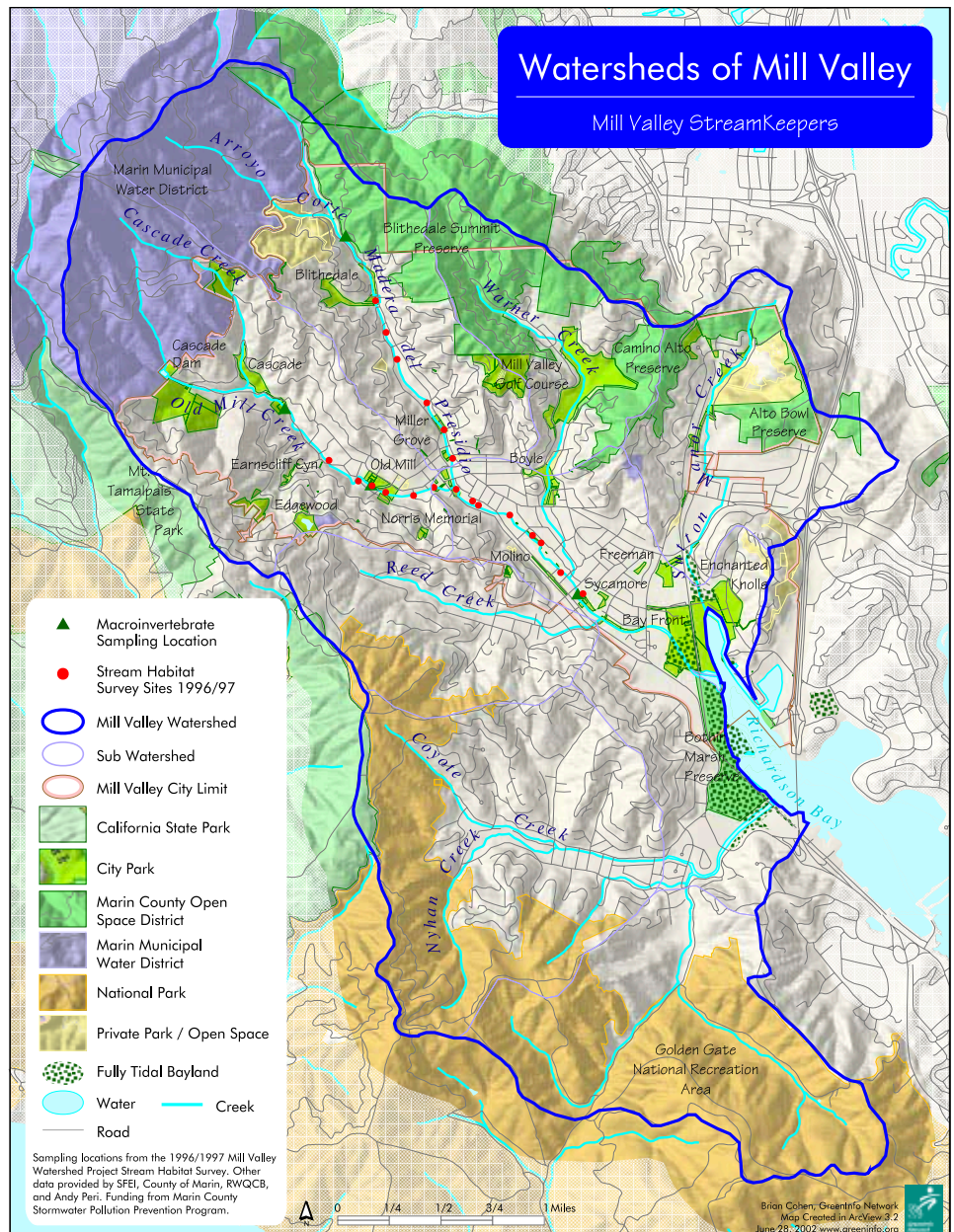
Endangered Species Act, not only for our steelhead and restoration efforts for coho, but also for Spotted Owls and native plants. Flooding has been a recurrent problem in our watershed and we turned our attention to the links between creek restoration, erosion control, habitat protection, development, and flooding years before the state's agencies started doing so. For many years we have been working on an issue which impacts every urban area seeking to revitalize its streams while addressing flooding, i.e., fish barriers. In this regard, we use science as a means to persuade and promote. While beauty of the environment is the largest selling point to the public at large, we know that it is science which can bring differing views into coalition.

Our current projects include all of the above in varying degrees of intensity. We are working with the county as part of the Citizens Advisory Group on the Mill Valley Watershed. We will monitor the city's Creek Maintenance Agreement, review and lobby for appropriate clean up of toxic sites scheduled for development, and review and critique draft EIRs; we will address a long-awaited engineering report on flooding in Mill Valley. We will sponsor and co-sponsor programs at the Community Center and Library, and we look forward to continued collaboration with the Sierra Club and with Salmon Protection and Watershed Network (SPAWN), another of the Tree Foundation's partners. {picture included} Our annual newsletter informs the community of watershed issues and problems as well as our accomplishments and goals. We are gratified by donations from supporters. We will continue to advocate for addressing sewer connection problems and spills. We will assist the city in creek restoration and native plantings in our city parks. On Earth Day each year, we take part in Mill Valley beautification. We use volunteers to pull aggressive non-native plants and install some filtering runoff settlement ponds. Over the

course of the year, we correspond and talk with local citizens about watershed issues and practices on their properties. We encourage the use of permeable paving, mulch, water catchment, and native plants! We are hoping that state money will be freed up to fund a grant request we are supporting from the city to restore a stretch of stream and address flooding issues. Removal of barriers to fish migration (five have been identified) is also an ongoing goal.

Although we do not have forestry, fishing, or agricultural issues, we are striving to enhance the natural processes at work and to mitigate harmful urban effects in our watershed. We hope to bring coho salmon back to spawning under our Redwoods and to ensure the thriving of steelhead. We look forward to partnering with the Trees Foundation in support of these efforts.

For More information:
www.millvalleystreamkeepers.org



Many people enjoy this map of the watershed developed by MVSK which has given it as framed posters to the city, used in MVSK brochure, and made available on the website MillValleyStreamKeepers.org. PRODUCED BY GREENINFO.ORG

The Redwood Curtain Bicycle Run, Part III

Jeffery "Muskrat" Musgrave
and "Healing Tree"

The bicycle tour did not end at the Redwood Curtain...

After camping out in Richardson Grove State Park with the lovely and fun folks who sponsored the ground camp for the event, my partner and I continued bicycling down the coast via Highway 1, the California coastal route. We had left the safety and tranquility of the Redwood Highway for the majestic Pacific Ocean and all of her unspoiled glory.

Highway 1 is a very touristy route, so we brought fliers and other info about the campaign to Save Richardson Grove and distributed them by bicycle to the coastal towns we passed through. We were very surprised at how many people we met who knew about Richardson Grove State Park and how many special memories they shared of the Redwood Curtain. I was surprised at how many people from the Bay area and beyond visit Richardson Grove. THEY were surprised, even mortified about the

fact that Caltrans plans to cut the roots of sixty-six ancient redwoods that line Highway 101 through Richardson Grove State Park, in addition to removing fifty-four other trees.

In fact, it was really hard to find ANYONE during the bicycle run event or along our continued journey to San Francisco that had ANY opinion supporting the federally illegal Caltrans highway project (it's against federal law to alter state parks). There are even Caltrans employees who are silently opposed to the RIP (Richardson Grove Improvement Project), as well as a majority of State Park employees who have to keep their mouths shut in order to keep their jobs. I have yet to find a State Park employee who wants to see Caltrans RIP "rip" a hole in the Redwood Curtain. Their support is "tongue-in-cheek," which is understandable but also much appreciated.

Our travels took us to some of the most beautiful and inaccessible views of the Pacific. If we were in a vehicle, it would

have been impossible to pull over and see all of the amazing cliffs, wildlife, and even abandoned state parks. But on a bicycle, you can easily access and "guerilla camp" many of the parks that closed due to lack of funding. But do your part and pick up some trash if you choose to guerilla camp, anywhere! Governor Schwarzenegger had threatened to close half of California's state parks but was met with overwhelming opposition and public outcry. He eventually gave in and stated publicly that he would not close anymore of the dwindling parks we have left. (It turns out that Schwarzenegger DID cut half the funding to the State Park system, which is practically the same thing as closing half of our parks).

Of all the stops to make along Highway 1, the best place to visit on the coast is the town of Mendocino, located in Mendocino County just south of Fort Bragg. Fort Bragg is also fighting a similar fight against a corporate big-box invasion, as we are here in Humboldt County with the RIP. The whole reason to widen the 101 through Richardson Grove State Park is to get bigger trucks into Humboldt County, subsidizing the greed of a few local businesses while trading smaller "Mom and Pop" operations for Walmarts and Home Depots. Fort Bragg is fighting a Walmart with multiple environmental (and economic) impact issues.

The town of Mendocino is also one of those places that hasn't been overrun by corporations. There are multiple art galleries and wine tasting locations as well as bed and breakfasts and gift shops. It sounds kind of touristy, but the town is very friendly and progressive. Even the welcome center (operated by the State Parks) was flying the American flag. Upside down. I think it was a mistake (or was it?). We slept at the welcome center in plain view without any harassment from rangers or sheriffs. There is a great



coffee/internet cafe, as well as a nude community sauna/hot tub/bed and breakfast called "Sweetwater Inn". It was really hard to leave such comforts and easily-made friends for the open road.

We only paid for hike/bike camps as we chose to stay in the State Park, which was very reasonable at around \$2-\$5 each, and we weren't about to rip off the parks by camping for free. There are timberlands, parks and coastline for that. But hike and bike camps are probably the best part about bicycle touring because you meet a very diverse section of society, such as international tourists and other activists. It takes a lot of courage to contend with drunk drivers and rental RV's while cycling with gear a few feet next to a hundred-foot drop off a cliff into the Pacific ocean or, at worst, the rocks waiting below. Plus, you see a lot of roadkill, pollution, and occasionally the person that must have been trying to run you right off the road (I recommend a very large flag to alert and even "block" traffic when needed). You meet a lot of strong and fearless individuals with many different stories and backgrounds. Some were like us, taking our time and letting things happen while seeing everything that vehicle traffic misses. Some were riding 100 miles per day and usually competing with others, while missing pretty much the same things that the autos do. It is a lot like life, off-tour.

As you ride south along Highway 1 from Eureka to the Bay Area, you begin to realize that life is much slower, "mellower," and people are more friendly away from urban and suburban life. Drivers got angrier, people got sketchier and the pollution and trash became more apparent and pervasive towards nature the closer we traveled towards the city. It's not that I'm saying that country folk are better than city folk. I'm just saying that life has more distractions, more duties, and more responsibilities in the city. But I feel very fortunate to have escaped that lifestyle. People look each other in the



Richardson Grove gathering

eye and greet complete strangers where I live now. Where I'm from, that could get you shot. It's important to remember that while bicycle touring, you face the same threats and dangers that travelers and the houseless deal with on a daily basis from law enforcement and other aggressors. Things like that get worse as population gets denser.

How long did it take for us to get to the Bay Area? That doesn't matter, and I hope it won't for you if you decide to join the thousands that bicycle tour the North Coast via Highway 101. It's becoming ever more popular. It's "green," and if you ride the Pacific Coast toward the south, it's all downhill. Get it? (That's not a very funny joke, but I have learned on my adventures that for every steep uphill there is always that rewarding downhill, like in life).


We were very lucky because a huge storm was tailing us from the North. As we made it to our destination at a very magical activist's place in San Francisco, it started dumping.

Our hopes were to share our cause with our local community by cycling for the State Parks and the trees in Richardson Grove

State Park. But we also wanted to share with others who also have a connection to redwood trees and endangered species such as Marbled Murrelets, Mom and Pop shops, local independent small businesses, farmers, habitat, open space, and friendly and down-to-earth folks that another entire paradise is being threatened by greed, industry, the U.S. military, and non-local corporations.

Again.

And we wanted to share our story with you about the fight to save the Redwood Curtain. Richardson Grove State Park is not the only thing at stake here; our entire county of Humboldt is being threatened by something even bigger than marijuana legalization.

 Please visit saverichardsongrove.org for current campaign and affiliate information. Visit humboldtforestdefense.blogspot.com for Redwood Curtain direct action information or efhumboldt.org to jump into Humboldt County forest actions right now.

To read part I and II, please visit www.treesfoundation.org



Diggin' In: THE GIENGER REPORT

By Richard Gienger

In this Diggin' In I will continue with aspects of the history recap of 'modern forestry' and its many varied and crucial issues from about the early 1970s through the present that I started to focus on writing about in my previous column. I'll also bring in some short summaries of 'what's going on now.' I would encourage you to take some forest and watershed initiatives yourself. Do some reading and thinking, take some stewardship actions on your own property and/or in your own watershed, work with others, and support some of those worthy non-profits and businesses engaging in watershed restoration, fuel hazard reduction, sustainable forest management, and community-based forest models. In this issue of Forest and River News check out John Roger's article about 'upslope restoration'.

Roads and Road Building

Let's talk about forest, ranch, and homestead roads. Many of you probably know a lot about them: their impacts, their construction, some of their history and evolution over the last 40 years. But for those who don't and as a simple review for all those involved, I'll make a 'reader's digest' condensed version.

O.K., let's start with "skid road," sometimes called "skid trails" when they're only used a time or two. These go back a century or more, or in some form, probably for millennia. This is a road for dragging logs. Often these roads were 'corduroyed' in the past, with less-valued (or sacrificed) logs laid parallel to each other in the road perpendicular to the route of the road, especially when animals were used prior to caterpillar-type tracked machines doing the dragging. Water or grease of

some type was often used to lubricate the surface the logs were skidded upon. In the down-to-the-dammed-river or railroad logging in the 1800s and early 1900s, the skid road system was the tributary stream system. In general, until something was done to protect streams and watercourses, the only criteria for logging practices (besides making some money) was following the physics of least resistance.

Various cable-yarding systems were developed, especially after the steam donkey engine was invented by Eureka's John Dolbeer in the early 1880s. This revolutionized logging, especially in conjunction with railroads and Shay locomotives. Aside from the impacts

of the skidding systems, the railroads impacted streams less because trestles were required to be built over the ravines and valleys. It should be mentioned that a lot of the early logging across the country involved getting the logs to the rivers—the logs being so packed in the Susquehanna at Williamsport, Pennsylvania that you couldn't see the river. And on the West Coast, notably in Mendocino County, whole valleys were filled with old-growth logs to be released from behind dams when storms raised the water level sufficiently. Whole streams and rivers were scoured when freshets sent the logs downstream in a tumult, often past the mills into the ocean.



PHOTO: NOAA

This LIDAR photo shows a typical historical tractor-logged area along California's North Coast. LIDAR, or Light Detection and Ranging, is a remote sensing system used to collect topographic data. Data is collected with aircraft-mounted lasers capable of recording elevation measurements at a rate of 2,000 to 5,000 pulses per second and have a vertical precision of 6 inches. The lasers are able to show the detailed contours and impacts on the ground itself *beneath* the canopy of the forest, dramatically showing the "deranged hillslope hydrology" (quote by Professor Donald Gray) that make watershed and fisheries habitat restoration efforts hugely difficult. The disruption, triggered landslides, and erosion from the incredible web of roads and skid trails—on already unstable/high rainfall terrain—upset relatively stable equilibriums for given terrains established over millennia.

But let's get back to roads. With the advent of powerful tracked 'cats,' chainsaws, big logging trucks, and plenty of manpower after World War II, the impacts of logging and logging roads affected larger areas quicker than ever could have been imagined—even a decade before. The cat could and did put a road anywhere you wanted it. The tractor logging made, in many places, every stream a road. Cable yarding was prevalent in some areas of Oregon and elsewhere, but tractor yarding was dominant in California. With no bridges or painstaking trestles, the cat could move huge volumes of soil—fast. The era of the Humboldt Crossing had arrived: cull logs in the bottom of the channel with hundreds or thousands of cubic yards of soil pushed over them—the soil often from haul road cuts on extremely steep slopes. Some tributaries were simply buried for landings. Whole counties were given this treatment. Because the logging was such an economic driver, water laws and fish and game laws were unable to be enforced. As I've mentioned in earlier columns, the floods of 1955 and 1964 were a game changer.

The exacerbation of the damage of those floods by the widespread damage of tractor logging was clearly evident to the public, and the clamor for prevention of such land abuse greatly increased. The hydrology and stability of vast watershed areas were hugely compromised. Older styles of logging would greatly disrupt natural equilibrium processes, but not over such a large area in such a short period of time. By the time the modern Forest Practice Act was passed in 1973 these forestland abuses were starting to be addressed, in the Act and elsewhere.


Unfortunately, established habits are hard to change and the destructive 'traditional' road building and yarding procedures were seriously ingrained in timber operators and many foresters. Ironically, some of the necessary change rose out of the effort to correct the devastation

in the Redwood Creek watershed near Orick that was the result of the controversy, fury, and spite that resulted from the struggle to enlarge Redwood National Park to protect the Creek's watershed. The huge scale of the damage that was documented was close to that of the damage which occurred all over the North Coast. The remedies began to become evident. The large machines that created the damage needed to be part of the correction of that damage. And another machine, hardly known at that time in a forestland setting, was central in that it had the capability to pull back and pull up the soil that had been dumped into the streams and watercourses and down steep slopes. They could rotate 360 degrees to place soil back into stable locations or to fill dump trucks that could deliver the reclaimed soil to stable locations. Cats could help in this effort, and in the recontouring of roadbeds to approximations of original slopes in the case of recontoured decommissioned roads—or shaped to respect the factors of hydrology and slope stability in roads that were to be 'upgraded.'

Almost 'overnight' and through the 1980s, great strides were made in the thinking, planning, management, and maintenance of roads by almost everyone—from timber companies to homesteaders. Many of the subdivision roads from the 1960s were originally logging roads retained by the developer. All of a sudden, water laws and fish and game related laws were relevant and applied. The onerous effects of sediment on water quality and the survival of species like Steelhead and Salmon were beginning to be taken seriously. Timber companies seldom built roads on steep slopes anymore, and if they did, they used and were required to use the excavator to eliminate sidecast and respond to prescriptions by trained geologists. Unfortunately, road building by others did not advance so readily, but positive change is still evolving.

For More Info:

 **Board of Forestry**
www.bof.fire.ca.gov

 **Assemblyman Chesbro**
<http://democrates.assembly.ca.gov/members/a01/>

 **EPIC**
www.wildcalifornia.org

 **Humboldt Watershed Council**
www.voicesofhumboldtcounty.com

 **RFFI**
RFFI.org

 **Richard Gienger**
rgrocks@humboldt.net

Many studies for many watersheds have found that roads are the major source of sediment. For certain watersheds, landslides are the major source. In many watersheds, landsliding triggered by roads is a major factor. As hinted above, the way roads are being built is generally being transformed. The principles of getting water off the road as expeditiously as possible, avoiding inside ditches as much as appropriate and possible, disconnecting the road network from the stream network, and adequately treating problem areas are part of the way roads are beginning to be viewed. For you to get further information and specifics about these issues, get a copy of *Forest and Ranch Roads* by two of the staunch initiators of much of this change, Bill Weaver and Danny Hagans. Originally at the forefront with some others at Redwood National Park (and elsewhere), they now are the principles in their own

Since arriving in the Mattole Valley of Humboldt County in 1971, Richard Gienger has immersed himself in homesteading, forest activism, and watershed restoration. Richard's column covers a range of issues including fisheries and watershed restoration and forestry, plus describes opportunities for the public to make positive contributions in the administrative and legislative arenas as well as in their own backyards.



A September 2010 tour group at a crossing on Usal Road in Waterfall Gulch which the DOT rocked heavily, but left the outside berm in place and a long inside ditch that will, despite the straw, both erode and conduct sediment into the stream with every winter storm. Corrective measures were determined, a funding source (luckily) was found, and if the 'stars are aligned', the corrective measures will be implemented during the last two weeks in October.

business, Pacific Watershed Associates. Just google "Handbook for Forest and Ranch Roads" and there you have it.

What I'm trying to lead up to is one of the current upgrades that need to come about: prevention of sediment entering streams and watercourses from the approaches to crossings. Overall, the construction of crossings is generally much improved: culverted crossings have oversized culverts set at watercourse grade with adequate armoring—and one should hopefully have a 'critical dip' that keeps a channel in the channel if the culvert plugs, instead of creating a huge gully that takes out hundreds of feet of road before delivering 1000s of cubic yards of sediment to a stream. (A little digression that I have to get in here: Please, if you can afford a bridge, or can construct a high quality armored ford,

depending on site and scale and so forth, please do. It's not if a culvert will fail and/or have to be replaced, it's when.)

Back to sediment from crossing approaches: Sediment from your road surface and/or inside ditches needs to be ushered into areas where the sediment can settle out and not reach the stream or watercourse. Inside ditches that deliver sediment defeat the whole purpose of a good crossing. Road-approach surfaces that erode and deliver sediment do the same. Armor-road approaches that slope to the crossing with good rock keep the sediment-laden water out of the crossing approaches with rolling dips, waterbars, or inside ditch relief culverts. This still isn't happening enough. Good county road crews are still rocking the heck out of road crossings, but allowing hundreds of feet of unarmored, eroding inside ditches

to dump directly into streams that lead to endangered coho salmon habitat. We all can do better. Let's get with it.

An Update On Assembly Member Wesley Chesbro's AB 2575:

The following is an informational summary and near-future artifact, written to encourage support for the Governor's signature, which by the time you get this will have happened or not. Either way it's an important step. If it's signed we'll have some good foundation to go on. If it isn't, it will be back to the legislature again.

Assemblyman Wesley Chesbro's AB 2575 has passed the Legislature and is enrolled.

Why you and your organization should support this bill and the Governor's signature: If signed into law, AB 2575 would amend the Forest Practice Act as "Article 5.5. Comprehensive Forest Land Recovery and Restoration Act." Although Article 5.5 will have to be filled out a bit to live up to its title, it does provide a solid foundation as regards dealing with cumulative effects, involving the public, and getting pertinent internet-available information organized on a planning watershed basis.

First, new Forest Practice Rules—a partial update of the former 'temporary' Threatened or Impaired Watershed Rules—named Andromous Salmonid Protection Rules 2009, went into effect on 1 January 2010. Sub-section 916.9(v)(10) was part of this package, providing for pilot projects for site-specific measures which might be used in riparian areas with approval by CalFire and the Department of Fish & Game.

Assemblyman Chesbro; with sponsorship by Forests Forever, and with support by the Sierra Club, the California Native Plants Society, the Center for Biological Diversity, EPIC, and ultimately the California Forestry Association; successfully guided through legislation



Art Harwood (Exec. Dir. of RFFI), Kent Standley (Head of Maintenance, Mendocino County Department of Transportation), Howard Dashiell (Director of the Mendocino County DOT), and Mark Lancaster (Director of the Five Counties Salmonid Conservation Program) on Usal Road in Waterfall Gulch as Mark goes over road shaping and drainage corrections to prevent sediment from entering Waterfall Gulch Creek—note the long inside ditch and high outside berm preventing timely & effective road drainage, and ushering silt laden water directly to the stream crossing behind Mark.

that would, through the (v)(10) pilot project process:

Require that a pilot project “shall result in the development of guidelines for conducting a cumulative effects evaluation on a planning watershed scale,” with certain standards of consistency, reproduction, quantitative methods, documentation, and expertise.

Set out goals that include, but are not limited to, restoration of fisheries and wildlife habitat, reduction of wildfire risk, growing high-quality timber, achieving long-term carbon sequestration, with an emphasis on coho salmon recovery and restoration of impaired water bodies.

Require that all documents that form the basis for the pilot projects be posted on CalFire’s Internet Web site.

Require that the Board of Forestry or a technical advisory committee, “develop recommendations for providing electronic public access to all relevant documents that assist the department in administering timber harvest regulations for actions that occur on a planning watershed scale.” You have to realize that the

original bill was stronger and more comprehensive, e.g. would have required electronic information to be organized by planning watersheds ASAP, but the essence was retained and a foundation is laid. In the context of these times and the budgetary constraints, its passage is rather remarkable, and needs your support to be added to the Forest Practice Act and be implemented.

Please draft a simple letter of strong support from you and your organization for the Governor’s support and signature on AB 2575. E-mails are not appropriate for this. It is imperative that your paper letters are sent ASAP to: The Honorable Arnold Schwarzenegger Governor, State of California State Capitol, First Floor Sacramento, CA 95814 Attention: Legislative Affairs—Request for Signature

Go to the link: www.leginfo.ca.gov/bilinfo.html And type in the bill number AB 2575 to look at the bill, it’s history. And—Assembly Member Chesbro deserves our thanks and support in this effort and evolution.

Short Summaries Of Other Issues:

From the Fall 2010 RFFI Newsletter: “RFFI, the Conservation Fund and Save the Redwoods League have made significant progress toward the sale of a conservation easement on the Usal Redwood Forest (URF). Ultimately, the easement will be purchased by the Conservation Fund with financing provided by the Wildlife Conservation Board. The easement will prohibit future fragmentation and development, protect stream buffers and limit harvest to a sustainable level in perpetuity. The state bond freeze that had delayed the easement sale has now been lifted and RFFI is able to move forward. The required appraisal of the URF easement’s value is nearly complete, and RFFI hopes that the Wildlife Conservation Board will include the purchase of the easement on its November agenda. We would like to thank Congressman Mike Thompson, State Senator Pat Wiggins, Assemblyman Wes Chesbro, Assemblywoman Noreen Evans and their staffs for their strong support in helping RFFI secure funding for the Usal easement.” [Go to the RFFI website for more information.]

New Northern Spotted Owl developments will be reviewed in October in forums sponsored by UC Extension in Eureka and Ukiah.

The Board of Forestry (BOF) passed a new rule package about “stable operating surfaces” and “saturated soils” in September, and is anticipated to pass a new rule in October requiring denial of a Timber Harvest Plan if a California Geology Survey (CGS) Geologist determines that the THP will adversely affect slope stability that presents a threat to public safety.

How CalFire and the BOF will handle pilot projects remains to be seen [See above RE: AB 2575]. Hoped-for participants in a Steering/Technical Advisory Committee have submitted their requests for consideration.

Get in touch with EPIC and Humboldt Watershed Council for the latest information on many of the above topics and other issues. Please get involved in ways that are effective and meaningful for you, and that contribute to real solutions. rg



Community-based Forestry

Community Forestry and Upslope Forest Restoration

By John Rogers

In a recent article for the Trees Foundation newsletter, Forest & River News, I focused on one aspect of restoring North Coast forests to something approximating historic levels of forest health and productivity: the financial cost of delaying harvests for a generation or more as measured by a Discounted Cash Flow analysis. But, the cost of delayed harvests is only one cost of restoring or creating high conservation value forests populated with bigger, older trees.

Where We Are Now: Koyaanisqatsi

Many of our forests, left alone to recover, will take multiple generations if not centuries to return to species compositions, stand structures, and ecosystem complexity that even approximate the forests living here for thousands of years before the arrival of European settlers. Some of our forests, left to restore themselves, may never come back to pre-settler conditions.

In the wake of intensive post-war harvesting, much of our North Coast forestland is composed of very young stands—less than 40 years. And, depending on the level of active post-harvest management, many of these stands are choked with dense resprouting native hardwoods and brush, particularly on non-industrial forestland. Even those stands planted and stocked with redwood and Douglas-fir are consistently overtopped by hardwoods. These stands provide some cover for soils and some root strength to hold hillsides together and prevent erosion. But, they are nothing like the historic conifer and mixed hardwood-conifer stands that dominated North Coast landscapes and forest canopies prior to the Gold Rush.

Today's "ecosystems" fail to provide the habitat and ecosystem functions that characterized North Coast forests in the early 1800s.

It's possible to see current hardwood-dominated stands as part of an early successional stage of forest recovery. But what we actually see on the ground is a firmly ensconced hardwood dominance out-of-balance with historic species distributions. In some unmanaged stands, we do see occasional conifers overtopping 20 to 30-year-old hardwoods to begin the process of establishing a conifer-dominated overstory similar to historic North Coast forests. In others, it appears that hardwood dominance will prevail with no particular assurance that those mature hardwood stands will be replaced by conifers in this generation or even the next.

Hardwood-dominated and mixed hardwood-conifer stands have always been a part of North Coast forests. There is nothing wrong about a

mature hardwood stand perpetuating itself without interference. Yet, if the restoration of North Coast forests to something approximating historic stand compositions, habitat conditions, conservation values, and ecosystem functions is our goal, then we will need to commit the resources necessary to accomplish those objectives.

Out-of-balance and Unmanaged Forest Landscapes

Under the current over-crowded stand conditions—damaged and misaligned by previous clearcut and leave-it-alone harvest practices—allowing second-growth forest stands to self-manage may require us to endure further negative ecological consequences before a new ecological balance is achieved.

Dense hardwood-dominated stands delay the development of larger trees—both conifers and hardwoods. Species dependent on habitat conditions that include mature conifer stands will remain scarce.



John Rogers in a Mattole forest dominated and thick with Tanoak
PHOTOS THIS ARTICLE: RICHARD GIENGER

Fire Hazard

These same dense young stands also represent a significant fire hazard. While fire is a natural event in North Coast landscapes, fire suppression coupled with intensive forest management significantly increases the risk of catastrophic fire—a risk for humans as well as native flora and fauna. To the extent these young stands are hardwood rather than conifer—the risk of catastrophic fire increases. Under these conditions the reintroduction of low-intensity fire to native landscapes is next to impossible without active management of forest fuel loads.

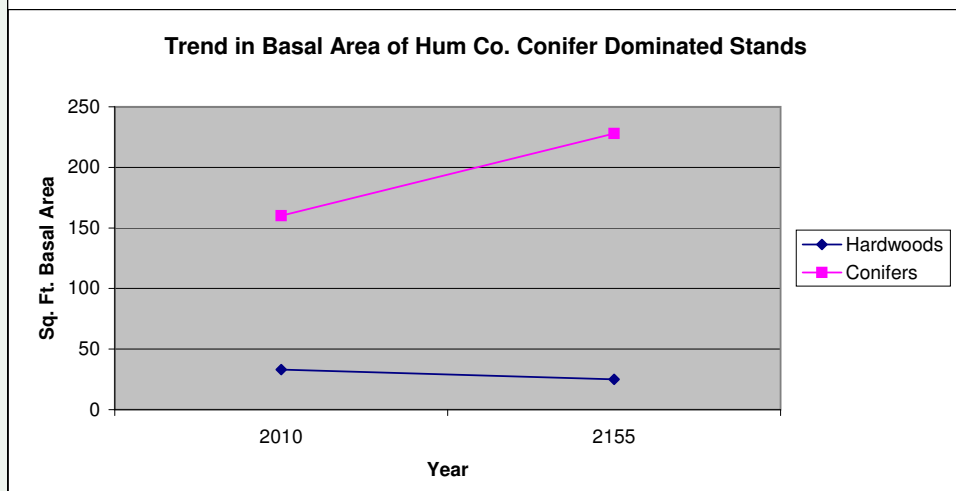
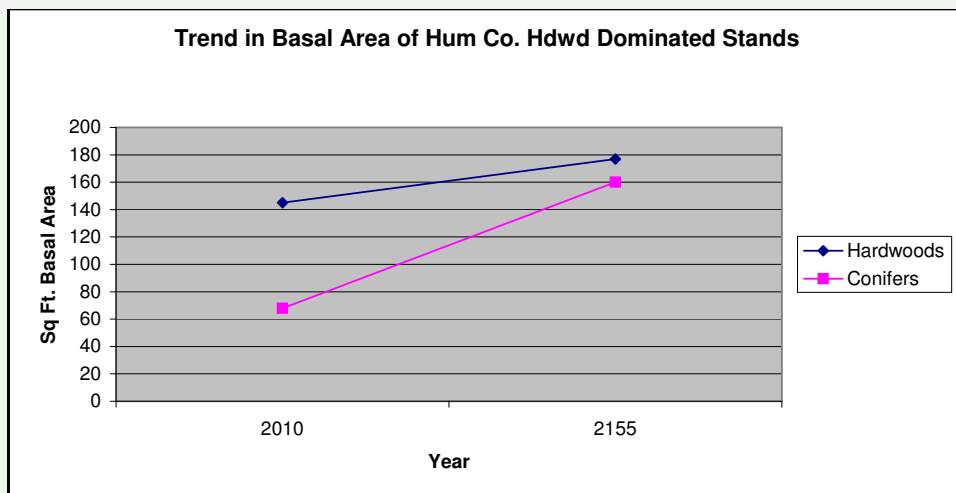
More Susceptible to Disease

Dense unmanaged second-growth stands are also more susceptible to the impacts of diseases and pests. For example: the relatively recent arrival of Sudden Oak Death (SOD) has had a significant impact on North Coast forests—particularly in some tanoak-dominated stands. While it would be preferable to stop the progress of SOD in its tracks, indications are that it will continue to spread—aided by dense conditions, moist spring weather, and the presence of California bay trees as vector for the pathogen. The impact of SOD will be greatest in tanoak-dominated stands—a significant proportion of many unmanaged second-growth watersheds.

Lower Stream Flows

A 2004 study of transpiration rates (Structural and compositional controls on transpiration in 40- and 450-year-old riparian forests, Jones, et. al. 2004) in conifer-dominated forests in western Oregon gives evidence that 450-year-old old-growth stands transpire less water, per acre, than younger 40-year-old forests. The younger stands were shown to consume as much as 3.7 times as much water per acre as the old-growth stands.

We know that the North Coast's old-growth forest landscapes included stream flows and aquatic habitat that supported an abundance of anadromous fish. Over harvesting of native old growth



and abysmal road building practices resulted in severe habitat degradation and a collapse in salmonid populations—primarily due to increased stream temperatures and sediment contributions. Ironically, it has also been noted that clearcutting a watershed creates a temporary increase in stream flows as the harvested trees no longer transpire moisture into the atmosphere. Now, 40 and 50 years after intensive logging, what we are seeing is significant reduction in late summer stream flows—just as our overcrowded second-growth forests enter their most productive years and begin to develop the size characteristics of mature stands. There are of course a number of factors influencing stream flows: normal rainfall variability, gradual changes in climate, increased diversions for human use, increased runoff of groundwater due

to roads, and the loss of fog drip from old-growth trees all play a part in water budgets for North Coast watersheds. Yet our young, dense, vigorous, unmanaged stands could well be many decades from mimicking mature forest stand conditions. And, as inventory volumes climb, they may vigorously transpire yet more water per acre per year before stand structure and maturity contribute to reduce transpiration rates—water that

John Rogers is a 35 year resident of Southern Humboldt whose involvement with forestry issues emerged through his role as a woodworker and sustainability advocate. A member of the founding Institute for Sustainable Forestry board in 1991, John's writing focuses on the economic nuts and bolts of walking the talk of long-term sustainable forest management. Contact: contact@newforestry.org



Redwood in foreground, Douglas-fir in middle ground and almost all the the rest of the thick young growth is Tanoak. Do note that the canopy is suppressing brush growth.

will not be flowing into regional streams in the foreseeable future.

Articulating, implementing, and refining restoration forestry techniques and practices that address the above issues constitute the pragmatic core of community-based forest management.

Restoration Forestry Can:

- decrease the risk of catastrophic wildfire—stands managed for restoration purposes with active slash management are projected to have shorter flame lengths and lower mortality in wildfire than stands managed under even-aged prescriptions.
- increase the proportion of conifers in unmanaged and highly overstocked hardwood stands heavily impacted by previous practices—thin from below and actively promote better species composition by removing a greater proportion of hardwoods
- slow or control the spread of SOD through the use of prescribed fire and reduced stand densities
- increase carbon sequestration—particularly if the end products go into structural lumber
- hasten the development of late seral stage conifer stand and habitat conditions, by thinning from below and increasing the proportion of larger size conifers, and
- improve forest health and resiliency by removing suppressed and poorly growing conifers and hardwoods.

Upslope Restoration Costs

Using restoration-focused forest management tools to achieve conservation goals is possible, but the cost of reaching forest restoration goals outlined above—at a landscape scale—is huge. Even landowners committed to forest restoration goals, with little or no expectation of personal profit in this generation, find the cost of restoration-oriented forest practices difficult—if not impossible—to absorb.


Stream and wetland restoration projects, projects where landowner profits are typically not an issue, have been supported by multiple state-wide initiatives as well other state and federal funding sources leading to billions of dollars being spent for aquatic habitat restoration projects throughout the state. Supporting upslope restoration goals, in contrast, is integrated with landowner harvest plans, the California regulatory process, local markets for forest products, and the potential for both current income and income from future timber harvests for forest landowners. An objective accounting of forest restoration costs requires disaggregating costs associated with specific restoration forestry practices as well as understanding the potential market values that may accrue to landowners as a result of achieving particular restoration goals. Such an accounting will also require close

cooperation between several disciplines: forest managers, milling operations analysts, forest economists, and market analysts as well as environmental scientists and researchers.

Given this complexity, and the current lack of appreciation of the cost of forest restoration, it is not surprising that policy makers have difficulty developing appropriate supportive measures that move beyond the regulation vs. greed paradigm.

Incentives for Restoration Practices and Community-based Forestry

Support for efforts to reduce permitting costs associated with responsible forest management is a critical component of efforts to restore regional forests. Recent negative reactions to proposed efforts to reduce management costs for landowners engaged in uneven-aged selection (restoration) management raise some interesting conundrums. The concern that unscrupulous landowners will take advantage of reduced costs to increase the incidence of intensive and damaging forest management practices is not completely unfounded. There have certainly been instances where the designation of say, salvage logging, has been cynically applied to allow intensive depletion of forest resources. At the same time this lack of trust can create a situation where forest managers have fewer and fewer feasible options until forest management itself is truly polarized: clearcut or sell out.

From a community forestry perspective, the partial reduction of upslope forest restoration permitting costs does not go far enough to support regional forest restoration goals. If we intend to restore balance to second-growth North Coast forests—if we intend to repair the damage done in the past—we will need to build on recent efforts to reduce the cost of responsible forest management and engage in the analysis necessary to provide real financial support for forest restoration goals and long-rotation all-aged forest management. 

Opponents of Richardson Grove Highway Project File Second Suit to Save Old-growth Redwoods

On September 27 five individuals and three environmental advocacy organizations filed a federal lawsuit against the California Department of Transportation. The Federal Action challenges a major construction project along Highway 101 through Richardson Grove State Park in Humboldt County. The project will destroy prized old-growth redwoods to allow access for large commercial trucks. The lawsuit—the second suit citizens have filed to stop the controversial project—was filed due to Caltrans' failure to conduct a thorough environmental review of the project, in violation of the National Environmental Policy Act and the Wild and Scenic Rivers Act.


Bess Bair, lead plaintiff on the federal lawsuit, was born and raised in Humboldt County near Richardson Grove. Bair is the granddaughter of Bess and Fred Hartsook, originators of the historic Hartsook Inn, near the Richardson Grove. Bair joined the lawsuit to carry on her century-long family legacy of protecting the majestic giant redwoods from harm. "I know these trees intimately, I was raised among them," said Bair. "There are ways

to resolve this situation that do not put these trees at risk and preserve them for all Californians."

A lawsuit was filed under state law in June, 2010 for violations of the California Environmental Quality Act. A "finding of no significant impact" that Caltrans published in May contradicts the agency's own conclusions that the project is likely to harm or destroy ancient redwoods in the grove. The newly filed Federal Complaint details numerous violations of federal law due to inadequate environmental review for the project; it also cites Caltrans' own findings that the project would cause harm to old-growth trees. The project would harm and destroy ancient and irreplaceable redwoods in the grove by cutting their roots or compacting hundreds of cubic yards of soil and paving over the roots. The work will affect at least 72 old-growth trees, and Caltrans acknowledges that "adverse effects to old-growth trees may be a significant impact to this unique natural community."

The proposed widening does not serve the region's best interests and threatens

the area's environment. Caltrans claims this "realignment" project is needed to legally accommodate large-truck travel on this section of highway. However, it appears from Caltrans' own statements and signage that this portion of road is already designated for larger trucks and that Caltrans has exaggerated potential safety problems. Caltrans has not established this project is necessary either for safety or for goods movement and the economy. Since smaller-sized commercial trucks already travel through the grove to deliver goods to Humboldt County, the best alternative would be to leave the highway as it is and retain the integrity of the grove.

 We owe a huge debt of gratitude to EPIC, the Center for Biological Diversity, and the attorneys for undertaking this huge effort. The Administrative Record (the documents CALTRANS generated relating to the project) is more than 10,000 pages in length! The cost of these lawsuits will be tremendous. Please visit the EPIC website at wildcalifornia.org and make a donation to the Richardson Grove Legal Fund to help defray the cost of the lawsuits.





Wildfire Effects

Salvage Logging in the Redwood Forest

by Jodi Frediani

Timberland owners believe fully in and talk endlessly about the merits of ‘managing forestland.’ Such conversations often include admonitions that land that is not managed will be at risk from wildfire.

In Los Gatos, San Jose Water Company (SJWC) tried to convince neighbors that a 1000-acre Non-Industrial Timber Management Plant (NTMP) for SJWC’s redwood forestland would protect their mountain communities from wildfire by reducing crown fires. However, many of the neighbors had weathered the 1987 Lexington Fire and knew that the redwoods actually slowed the fire spread and helped protect their homes.

U.C. Berkeley Associate Professor Scott Stephens wrote, in a letter regarding that NTMP, *“Removing forest canopy by thinning this [SJWC] forest would not effectively reduce potential fire behavior and effects, especially in areas where redwood is the dominant species. Redwood foliage is not particularly flammable and there are few records of crown fires in redwood forests.”*

Most fire scientists agree that larger, commercially desirable redwoods are more fire resistant than smaller trees. They will also tell you that logging increases surface fuel loads and drying of understory vegetation while removing the most fire resistant trees, thus potentially increasing the threat of catastrophic fire.

The issue of salvage logging post-fire also raises questions about its use as a management tool.



Salvage logging after Lockheed Fire

A 2007 Oregon State University (OSU) study found that the 2002 Biscuit Fire burned more severely in areas that had been salvage logged and replanted, compared to similar areas that were also burned in a 1987 fire but had been left to regenerate naturally.

The study found that fire severity was 16-61 percent higher in logged and planted areas, compared to those that had burned severely and were left alone after the fire 15 years earlier. *“Many forest managers in the past have assumed that salvage logging after a severe forest fire, along with replanting new trees, will reduce future fire severity,”* said Jonathan Thompson, a doctoral student at OSU in the Department of Forest Science, and lead author on the study. The researchers noted that after logging, there is more dead woody fuel on the forest floor. Dense homogenous plantations may also contribute to increased fire risk. But researchers did note the study was not an

“indictment of salvage logging—it may still have value for economic purposes...”

Of course, in the coastal redwood range, replanting post-logging is rarely done as redwoods regenerate readily from stumps. However, the OSU Biscuit Fire study suggested that logging, alone, would actually increase the “levels of material that could fuel another fire in the near future,” because of the “pulse” of easily-burned fine fuels and waste wood left behind on the forest floor after trees are felled and processed.

Rich Casale, Certified Professional Erosion and Sediment Control Specialist #3 and District Conservationist with the USDA Natural Resources Conservation Service, has said the following regarding post-fire management on timberlands: *“Don’t be too quick to remove fire-damaged trees and other vegetation, especially redwood and coastal live oak trees that have thick and/or fire resistant bark. On some properties, doing nothing may*

be the best solution, allowing nature to restore cover naturally. In areas where trees were partially damaged by fire, smoke, or heat, there will be an enormous leaf drop later this summer and fall that will provide soil protection from rain and runoff next winter."

Leaving forests intact post-fire may be the best method of protecting soils and nearby watercourses. While leaf drop helps protect the soil from rainfall, hydrophobic soil layers created by high fire heat lessen water infiltration immediately post-fire. This layer can and did protect slopes during the first winter following the nearly 8000-acre Lockheed Fire north of Davenport in Santa Cruz County. Anticipated debris slides and debris torrents did not occur, according to Brian Dietterick, Director of Cal Poly's Swanton Pacific Ranch, which

saw 1100 of their 3280 acres blackened in that fire. Dietterick explained that the water-repellent soil "certainly does have the effect of stopping catastrophic events from occurring, at least that first year after the fire." Dietterick also said that raindrops were "almost like mercury on the soil surface. You can push the water droplet around."

During that August 2009 fire, 6755 acres burned in the Scott Creek and San Vicente Creek watersheds, both of which were key coho salmon streams for the endangered Central Coast coho salmon Evolutionary Significant Unit (ESU). Of that total acreage, 2420 acres were redwood forest and 1951 acres were mixed conifer forest. 136 of those total forested acres were deemed to have burned at Very High burn severity and 1293 at High severity. However, only about 2% of the

pure redwood forest burned at Very High severity, while close to 70% were assessed at the Moderate rating: "Most mature plants survive, but some mortality. Fire extension into the tree canopy of a small number of individual trees. Needles on trees may be scorched."

During 2010, local land managers utilized CAL FIRE Emergency Notices (CCR 1052) to conduct salvage logging on nearly 1000 of those fire-scarred acres. No timber harvest plans (THPs) had to be prepared or reviewed and little to no agency oversight was required. Trees were removed via helicopter yarding, limiting the need for road construction or use. While soils were not compacted from tractor yarding, more surface fuels were created from the logging operations, and falling trees may have damaged the hydrophobic layer. Clearly, landowners benefited economically as the cost of THP preparation was waived. The question remains open, however, regarding adverse environmental impacts from this logging and 'management benefits.

In April, 2010 CCFW attended a Lockheed Fire field day—on Cal Poly's Swanton Pacific Ranch where we had a chance to see a couple of log decks from their salvage operations. Log size was largely small and while we saw some blackened bark, most logs looked as if the cambium layer was fire-free. We question whether the trees really 'needed' to be removed either for the health of the forest, or to preserve their commercial value.

In order to get a birds-eye view of the broader landscape, we conducted a flyover of the Lockheed burn area in August of this year. Much canopy regeneration had occurred since our previous flyover in December 2009. We were able to photograph some logged areas that on closer inspection showed blackened bark on some remaining trees. However, the canopy of these residuals was largely green and lush or recovering. Again, this raised



Log deck from salvage logging on Cal Poly's Swanton Pacific Ranch after Lockheed Fire.



Another log-deck from Cal Poly's Swanton Pacific Ranch, following the Lockheed Fire

the question in our minds of the 'need' for this logging to occur under an Emergency Notice for management purposes.

While the Lockheed Fire Post-Fire Risk Assessment report noted that "significant loss of commercial value is expected as a result of fire scar defect introduced in redwood and Douglas-fir trees coupled with subsequent biotic stressors," we note that such fire scar defect provides excellent habitat for a variety of species. Decades of fire suppression have greatly reduced the creation of fire scars in redwood forests. Now it appears that salvage logging allows for and encourages the removal of trees that have sustained defect from wildfire.

The verdict is still out on what effect if any these logging operations will have on this winter's runoff. Will reduced canopy

or damage to the hydrophobic soil layer lead to increased erosion and/or debris slides? Long-term effects will remain unknown for years to come. Felling of several old-growth redwoods during fire fighting efforts was clearly a loss for habitat, and salvage of newly defective trees will also remove valuable long-term wildlife habitat. Only time will tell what environmental impacts will occur from the combined effects of the 2009 Lockheed Fire and subsequent salvage logging operations. Will sediment loads in local streams increase? How will coho salmon and steelhead trout be impacted? What about cavity-dependent species? And how about future fire risk?

In the short term, the fire provided a windfall of harvestable trees to the land managers, but the OSU Report authors

may have summed up our concerns best.

"Postfire logging may conflict with ecosystem recovery goals," the Biscuit Fire OSU Report authors concluded.

Jodi Frediani became involved in forest and watershed protection in 1980 when 30 acres of old-growth redwoods were proposed for logging adjacent to her spring. Through her efforts, that forest is now protected as state park land, and her spring continues to produce outstanding clean, clear water. Jodi has remained a strong voice for forest and watershed protection as Founder and Director of Central Coast Forest Watch, focusing on timber harvest impacts, particularly those affecting old growth and riparian habitat. Jodi's column in Forest & River News focuses on the effects of fire in forested ecosystems. Contact: jodifred@aol.com

Shaping Second-Growth Logging in the Mattole

Mattole Restoration Council

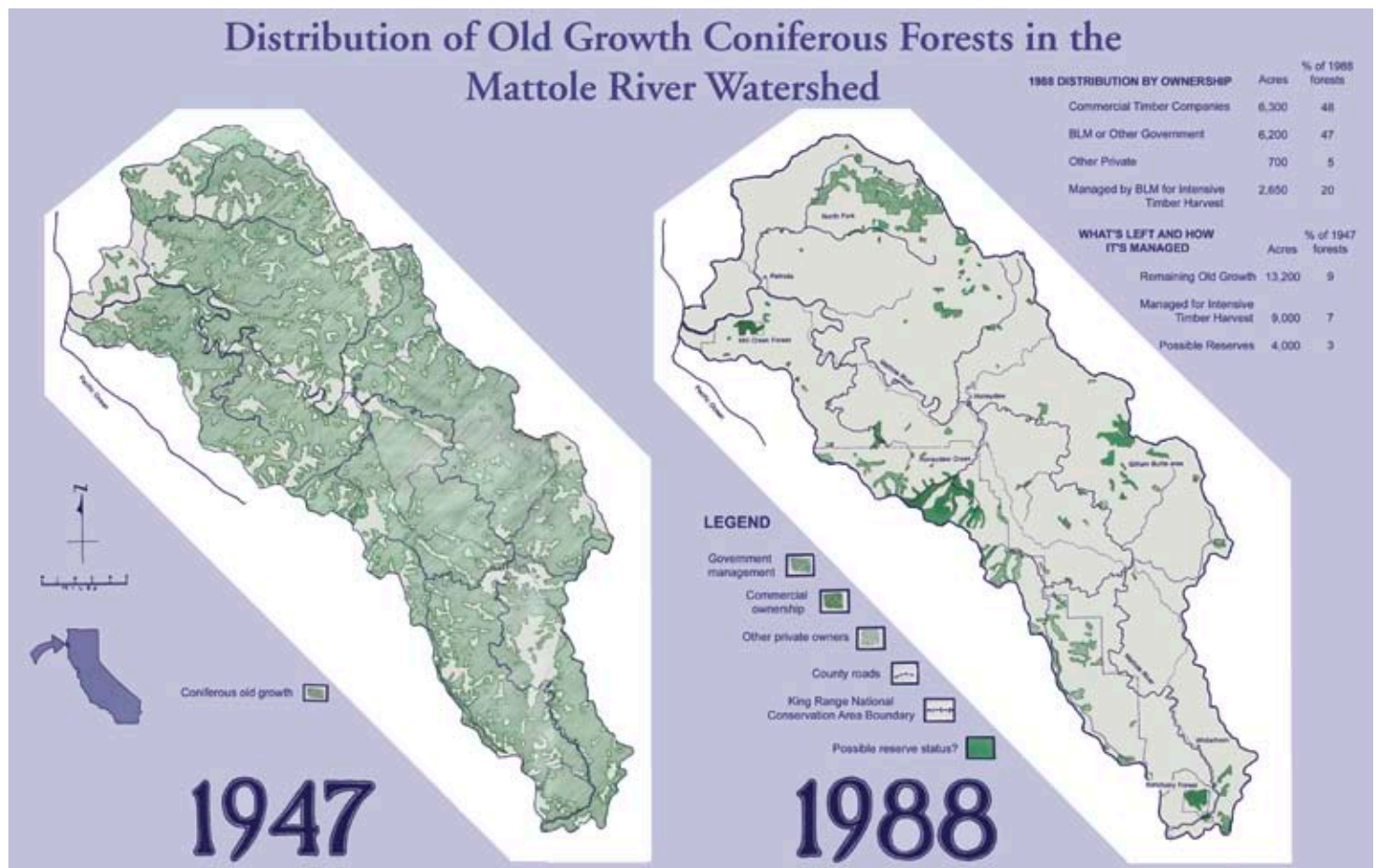
In the Mattole, it used to be that when you talked about timber issues, the topic was old-growth logging. Our concern for ancient forests led the Mattole Restoration Council to create the landmark 1988 map—based on aerial photo analysis and research in county archives—showing that 91 percent of the old-growth conifer forest in our watershed had been cut since World War Two. That map was a key tool in our work to protect the remnant old-growth groves, a goal we pursued doggedly for more than twenty years.

Now, the old-growth question is close to being resolved in the Mattole, and our forestry focus is shifting to sound

management and stewardship of second-growth forests. Of the 13,200 acres of old growth identified in 1988, 8,300 acres gained permanent protection in the Mattole headwaters, Gilham Butte, King Range and adjacent areas, through purchases from willing sellers, and creation of reserves on public land. Painfully, some 1,400 acres were lost to logging, mostly on land which was then owned by Maxxam's Pacific Lumber. An additional 1,500 acres of old growth are now held by Humboldt Redwood Company (HRC), acquired through the Pacific Lumber bankruptcy. For the time being, they are safe from the saw because of the company's policy of preserving unentered old-growth stands—a voluntary and welcome commitment by HRC that has been a central tenet of company policy here and at its sister enterprise, Mendocino

Redwood Company. Some details are still in play for the Mattole, such as the age beyond which trees are considered old-growth, and we remain in dialogue with company foresters about specifics.

In second-growth stands, little cutting has taken place, because the trees are just approaching maturity. In the Mattole, 72,000 acres were last logged between 1947 and 1962. The second-growth forests that replaced them are now between 48 and 63 years old—an age when they might be considered for harvest. The timber market has been in the doldrums for three years, but when it revives, we expect that more landowners will be interested in logging. In a survey, more than half of the 115 respondents—and about 80 percent of those owning 160 acres or more—said they would be interested in harvesting timber from their land.





A team assesses the scientific validity of the stream protections offered under the draft light-touch timber harvest permit proposed by the Mattole Restoration Council. Clockwise from lower left: Richard Gienger; forester Paul Harper; Redwood National Park geologist Greg Bundros; Redwood National Park hydrologist Randy Klein; Bureau of Land Management geologist Sam Flanagan; MRC forest practices advocate Ali Freedlund.

PHOTO: COURTESY MRC ARCHIVES

When that day comes, it will put our previous stance to the test. During the controversy over old-growth logging, we said, in effect, “We aren’t against all logging. We just want you to protect old growth, to steer clear of streams and unstable areas, to cut at a sustainable rate without clearcutting, and not to use herbicides.”

In anticipation of second-growth logging, the Council has developed the Mattole Forest Futures Project, which is aimed at promoting forest practices compatible with watershed recovery. Through a permit we are pursuing for light-touch timber harvest, known as a Program Timberland Environmental Impact Report, or PTEIR, we are creating a template for second-growth logging we can support. It aims to safeguard fish, wildlife, and clean water through no-cut buffers along streams; a system for identifying and avoiding unstable ground; limits on rate of harvest; prohibition on herbicide use during the term of the plan; and a requirement of selective harvest. Trees that pre-date 1850 will be off-limits, and where second-growth forests develop

old-growth character, any logging would have to maintain those qualities.

🌲 We intend to submit this plan to CalFire this fall, and we invite you to our website at www.mattole.org/pteir to learn more.

29th Annual Salmonid Restoration Conference March 23-26, 2011

Salmonid Restoration Federation

Salmonid Restoration Federation is producing the 29th Annual Salmonid Restoration Conference entitled, “Holding the Line to Preserve Salmonids,” in San Luis Obispo, CA March 23-26.

Salmonid Restoration Federation (SRF) is a non-profit organization that promotes stewardship, sustainable management, and restoration of California’s salmon, steelhead, and trout populations and their habitat. SRF provides critical educational services for California’s community-based salmonid

restoration organizations and agencies by producing an annual conference, field schools and workshops. SRF’s statewide conference on salmonid restoration provides an opportunity for field tours, technical workshops, panels, and a plenary session on the state of salmonid recovery.

This year the conference will feature workshops on topics including Fish Passage Design & Implementation, Stormwater Pollution Runoff & Water Quality, Invasive Species Management for Salmonids, and Water Conservation & Sustainable Water Practices. Concurrent sessions include: Role of Hatcheries and Captive Rearing in Recovery; The Future of California Chinook Salmon: Fisheries, Restoration and Recovery; Coho Salmon Recovery Efforts; Monitoring and Demonstrating the Effect/Success of Restoration Activities and Recovery Planning for Central & Southern Steelhead; Role of Lagoons and Estuaries to Steelhead and Salmon in California; Providing Adequate



SLO County of Agriculture’s Weed Management Area initiative to remove invasive species along the Morro’s and within Chorro Valley.

PHOTO: COURTESY SRF ARCHIVES



The Morro Bay Estuary is an estuary of National Significance and is home to many endangered and threatened species, including Steelhead Trout.
PHOTO: COURTESY SRF ARCHIVES

Water Flow; Barrier Removal, Water Allocations, and Managing Stream Flow; Water Temperature and Salmonids; Population Status and Trend Monitoring.

Field Tours will include tours of Morro Bay Watershed, Headwaters to Mouth Tour; San Luis Obispo Creek Tour; Sustainable Vineyards Tour; Instream Structures Tour Road Decommissioning & Erosion Control Tour.

The Plenary Session will include presentations from leaders in the salmonid restoration field.

For more information:
www.calsalmon.org

Whitethorn Junction: A Community Changes their Water Use for the River

Sanctuary Forest

Climate change, land use practices, and human use are causing extreme low flows in the Mattole Headwaters of southwestern Humboldt County. Nine out of the last eleven years have had the lowest flows measured at the Petrolia Station in its sixty years of operation.

Flows in the summer of 2008 were the lowest ever recorded. Thousands of trapped salmonids have perished because the pools literally dry up, and today the Mattole coho are at risk of extinction.

One community, located at the Whitethorn Junction, has played a key role in improving streamflows.. The section of river at Whitethorn Junction was one of the hardest hit in the drought

of 2002. Bob McKee, a third generation resident of this valley who had never seen the river so low, described the dry river bed as a “moonscape.” In 2002 and 2003, the residents of this reach organized community meetings with Sanctuary Forest, Mattole Salmon Group, and Mattole Restoration Council to develop solutions to the low-flow problem. Water storage—storing water from the wet season to use during the dry season—was already being practiced by a few community members, including Bob McKee and Eve and Ron Broughton. In 2005, Sanctuary Forest developed the Storage and Forbearance Program, and by 2009 it had installed storage for five landowners in the Junction reach, including the landowners of two “fish friendly” farms. The Junction community has fully joined the effort, with five more landowners who are developing or have already installed storage on their own and two more who will receive storage through the Sanctuary Forest program this summer. The community also practices water conservation and helps with education and river monitoring.



Whitethorn Junction Community River Sign

SIGN DESIGN AND ARTWORK: EVE BROUGHTON
PHOTO: COURTESY SANCTUARY FOREST ARCHIVES



Sanctuary Forest Forbearance Program—60,000 gallon “tank farm.”

PHOTO: COURTESY SANCTUARY FOREST ARCHIVES

Monitoring results during the summer of 2009 yielded exciting results—storage

and forbearance is working! During the low-flow season, 65% of landowners

“turned off their pumps” and monitoring results indicate that for the first low-flow season since monitoring began in 2004, the downstream end of the reach had as much flow as the upstream end. In the previous low-flow years, from 2004 to 2008, the Junction experienced a “losing reach” period, lasting from 45 to 71 days. This meant there was less flow at the downstream end than the upstream end, and in its worst years, there was no flow at the downstream end for 3-4 weeks.

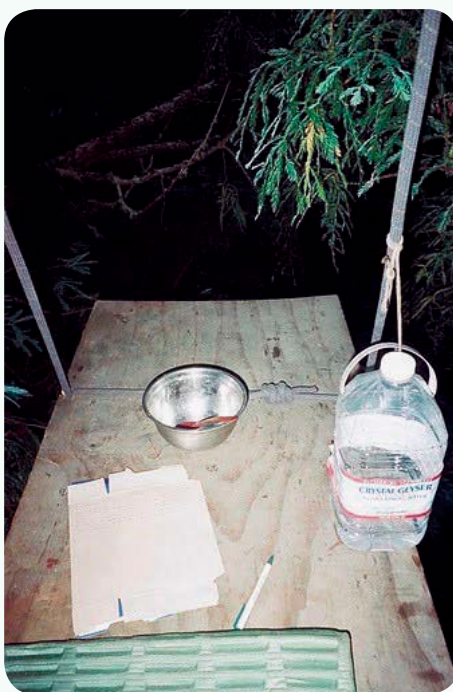
We hope that other communities will become inspired by this story of people who adapted to change and make a difference in the place where they live.

For more information:
www.sanctuaryforest.org

Activists Put Their Bodies on the Line in Jacoby Creek

By Earth First! Humboldt and Redwood Forest Defense

After hearing the news that Green Diamond (GD) was clearcutting young redwoods in the Jacoby Creek watershed near Arcata, CA, forest activists began taking direct action to oppose the logging. Two people blocked the single-gated entrance to the area with an elaborate rope system, whereby one person was perched on a platform over 60 feet in the air (in the beginning) and their main life-supporting rope was securely anchored only to the logging road gate. Another tree-climbing forest defender was perched in a tree nearby to send her food and water that was being stored in the branches. Shortly after this was finally set up, at around five o'clock in the morning, loggers arrived to find the gate blocked and wrapped in yellow caution tape. A supporter of the activists



One of the tree-sit platforms in Jacoby Creek Watershed.

told the guys in the truck that someone's life was on the rope tied to the gate and warned them not to tamper with it. Later, as workers piled out of a van to inspect the situation, one of them attempted to cut through the rope. He cut over half-way through it before a supporter on the ground squeezed between the rope and the knife.

“This is about global ecocide. We are doing this to preserve life on this planet, to fight climate change, loss of species and threats to our ability to survive,” said a young woman called “Fly,” from atop the hanging platform.

Recent studies from Steve Sillett, a botanist at Humboldt State University, show that redwoods grow faster as they grow older, storing huge amounts of carbon and slowing the rate of

global warming. There is currently a collaboration of conservationists and scientists using highly advanced technology to decode the information stored in redwood tree trunks, branches, and leaves to study the effects of climate change on these giants.

It has also been found that fog decrease is threatening California's redwood forests, as reported in the Proceedings of the National Academy of Sciences. University of Berkley Professor Todd Dawson commented, "As fog decreases, the mature redwoods along the coast are not likely to die outright, but there may be less recruitment of new trees. They will look elsewhere for water, high humidity and cooler temperatures." (Reuters, Feb.15, 2010)

At the site of the blockade, one supporter was arrested at the scene after repeatedly warning the sheriffs about the dangers of tampering with the life rope. He was released the same day at the Humboldt County jail.

Later that morning, the sheriffs cut and re-tied Fly's life line to allow loggers in to the area. Their operation caused the platform to violently swing and sag. In following days, the platform began to sink dramatically and the high-climbing activists believed that the anchor tied by the sheriffs was unsafe. The activists quietly descended late at night and snuck past the 24-hour security guard to escape.

On August 23, two more people climbed into two rare 150+ year-old redwoods at the forefront of one of the advancing



Aerial view taken from over 100 feet up in the canopy over the Jacoby Creek Watershed showing the nearby logging

clearcuts. The trees currently remain standing and occupied by tree sitters. Green Diamond's loggers cut all of the trees they could around the tree sitters, despite the risk of injury or death of the tree sitters. The logs have all been dragged away now by heavy machinery, but the sounds of forest devastation still carry over from the next hill. For over twenty days, Green Diamond maintained a security guard with a floodlight pointed at one of the trees, depriving the tree sitter of sleep and resupply. This tactic ended a few weeks ago, but the tree sitters remain for now.

One of the tree sitters stopped logging in a significant part of a lush riparian zone of a tributary to Jacoby Creek. It sits now on the edge of the woods, a grove with many old second-growth trees remaining to the south, which GD expects to log within the next few years.

A notice by Green Diamond in the September 18th issue of the *Times-Standard* recently announced that a new logging plan is in the works for Jacoby Creek. The THP is being prepared for sections 28 and 29 of Township 5 North, Range 2 East, Humboldt Base Meridian. The notice states that the THP "includes un-named tributaries to Jacoby Creek".

Additionally, a tree village a few miles south, in the area called the "McKay Tract," has stopped the logging of a 120+ year-old grove since February of 2009. The grove is home to endangered Spotted Owls but Green Diamond has permits to "harm, harass, or kill" this dwindling species. There are three more years until the logging permit expires. The activists who are maintaining these tree sits hope for a peaceful resolution to the situation before that time. They are also seeking an end to clearcutting and the implementation of restoration forestry, which is necessary for all species who live in the redwoods, as well as all of Earth's residents suffering from climate change.

For more information
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Bay Area Coalition for Headwaters, Trees Foundation, and Roots of Change Media Education Project

By Karen Pickett

Roots of Change Media Education Project, a project of the Bay Area Coalition for Headwaters, is collaborating with Trees Foundation to craft grassroots media workshops and assistance for North Coast grassroots environmental groups. We surveyed the organizations that partner with Trees Foundation, and we are putting together workshops and visits based on results of that survey, but there is still time to get in under the wire! If you are a non-profit grassroots group in Northern California, we'd like to hear from you!

The Roots of Change project is based on a model that builds capacity with small grassroots groups to carry out outreach to the media for news stories, events, and campaigns, using minimal resources while maximizing visibility. The world of media is one that is changing in major ways that demand vigilance and flexibility for those trying to get media coverage. It is not an easy task to keep one's footing on a constantly shifting landscape. By sharing experiences and resources, the grassroots can remain effective at getting their unique and important messages out.

Roots of Change has a PowerPoint presentation on grassroots media outreach and resource lists of reporters and media outlets to share, which we can do with a minimum outlay of resources if we coordinate. Contact us through Trees Foundation or directly at bach@headwaterspreserve.org (510) 548-3113.



To read about the Mattole River & Estuary see cover article.

PHOTO: THOMAS B. DUNKLIN