Forest & River News

Grassroots Conservation & Restoration in the Redwood Region
Trees Foundation
Spring 2020

Building Resilience through Healthy Land Stewardship

Grassroots Ecological Restoration Strategies on the Redwood Coast

- Salmon Creek Grassland Reclamation Project Brings In Biodiversity
- PODs: A Solution to Fire in the Time of Climate Change
- 30 Years Ago in May: The Bombing of Earth First! Activists Judi Bari and Darryl Cherney
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Editor's Note

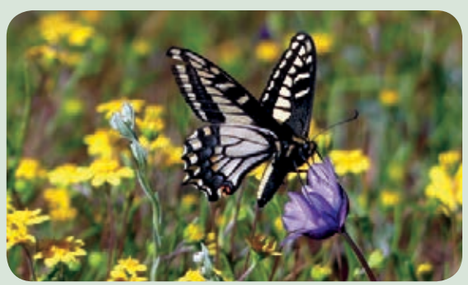
As articles began to flow in for this issue, so too did the news of a global pandemic—like nothing we've seen in our lifetimes. Globally and locally, Covid-19 provoked a rapid pivot to remote work and virtual meetings as we shelter-in-place as much as possible.

The coronavirus has revealed how truly interconnected we are in the web of life. It has also shown how quickly we can collectively respond to a global threat that is more easily recognizable than the climate crisis.

In this issue, you will find many stories about strategic grassroots restoration efforts to make forests, landscapes, and communities more resilient in the face of the climate crisis. We hope it leaves you inspired to get involved and to support the grassroots.

With luck, we can come out on the other side of this disruption as a stronger and more connected environmental community, more committed than ever to the common vision of restoring the ecological integrity of California's legendary Redwood Coast. *There's never been a more important time.*

For the Wild,
Jeri Fergus, Kerry Reynolds, and Mona Provisor



Anise Swallowtail (*Papilio zelicaon*) feeding on the nectar of *Dichelostemma capitatum* (Blue Dicks) in the Salmon Creek watershed.
BY KYLE KEEGAN

Cover photo: An *Argiope aurantia* in the Salmon Creek watershed. Spiders symbolizes patience, creativity, and growth—certainly relevant to these times.
BY KYLE KEEGAN

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Salmon Creek Grassland Reclamation Project Brings In Biodiversity

By Kyle Keegan, *Fools Farm*

Over a two-year period, two $10,000 U.S. Fish & Wildlife Service grants were awarded to the Fool's Farm in the Salmon Creek watershed, tributary of the South Fork Eel, to carry out local grassland reclamation. The project's focus was to remove encroaching conifers on approximately 10 acres of historic grasslands. The primary objective was to reclaim native prairie that still had high floristic diversity, while enhancing habitat for grassland-dependent species.

ALL PHOTOS THIS ARTICLE BY KYLE KEEGAN

Our cost share included collecting and sowing native grass seed (approximately 8-10 lbs.). Seed was collected adjacent to and on-site. Species collected were: *Festuca californica, Festuca idahoensis, Deschampsia cespitosa, Elymus glaucus, and Danthonia californica*. Native wildflower seed was also collected adjacent to and on-site (approximately 1.5 lbs.): *Sisyrinchium angustifolium, Perrideridia kellogii, Chlorogalum pomeridianum, Cirsium occidentale, Lupinus albifrons, Brodaiea elegans, Achillea millefolium,* and *Lomatium spp.* Also included was the monitoring of test plots, photo documentation, and the building and placement of two kestrel nest boxes and eight bluebird/swallow nest boxes.

The site is from 1,300' to 1,700' in elevation; N/NE slope, earth flow (slow-moving slide) with some ultramafic (serpentine) influence on the soils. The area has intact colonies of native perennial bunch grasses, as well as high wildflower diversity where the conifers did not fully take over.

Historical evidence indicates that the prairie was used for sheep grazing several decades ago. As a child, I visited the area (35+ years ago) and remember observing Western Meadowlarks, as well as White-tailed Kites, Red-tailed Hawks, and American Kestrels hunting on the south end of the project boundary. I have strong childhood memories of watching these birds of prey hover above the ridgeline. I also remember an abundance of wildflowers. The largest encroaching conifers were mostly knee to chest high then.

Aerial photos from 1942 show the project area completely clear of conifers except for one small grove of Incense Cedars that were established on a rocky knoll. (The presence of cedars is due to serpentine soils.) Those trees are estimated to be 100+ years old and have no fire scars. To our knowledge, after interviewing old-time ranchers and fourth-generation residents, and looking at historic fire map records, no fires have burned in this area for at least 70–90 years.

The average age of the larger trees we removed was approximately 25 years. The oldest tree cut down was a 38-year-old cedar.

The project was accomplished utilizing one lead sawyer, one sawyer/swamper, and two swampers. We formed a local crew (my wife and I, along with friends and neighbors) to do the job. We wanted to further our place-based skills in grassland restoration, while keeping good notes on various techniques we were implementing.

Prior to the project commencing we informed neighbors via a community Facebook bulletin board and phone calls, as well as installing an informational sign on the road near the site.

This Kestrel started kiting on wind currents after five days of removing conifers from a ridge line. It had been over two decades since raptors were seen hunting in this location in this manner. For birds of prey trying to survive our cold wet winters, being able to hunt efficiently can make the difference between life and death.

Project Notes of Special Interest

Bird species observed on-site before project began: Steller's Jay, Western Scrub Jay, Ruby-crowned Kinglet, Chestnut-backed Chickadee, Red-breasted Nuthatch, Hermit Thrush, Varied Thrush, Dark-eyed Junco, Wilson's Warbler, Raven, California Quail, Wild Turkey, Spotted Towhee, Hutton's Vireo, Winter Wren, Red-shafted Flicker, Hairy Woodpecker, and American Robin.

Bird species observed in reclaimed grasslands after project was completed: American Kestrel, Red-shouldered Hawk, Red-tailed Hawk, Sharp-shinned Hawk, Merlin (fly-by), Northern Harrier, Barn Owl, Pygmy Owl, Western Bluebird, Violet-green Swallow, Raven, Steller's Jay, Scrub Jay, Hermit Thrush, Bewick's Wren, Winter Wren, Ruby-crowned Kinglet, Savannah Sparrow, Chipping Sparrow, Song Sparrow, Golden-crowned Sparrow, Spotted Towhee, CA Towhee, Hairy Woodpecker, Northern Flicker, Dark-eyed Junco, and American Robin.

Note: A pair of American Kestrels began using the newly opened habitat only *five* days after conifer removal. They were seen hunting in the area for months after the project was completed. (American Kestrel populations have declined by 50% in North America since the late 1960s.[1])

Target bird species for this project include: Western Meadowlark, Western Bluebird, Grasshopper Sparrow, Song Sparrow, Chipping Sparrow, Savannah Sparrow, Lincoln's Sparrow, Western Wood Pewee, Lazuli Bunting, California Towhee, Tree Swallow, Violet Green Swallow, Purple Martin, White-tailed Kite, American Kestrel, Red-tailed Hawk, Barn Owl, Northern Harrier.

Note: Grassland bird populations have declined by more than 53% across North America since 1970.[2,3] The effects of conifer encroachment on local grassland bird populations needs further study.

Plant species composition under invading conifers: Plants found under encroaching conifers varied from no species (deep shade) to up to five species: Honeysuckle (*Lonicera hispidula*), Wild Strawberry (*Fragaria californica*), Yerba Buena (*Satureja douglassii*), Gold Back Fern (*Pentagramma triangularis*), Licorice Fern (*Polypodium glycyrrhiza*), and Sword Fern (*Polystichum munitum*). There were also several species of fungi, at least two species of moss, and at least one type of ground lichen.

Coyote Brush removal: Some prominent male coyote brush (*Bacharis pilularis*) were left on-site to provide cover for songbirds and late-season nectar for pollinators. Female (seed-producing) coyote brush were removed.

Wildlife piles: Eight large wildlife piles were constructed. We used felled logs and poles from the project to build simple structures (dens) that were then covered with large amounts of brush.

Gully repair: Three large gullies were packed with brush to mitigate erosion.

Pile Burning = Snowing Potash: Burning large piles of brush may have value in dispersing potash (nutrients/minerals) over grassland systems that have experienced a fire deficit for several decades. Falling ash was found up to 1/4 mile from the epicenter of the project site, and the areas adjacent to our project were all dusted with potash. This raised the question: Could the long-term benefits of boosting plant growth and vitality in perennial grassland systems via nutrient dispersal (snowing potash) possibly offset the carbon loss from burning large piles of brush?

Tree girdling using the "triple ring" method: Trees that were not felled were girdled and left standing to provide habitat for cavity-nesting birds. All trees were girdled using a "triple ring" method that we have developed over the past five years. If done correctly it has a 95–100% success rate with killing Douglas-fir. Most trees take at least a year to die.

Three rings are made with a chainsaw penetrating the bark and cambium layer (approximately 1/2" to 1 1/2"-deep cuts, depending on the thickness of bark) around the circumference of the tree. Cuts (rings) are made from 6" to 1' apart. Two rings can be effective on drier sites. It is very important to make sure that each ring penetrates the cambium layer (into the wood) the entire circumference of the tree in order to prevent any sap from flowing up the tree. The process takes 2-6 minutes per tree, depending on the steepness of the slope, the diameter of the tree, and experience of the chainsaw operator. This was the first time that we used this method to kill cedar trees. They have been slower to die than Douglas-fir.

Conifer encroachment, wind dynamics, and raptors: As mentioned earlier, I have strong memories as a child of watching birds of prey using wind currents to hunt (hover or kite) over the southern dividing ridgeline of this project. At that time there were no trees larger than six feet tall in the vicinity. The last time that we witnessed raptors hunting in this manner was almost 20 years ago when we first moved to this property.

After removing many of the trees (now 20–40' tall) from the ridgeline, we saw the first raptor (American Kestrel) utilizing wind currents to hunt there once again. It revealed a potential impact of conifer encroachment on grassland ridges that we were unaware of—the roughening/dampening of wind velocities by conifers can alter the wind dynamics needed for birds of prey to hunt efficiently.

Stumps, acorn-caching Scrub Jays, and oak regeneration: Our direct observations and the documentation of others have shown that successful oak regeneration can be attributed to acorns being cached (buried) by Scrub Jays.[4] (Steller's Jays and Gray Squirrels also cache acorns.) We have observed jays using rocks, logs, bushes, fences, etc., as visual markers to remember where they hid their acorns. Many of the conifers we removed had Tan Oak, Canyon Live Oak, and Oregon White Oak seedlings under them, confirming this observation. With this in mind, we intentionally left stumps, logs, and piles of wood in areas where Scrub Jay-planted oaks might fare well in the future.

Incense Cedar and the "Triple Ring" method. Cuts should be made deep enough to prevent sap from flowing to the canopy but not so deep as to compromise the ability of the dead tree to stand for years to come.

Is conifer encroachment possibly playing a part in oak regeneration?: The observation of jay-planted oak seedlings growing under encroaching conifers brought up another question about a possible pathway for regeneration and establishment of oak woodlands: Could conifer encroachment set up the conditions for acorns to be cached by Scrub Jays that use the invading trees as markers, to later then be followed by fire which kills the young conifers but allows for the young oaks to basal sprout and establish new territories? (Of course, fire suppression would not facilitate this process.)

Reclaiming "conifer balds": Encroaching conifers can create bald areas where no grass or flowers are growing. Many of these areas can accumulate duff and mycelial mats that are 2–4" thick. These areas need to be raked or burned to remove conifer duff to expose bare soil for planting seeds. It quickly became apparent that raking was a foolish endeavor given the scale of this project.

We have observed that if conifers are removed and no action is taken to establish natives, the bare areas are mostly colonized by exotic grasses and thistles, even if native species already exist nearby. We believe that this is due to annual grasses producing seed faster than the nearby native perennials and/or that exotics may be present in the existing soil seed bank. These observations tell us that "grassland restoration" requires more than just removing the conifers.

An experimental approach to dealing with conifer balds and seeding: In the areas where we had burn piles in the conifer balds, the duff layer was consumed enough to expose the underlying soil and our direct seeding success was high. Learning from this, we decided to experiment with some of our 2019/20 plots by creating dense lop-and-scatter piles over areas where conifers had killed the grasses. We will let these brush piles cure for a season and then conduct small broadcast burns during the fall/winter months in hopes of burning off the duff layer left by the conifers. Seeds will then be sown directly in the burned areas in hopes of re-establishing native grassland species.

A well-timed and planned treatment of prescribed (Rx) fire would be the most efficient means of reclaiming these conifer-encroached "dead zones." But in situations where land owners are facing challenges from adjacent neighbors, or do not have an ideal location for using Rx fire, the method described above could be an alternative option.

Live bunchgrass plug planting: We planted a total of 1,850 live plugs over the two-year period. Three species were planted: *Festuca californica, Festuca idahoensis,* and *Deschampsia cespitosa.* The live plugs were mostly planted in conifer balds and burn-pile scars. Plugs were planted 1.5' to 3' feet apart. Some grass and flower seeds were also spread in these areas. The survival rate was very high (98%) for the 2018/19 season.

Canola oil as chainsaw bar oil: In the last two weeks of the project we experimented with using canola oil as a chain lubricant after doing some prior research on its use in European countries. So far it has worked perfectly and if bought in bulk costs less than standard bar oil. (It also costs way less than commercial eco-bar oil.) This may be good news for future restoration projects in our region given the potential impacts of petroleum-based bar oils on amphibians, terrestrial forest snails, soil organisms, aquatic life, etc.

A project this scale needs to be maintained with fire: There is no way we would take on a project of this scale again in the same area 20 years from now. The amount of embodied energy (fossil fuel), human calories, time, and money it took to do what fire could have done in a matter of minutes has us thinking that we must use prescribed fire to maintain these reclaimed meadows in the future.

The Follow-up

We are currently in the process of consulting with local prescribed fire advocates and practitioners to help make this dream a reality. We have tentative plans to conduct our first 5-acre prescribed fire treatment during the fall of 2020.

Fire is not currently being used as a land-restoration tool in the Salmon Creek watershed. As public education and awareness of Rx fire increase, surrounding neighbors may become more supportive of this practice. In the meantime we will continue to gain knowledge and direct experience with Rx fire. This is where our Humboldt County Prescribed Burn Association comes in. And yes, we are members!

Kyle Keegan and his family have stewarded land in the Salmon Creek watershed for more than 23 years. They operate the "Fool's Farm," specializing in land restoration and consultation as well as workshops and tours focusing on biodiversity, land stewardship, and permaculture design. Kyle can be reached at (707) 943-1504 and owlsperch@asis.com

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Eel River Fall Chinook 2019–2020 Run Declines Due to Variable Ocean Conditions

Eel River Recovery Project

Times are changing in the world of salmon assessment on the Eel River as technology provides more accurate counts than people can, with sonar in the river and drones in the sky. But the data does not provide good news about fish-run trends. The 2019–2020 fall Chinook Salmon escapement (the number of salmon that "escape" ocean fisheries and return to the river to spawn) was the first to dip below 10,000 fish since the Eel River Recovery Project (ERRP) began assessments in 2012. In this report we describe this year's run, look into what is causing the decline, and make suggestions about what we can do to help Eel's Chinook Salmon survive in a changing world.

The California Department of Fish and Wildlife (CDFW) has operated a Dual Frequency Identification Sonar (DIDSON) device on the main Eel above Dyerville for the last two years. They estimated that 4,110 Chinook Salmon migrated past that point between November and early January 2020, versus 3,844 the year prior. CalTrout operated a similar unit on the lower South Fork Eel River and found only about 2,000 Chinook in 2019–2020, versus 3,800 last year at the same site.

Early fall Chinook counts in the lower Eel River were a harbinger. Since 2015, Eric Stockwell has conducted stand-up paddleboard surveys of the lower Eel from late August until rain boosts flow in October or November and the fish begin their migration to the headwaters to spawn. David Sopjes, a retired Ferndale High School teacher, mastered drone photography of the lower Eel River over the last two years and got precise salmon counts from his photos in 2019 using DotDotGoose software that was developed for estimating water fowl numbers from photos.

Chinook Salmon school holding in shallow water in the lower Eel River. BY DAVE SOPJES

Eric and Dave estimated that 1,500 Chinook Salmon were holding in the lower Eel River on October 29, 2019. By way of comparison, on October 27 in 2012, an ERRP dive team counted 5,036 salmon in this part of the river.

CDFW and CalTrout found that the main pulse of Chinook Salmon occurred in association with the rain just after Thanksgiving, but there was no late pulse of new fish as additional rains came. Some fish spawned below Dyerville in the main Eel River starting in late November, but at very low densities and they likely

Fall-run Chinook Salmon migrating up the South Fork at Piercy on Nov. 29, 2019. By Ann Constantino

numbered just a few hundred. Later-season surveys of lower Eel tributaries like Howe Creek and Bear Creek found no spawners and no redds (salmon nests).

In the South Fork Eel River basin, the run was delayed by low flows, and most Chinook fish spawned in the main South Fork upstream of Leggett. Flows were too late to expand distribution into upper Tenmile Creek, which has some of the most productive spawning areas in the Eel River watershed. Late-run Chinook use Bull Creek, below where CalTrout set up the DIDSON in 2019, but several surveys by Eric Stockwell found very few live fish or redds.

It was not until December 1, 2019 that the first Chinook Salmon ascended the ladder at the Van Arsdale Fish Station, and only 154 total Chinook Salmon migrated over Cape Horn Dam in the 2019–2020 season. Garcia and Associates have assumed monitoring responsibilities associated with the Potter Valley Project for PG&E, including conducting spawning surveys of Tomki Creek. They found a total of only 40 redds in Tomki Creek, which indicates that only about 120 Chinook spawned in the watershed in 2019–2020. This contrasts with 1985–1988 escapement of 3,500–5,000 Chinook Salmon. Recent field reports noted that there was so much excess sediment that pools were filling and riffle areas moving, which means that bedload movement is likely limiting salmon egg survival. Outlet Creek also has problems with excess sediment and there was no spawning in tributaries above Willits; and only one adult salmon was sighted by ERRP volunteers the entire season.

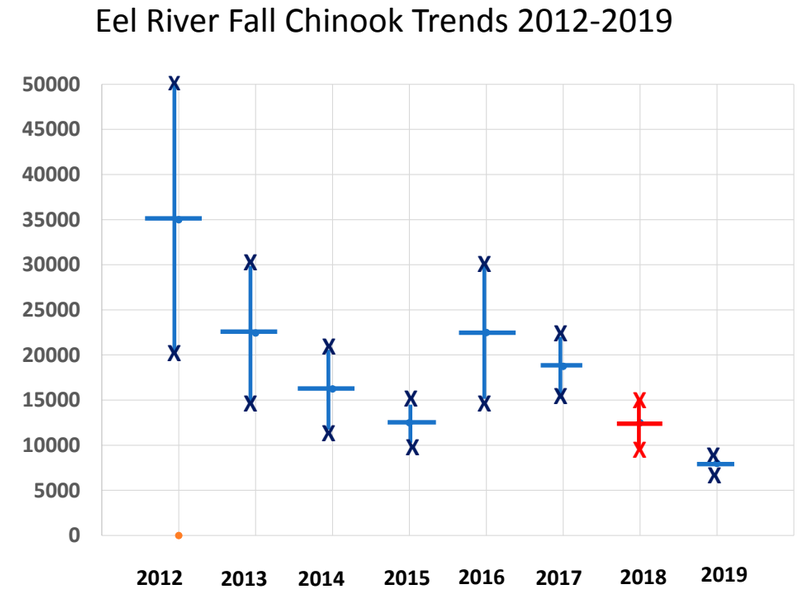
The Van Duzen River is a large Eel River sub-basin, joining it just above the ocean. Although Chinook Salmon have been abundant in this watershed in several years since 2012, the 2019–2020 run was weak by all accounts. Flow of the Van Duzen River at Bridgeville rose to nearly 100 cfs on November 27, initiating migration, but then dropped to 30 cfs the next day as snow blanketed the watershed, possibly stranding some fish. ERRP volunteers saw no live fish or spawning fish from Carlotta to Bridgeville. Eric Stockwell and others found extremely light spawning in Yager and Lawrence creeks, which usually have some of the highest Chinook Salmon redd concentrations in the Eel River watershed. The total run for the Van Duzen River sub-basin appears to have been as low as 500–1,000 fish.

Eroding bank at Worswick Pool above Fernbridge is causing pool filling that leads to poor habitat and salmon stress. By ERRP

However, good news came from the Middle Fork, where the river rose to greater than 1,000 cfs and late-run Chinook Salmon were able to get over Coal Mine Falls after December 7, 2019. This allowed access to prime spawning beds upstream as far as the Eel River Guard Station, and in Williams Creek and the Black Butte River. It is likely that many of the Chinook Salmon bound for the Middle Fork with earlier spawn timing laid their eggs in the reach below the falls, or in the main Eel downstream of Dos Rios.

A new major factor limiting Eel River Chinook Salmon survival is ocean productivity in the area off northern California where these animals feed for several years before returning to spawn. The National Oceanic and Atmospheric Administration (NOAA) found that the nearshore ocean has not recovered fully from the anomalous warm water conditions in 2015. Krill, an extremely important source of food for salmon, are fewer in number and smaller in size, and this is likely limiting growth and survival of Eel River Chinook Salmon.

So, what can we do to improve freshwater habitat to help Chinook survival? As a priority, we need to fix lower Eel River habitat that constitutes a major threat to Chinook Salmon survival. Banks must be stabilized and cottonwood gallery forests restored to narrow the floodplain and scour deeper pools for holding and riffles for migration. We need to improve the habitat for Chinook Salmon between the Potter Valley Project dams too. Join us in promoting Salmon Parks in the lower and upper Eel for the salmon and for local community health and quality of life.



* Red indicates ERRP downward revision from 15,000 – 22,500 to 10,000-15,000 in 2018

We need to control watershed erosion through road improvement and decommissioning, and to restore watershed hydrology to limit damaging flood peaks and improve baseflows. Restoring forest health could go a long way in meeting the latter objective.

Young salmon have now emerged this March from their gravel nests and are making their way to the estuary. Low flows aided their survival in the nest, as no bedload shift occurred, but now low and clear conditions will work against them as they face predation by the invasive Sacramento pikeminnow. Given the dire population trend on the South Fork Eel River, ERRP is hopeful that CDFW will favorably consider our re-application for strategic removal of large adult pikeminnow to improve survival of native fishes, including Chinook Salmon.

ERRP fall-run Chinook trend estimates from 2012 to 2019 show a robust population at the beginning of the period and a decline to 2015, followed by a rebound in 2016–2017. Unfortunately, more recently the population has again declined, at least in part driven by ocean conditions. This will be the last year that ERRP produces a fall-run Chinook Salmon assessment due to the capacity to generate more precise data by CDFW and its non-profit partners. The ERRP estimate of the 2019–2020 run is 7,100 to 9,000 fish and serves as a wake-up call in terms of the need to accelerate conservation measures that improve freshwater habitat to help prevent species loss.

For more information: *www.eelriverrecovery.org*

Climate Change, Forest Health, Carbon Sequestration, and the Path to Resilience

Eel River Recovery Program

Ron Lincoln Sr. (r) explains forest health from a Native American perspective to Sarah Reith of KZYX, as tribal elder Ernie Merrifield (far left) and others listen. By ERRP

The recent county decision to reject the large-scale Terra-Gen wind project caused a lot of soul searching in the environmental community of Humboldt County, but it was the right thing to do from an environmental and social justice perspective. Discussion that surrounded the decision focused largely on one part of the climate-change equation: how we can help slow or reverse climate change through alternative energy production. However, our community might have its greatest impact through carbon sequestration, and we could restore Eel River watershed ecosystem function along the way.

The resources are becoming available for forest health planning for carbon sequestration, and a whopping $550 million per year is available for implementation from the Cal Fire Climate Change Initiative (CCI) fund. Luckily the knowledge of how to reshape our forests is available in the living memory of indigenous residents, whose ancestors sculpted the landscape using fire. This is often referred to as traditional ecological knowledge (TEK). Natives burned in the appropriate climate windows after rain or snow, maintaining open meadows for the deer and elk while keeping oak woodlands thriving in order to increase acorns for themselves and for the animals. By preventing the landscape from becoming choked with dense vegetation, traditional ecological practices maximized water yield and promoted robust stream baseflows. We are lucky to have living knowledge of local forest health and restoration—by comparison, in Germany the Black Forest is dying, but forests there have been so altered for so many centuries that no one knows how to restore the natural ecology.

As another resource for forest health planning, we have excellent scientific documentation of how the landscape of the Eel River has changed since European colonization. Douglas-fir can form magnificent old forests on north-facing slopes in wetter parts of the Eel River watershed, but it can also invade meadows and over-top oak forests, if not controlled. This is undesirable from a biodiversity perspective because grasslands and oak woodlands provide a lot of food for animals. No benefits are accrued from a timber production perspective because the invading Douglas-fir is usually small diameter, and not merchantable. Douglas-fir can disrupt natural watershed hydrology by encroaching on springs in meadows, diminishing water for the adjacent grasslands and stream baseflows. Surface water is also decreased when Douglas-fir over-top and replace oak woodlands or grow too densely after old-growth logging.

The Eel River watershed is ideal for organizing the work of ensuring forest health because it is 85% private land, and land owners have considerable flexibility. People are mobilizing in different parts of the Eel River watershed as funding becomes available for pilot projects, and together we are becoming sufficiently organized to access Climate Change Initiative funds. Pilot project funding from the Wildlife Conservation Board and the North Coast Resource Partnership is available to assist with helping land owners develop forest health plans, and for communities to organize a labor force so that subsequent implementation phases can boost local employment.

Chris Heppe of BLM talks about recreational access and forest health at the jump off for the Cahto Wilderness Trail on August 5, 2019. All photos this article by Pat Higgins, unless noted

Streeter Creek watershed with Douglas-fir over-topping oaks, lessening food for the animals, increasing fire risk, and decreasing baseflows, which makes this watershed a high-value target for forest health implementation.

Organizing around forest health and fire safety galvanizes communities. Hippies in the hills, Native Americans, ranchers, and foresters can all come together in this effort. ERRP is currently involved in helping residents of the Tenmile Creek watershed in their efforts to plan for forest health implementation and to obtain major funding for this work. The Tenmile Creek Watershed Council has formed and expressed interest in forest health, and it may become the fulcrum for implementation. Grassroots interest is also sprouting in the Middle Fork Eel watershed and Round Valley, and in the heart of the Eel River watershed between Dos Rios and Dyerville.

By making each property fire safe by implementing forest health measures, one land owner is secure, but when we make progress at a landscape scale, we help our ecosystem re-adapt to fire and make our whole watershed safe.

Call Pat Higgins if you want to talk forest health strategy at (707) 223-7200.

Forest health meeting attendees at Harwood Hall in Laytonville on January 25, 2020, including members of the newly formed Tenmile Creek Watershed Council, who hosted the meeting. Article author and fisheries biologist Pat Higgins kneels in front.

Redwood Creek Flow-Enhancement Efforts Focus on the Marshall Ranch in the South Fork Eel River Watershed

By Salmonid Restoration Federation

Since 2013, Salmonid Restoration Federation has been conducting low-flow monitoring in Redwood Creek, a critical tributary to the South Fork Eel River. With funding from the Wildlife Conservation Board and the California Department of Fish and Wildlife, SRF and Stillwater Sciences have been exploring the feasibility of various streamflow enhancement opportunities in Redwood Creek. Stillwater Sciences conducted a feasibility study in a segment of the watershed that helped to identify priority projects that could improve summer flows. The company prepared conceptual designs for off-channel rainwater catchment ponds that could improve water security for individual parcels but would require wide and coordinated participation in order to measurably improve flows. After much research and reconnaissance, the SRF and Stillwater project team determined that the greatest opportunity to improve streamflows was to work cooperatively with the Marshall Ranch, the largest private parcel in the watershed. This land has been stewarded by the Marshall family since the 1800s and is now fully protected under conservation easement.

The site is a unique geomorphic feature within the Redwood Creek watershed since it is a Pleistocene fluvial terrace (between 10,000 to 2 million years old). The geotechnical evaluation for the project confirmed this finding with boreholes consisting of hard shale bedrock overlaid by sandy gravel deposits (old sediment from when Redwood Creek was flowing on the terrace approximately 80 ft higher in elevation than the current creek level). On top of the pre-historic creek deposits, 10 to 20 feet of alluvial fan material has been slowly deposited over the last >10,000 years from the upgradient hillslope and small swale. These multiple lines of scientific evidence supporting terrace stability provided the basis for the pond design prepared in September 2019 and accompanied initial CEQA application documents.

The Marshall Ranch, where the proposed project is situated, is a rare example of a large, contiguous land holding in the Redwood Creek watershed. The 2,942-acre ranch comprises 34 legal parcels under one-family ownership. The historic ranch has been managed sustainably for timber production and livestock since the 1880s while also providing extensive habitat for fish and wildlife as evidenced by the presence of Coho, Chinook, and Steelhead.

The proposed Marshall Ranch Flow Enhancement Project is being designed to significantly improve Redwood Creek dry-season conditions. A 15.5-million-gallon off-channel pond is proposed to store winter runoff and release approximately 50 gallons per minute of cool clean water into Redwood Creek during the five-month dry season. Modeling suggests that this would enhance flows from Redwood Creek to the confluence of the South Fork Eel River, a significant 5.5 mile stream length. This water input is expected to have a significant and measurable benefit to salmonids and other aquatic habitat in Redwood Creek. A fire suppression component is also being designed into the project. The pond will be accessible for helicopters to dip their buckets and a fire hydrant near the Sommerville–Old Briceland Road intersection is also being proposed for access by fire engines during emergencies.

Selection of the off-channel pond site has been guided by office- and field-based assessments of a significant portion of the Redwood Creek watershed. Based on these assessments, the proposed pond location is uniquely suited for the project due to the following factors: 1) it is a broad area with gentle topography, 2) the site is not within the Redwood Creek floodplain or within the potential Redwood Creek channel migration corridor, 3) there are no watercourses, wetlands, trees or other sensitive plant species within the proposed pond footprint so environmental impacts are minimal, 4) the pond site is located at an elevation with enough pressure head to deliver the entire pond volume to Redwood Creek by gravity, and 5) the Marshall Ranch LLC (landowner) is fully supportive of the project.

Due to the size of the project and nearby downslope neighbors, the project team has conducted detailed analysis of site conditions, pond design features, and potential failure mechanisms. During the initial CEQA public comment period, downslope landowners raised concerns about the long term safety of the proposed pond and associated grading and infrastructure, especially during the rare case of a large rainfall event coupled with a large magnitude earthquake. Based on these concerns, additional analyses have been conducted including further assessment of potential pond failure mechanisms and seismic slope stability analyses under worst-case, current, and proposed conditions. Based on these analyses, several significant design revisions are being considered that will greatly reduce risk associated with pond berm and spillway failure. The probable design modifications include the following:

- Lowering the pond elevation by eight feet will significantly reduce the weight on the existing terrace below current conditions.
- Relocation of the pond spillways and changing the initial culvert spillway (in the previous design phase) to a rock-lined spillway will increase longevity and reduce long-term maintenance costs.

By midsummer, Redwood Creek streamflows become so low that flow monitor, Katrina Nystrom, measures flow with the bucket and stopwatch method. Disconnected pools strand juvenile salmonids. If funded, this flow enhancement project would release 50gpm for the 5-month dry season. ALL PHOTOS THIS ARTICLE BY SRF

- Installation of a pond liner, French drain, and subsurface restrictive barrier.
- Grade control structures in central gully

Slope stability analyses indicate that incorporating the proposed design modifications is expected to lower the risk of slope instability that could impact the downslope landowners compared to current conditions. This is a result of the proposed project significantly lowering the water table within the upper terrace and stabilizing the central gully.

Proposed design modifications will be reviewed by technical advisors from the California Department of Fish and Wildlife, North Coast Regional Water Quality Control Board, NOAA Fisheries, and the State Water Board; and shared with the broader community. Once input is integrated, design revisions and technical reports will be resubmitted to Humboldt County for CEQA review. At that time, the County will notify downstream neighbors of a 30-day public comment period. After that 30-day comment period, there will be a public hearing scheduled for any interested parties to attend. SRF will do our due diligence to notify downstream landowners and the Redwood Creek community about the public comment timeline and the significance of this project.

The South Fork Eel River is considered one of the highest priority watersheds in the state for flow-enhancement projects. Forested tributaries like Redwood Creek provide refugia habitat for threatened juvenile Coho Salmon but suffer from the cumulative impacts of legacy logging and unregulated water diversions. "This project could help save the Coho Salmon population in this watershed, improve fire safety conditions, and build climate change resilience during this era where we are experiencing longer dry seasons," stated Dana Stolzman, Executive Director of Salmonid Restoration Federation.

For more information: *calsalmon.org*

Living with Fire

PODs: A Solution to Fire in the Time of Climate Change

By Joseph Vaile, *KS Wild*

While all of us are focused on the COVID-19 virus and the widespread impacts on our lives and communities, we know that fire season is looming on the horizon. While our lives feel at a total standstill, nature continues onward. Wildfire season will come this summer, and we will be much better off if we prepare our communities and address the shortcomings of our current approaches to wildfire before the sparks begin to fly.

We obviously need to do something different. The last decade of fire seasons in northern California has taught us that we must better prepare and react to wildfire. We know that as a result of climate change, past logging practices, development patterns, and the suppression of burning for the last 100 years, fire seasons in the west are growing in their impact on communities. As the climate warms and dries, we will only experience more severe fire in years to come. We must ask the question: "How do we build a better relationship with wildfire?"

First, we must recognize that forests are adapted to fire. It is impossible to stop all fires, and total fire exclusion is not a good idea. Most of the forests of northern California are dependent on frequent fire for seed propagation, nutrient cycling, and habitat maintenance. For millennia, lightning storms and indigenous cultures have ignited blazes that maintained the unique plant and wildlife communities that define the region.

Our forests are also key to our future. Finding a balance with fire is so important because the forests of California and the Pacific Northwest store millions of tons of carbon. Forests are key in helping keep the planet cool. Even after throwing billions of dollars at fire suppression every year, we won't be able to entirely control fire in forests. But there are conservation and management actions we can take to better prepare and react to wildfire.

Photos of prescribed fire along a U.S. Forest Service road.
courtesy of Ashland Forest Resiliency

Before we can fix a problem, we need to first understand it. Historically, fire was a part of life in the forest. Fires were started either by random occurrences of lightning, or when indigenous people intentionally set them to encourage the growth of certain plants for food, materials, and medicine. This practice left forests more resilient to successive fire because these fires burned in mosaic patterns and removed much of the smaller vegetation around large trees. These fires left openings where forest fuels were diminished, creating a patchy landscape that would not carry treetop crown fires as easily.

Contrast this with more recent times. For decades we have actively managed our forests, logging our biggest trees and putting out fires that would have removed small trees and brush. Today's forests have too few big trees with thick bark that have withstood fires for hundreds of years, and too many small, thin-barked trees that are highly flammable.

So, what about thinning out the small trees? Focused thinning near homes and communities—if followed with prescribed fire—is shown to reduce the likelihood of fire reaching a residence or sacrificing other resource values. Many tree plantations are now crowded with dense, planted trees that can be thinned. This is important work, but we don't have the resources to thin the entire landscape to restore forest resilience in the backcountry. We need to intentionally set fires and use natural ignitions to accomplish a lot of this work for us.

The Forest Service's mission must shift to better preparing for fire. On public lands in northern California, many groups are working with age-old cultural fire-management tools to change the way that forests are managed. To do just that, there is increasing interest in different approaches to landscape planning. One such approach is to plan based on potential wildfire operational delineations, or PODs, which are areas identified and drawn on a map using boundaries such as roads and ridges. Fire-safe land management strategies such as targeted thinning and prescribed fire are then planned for the perimeter of each POD.

PODs are a hopeful concept, as they would steer land managers like the U.S. Forest Service to prepare for wildfire through their vegetation management programs. Right now, the Forest Service continues to be driven to produce timber and treat fuels on a targeted number of acres as a measure of its success. Instead, the restoration of fire-adapted forests at a landscape scale should be the target. To do that, the Forest Service should embrace approaches like PODs as a better way to do business.

If PODs were the management and suppression strategy, fires that escaped the initial effort at suppression could be more easily suppressed in areas where strategic thinning and prescribed fire treatments were already completed. The integration of these strategic roadside and ridgetop fuel treatments with fire suppression would allow fire crews to more safely contain a fire inside the compartment created by the linear PODs treatments. PODs won't stop all wildfires, but they could be a huge help to firefighters and allow fire to restore forests in a coordinated manner.

Once implemented, the treated areas around each POD could be used to help scale up the use of prescribed fire inside the compartment. In addition to the benefits to the forest, prescribed fire carried out in the right conditions can reduce smoke impacts on communities. Setting fires when the atmosphere is unstable allows smoke to rise up and away from communities, rather than being trapped near the ground. By intentionally setting fires during wetter times of the year, we can reduce the likelihood that more severe fires will happen in the dry season. Native cultures have practiced burning for millennia, and we need to allow this burning again and at a much greater scale.

Thinning and prescribed fire projects don't necessarily produce direct economic profits, and so many politicians and industry representatives don't always support the approach. But the truth is that smaller trees along strategic roads and ridges could be removed to help manage fires into the future. Some of these trees will have commercial value. We need our leaders to invest adequate funding, as these projects will not pay for themselves. Most importantly, we know for certain that climate change is real. Our world is warming and the forests of the West are drying out. Research shows us that the moisture levels are related to the temperature, and that persistently high late-summer temperatures are drying out vegetation and fueling big fires. We are guaranteed big fire years in the future, and how we prepare and react will only become more crucial as temperatures rise.

Like the COVID-19 pandemic, wildfire often feels like a terrifying, overwhelming threat. However, let this pandemic be a lesson to us as we inch closer to fire season: that there are real and actionable steps we can all take to prepare for fire and find a balance with our fire-adapted forests. Like all natural processes, we can't continue to fight against fire and expect that we can entirely control the outcome, but PODs might help us learn to better live with fire.

With a background in wildlife and conservation biology, Joseph Vaile joined KS Wild in 1999. He has stewarded KS Wild's conservation policy and advocacy programs, helping secure protection for thousands of acres of threatened roadless areas, groves of ancient forests, and hundreds of miles of wild rivers. Joseph launched KS Wild's Climate Program in 2019 to advocate for climate smart conservation and forest management, and policies that recognize the important role that forests play as carbon sinks. He can be reached at joseph@kswild.org

Diggin' In
The Richard Gienger Report

Sure gets tough making sense of so much all at once and over lifetimes. Right now we are in the beginning throes of dealing with a virus that already is affecting millions around the world with not just threat of sickness or death but the disruption of multiple layers, numbers, and types of relationships and supply chains that humankind depends on. This context is daunting for moving forward on "Diggin' In" #63.

Aside from this immediate emergency, each of us has experiences both directly and indirectly via what we incorporate through observation and learning from an incredible array of verbal, written, and sound stimuli, and visual history and art. My particular "tilt" has been strongly affected by forest, water, and soil connections and learning some of the positive and negative human relationships to those connections spatially and over time.

To simplify three categories or modes of relationships I have observed, experienced, or learned about: moving seasonally over the landscape to meet needs and inspiration; staying mostly in one locale to develop and literally cultivate what is needed; and utilizing technological skills that are valued and rewarded. Of course, there is a heterogeneous and variable blending of these modes—with often-contentious conflicts within and amongst human groups with ranges of aspirations and conditions.

There is a huge body of historical documentation, much of which is widely available—and much of which competes for our attention every day—that presents explanations and perspectives going "way back," but for the sake of this discussion, let's just focus on the last 500 years (more or less) and the ventures and migrations to empower and enrich various types of imperial interests, capabilities, and cultures with the resources and cultures of the Western Hemisphere. This dynamic is more widely expressed over the rest of the world and over a much larger period of time. Among literary explanations for the last 500 years in the Western Hemisphere is the book *Guns, Germs, and Steel* by Jared Diamond. Another perspective is described in *500 Years of Indigenous Resistance* by Gord Hill.

I recommend as required reading Mark Arax's article about the Camp Fire and Paradise (*https://story.californiasunday.com/gone-paradise-fire*) and Mark Arax's latest book, *The Dreamt Land, www.latimes.com/books/la-ca-jc-review-mark-arax-dreamt-land-water-california-20190530-story.html.* To get down to a regional Southwestern United States-heavy history and complex overlays that more broadly apply, I recommend: *The Three-Cornered War—The Union, the Confederacy, and Native Peoples in the Fight for the West* by Megan Kate Nelson.

Now I need to take a few over-simplified jumps to get us to conditions in what Dwight Yoakum refers to as "The Late Great Golden State"—a catchy song accessible on YouTube. I can't begin to address all the nuances and un-nuanced progression of the colonial and plantation-oriented dominant paradigms sweeping West from colonies to revolution to civil war to world stage imperialism inconsistent with democracy and on to World Wars I & II and repeating boom & bust cycles. There are some positive and inspiring aspects along the way, and maybe even hope for the future, but the reality situation examined at a variety of scales, with the regions of California as case studies, is massive depletion of resources, burgeoning populations, no real conservation ethic, and a devil-take-the-hindmost economy based on real estate and other speculation and exploitation.

Representatives of conservation organizations touring the spectacular 540-acre Outlet Creek Ranch, as Pacific Forest Trust is looking to donate the property to another conservation nonprofit to continue land management and stewardship. Ridgetop and hillside prairies mixed with recovering and remnant forests extend down to a major salmon and steelhead tributary of the Mainstem Eel River.

Don Allan of the Salmonid Restoration Federation (SRF) at an abandoned North Coast Railroad bridge over Outlet Creek—the photo looking upstream toward Little Lake and Willits where there are tributaries that are key for survival and abundant recovery for Coho Salmon. ALL PHOTOS THIS ARTICLE BY RICHARD GIENGER

Now I don't want to offend the Ayn Rand "Fountainhead" powerbrokers that control so much these days, but a re-thinking and re-acting for difficult and positive courses is necessary. Ironically, in some ways, responding to the coronavirus pandemic points the way to making changes that seriously slow down the runaway fossil fuel juggernaut economy: stay home and get self/group-sufficient.

OK, I'll calm down and describe some specific examples that stand out for me. The big deal professed these days—now from almost all quarters—is achieving the "triple bottom line" or the three "E"s: Economy, Environment, and Equity. Our regional reality sure went heavy on the economic, sacrificing environment and social equity. Conquest and displacement, overgrazing, overfishing, over-logging and related impacts continued from 1850 right on up to today. There has been very little "middle ground," and the pressure to move to the music of economic necessity as dictated by those who gained control of most of the land has been overwhelming. There has been some resistance, with conservation and protection achieved from time to time in large areas of the Klamath and Trinity, some coastal areas like the King Range and Sinkyone Wilderness, and other areas like the Heath and Marjorie Angelo Coast Range Reserve in the headwaters of the South Fork Eel River.

Growing up in places like upstate New York, lake country in Ontario, Canada, forested mining lands in Pennsylvania, and Virginia piedmont farmland gave me plenty of opportunity to observe adversely altered landscapes and some "passive recovery" when human pressures left or slackened. Moving in 1971 to the Mattole River headwaters and adjacent to the coast and South Fork Eel River watersheds, I and many others traversed a lot of forestlands that had been incredibly and grossly impacted from the tractor logging primarily in the 1950s and '60s and even extending into the 1980s. This was huge motivation for protection of original forest remnants, and restoration/recovery of the region's forests and watersheds.

In the late 1960s, Redwood National Park was established, followed by the heated struggle over its essential expansion in the early 1970s and amalgamation with earlier California State Redwood Parks. Public awareness and outrage over extreme impacts by logging exacerbated by the 1955 and 1964 "100-year" floods led to a whole era of forestry reform, including stronger regulation, required oversight by professional

A Northern Spotted Owl Grove on Rainbow Ridge was saved only because the owl was discovered during active operations by Humboldt Redwood Company. It obviously should have been protected as High Conservation Value Forest under Forest Stewardship Council Certification. Note the black spray paint covering up blue cut-markings.

Spectacular view across the Rainbow Ridge Forest and West over the Mattole Valley to Cooskie Mountain, Prosper Ridge, and the Pacific Ocean.

foresters, and multidisciplinary planning and monitoring.

Continuing this thumbnail sketch: A stage characterized by more public involvement and the importance of social mores developed in the late 1970s and on through the 1980s to the present. Protection of the Sinkyone Wilderness coast and Headwaters Forest are two notable examples. A major element was the acquisition of depleted forestlands by non-profit conservation organizations such as the The Conservation Fund and the Redwood Forest Foundation, Inc.

Getting myself too deep into an introduction for a book—I'll present some short notes now:

Please check out my comments and editorial about Rainbow Ridge in the Winter 2019 Forest and River News. Seeing how Humboldt Redwood Company keeps saying "Come See for Yourself," a bunch of us did—mostly from the Mattole Restoration Council, together with some others including Paul Hughes from Forests Forever, two HRC foresters, and me. Big issues, folks—and thank goodness the discovery of a spotted owl occurred during the logging operation, and what was an area that should have been designated High Conservation Value Forest ended up with obliterated "cut marks" and now we have a Northern Spotted Owl grove. Virgin ungullied prairies were gouged with a haul road leading to steep forest and inner gorges.

At play here also is the Lost Coast League's Forest Stewardship Council grievances. See Michael Evenson's article on page 22.

To Get Involved

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EPIC
wildcalifornia.org

Forests Forever
www.forestsforever.org/

Institute for Sustainable Forestry
www.instituteforsustainableforestry.com

Redwood Forest Foundation, Inc.
www.rffi.org

Sanctuary Forest
sanctuaryforest.org

The Conservation Fund
www.conservationfund.org

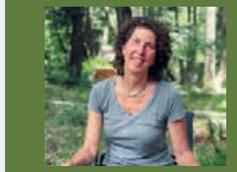
Why Forests Matter
whyforestsmatter.org

Meanwhile, Pacific Forest Trust is looking for another conservation-minded 501(c)3 nonprofit to take over ownership and stewardship of 540 acres along Outlet Creek, a tributary to the Eel River that gives access for salmon and steelhead, notably Coho traveling to Little Lake Valley and the Willits area spawning and rearing tributaries.

The fight continues by Why Forests Matter and Forests Forever to get adequate standards and incentives for truly healthy and high-quality forests of multigenerational nature—not just forests thinned for five years.

That's it, folks, food for thought. Please help out where and when you can. Check out the workshop & tour programs and other information for Sanctuary Forest, ISF, and EPIC.

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.



PLANT NOTES

Broadleaved Stonecrop, *Sedum spathulifolium*

By Cheryl Lisin, *Friends of Lost Coast*

Did you know that there are many succulents native to California? My favorite is broadleaved stonecrop, a lovely little plant with rosettes of gray-green, waxy leaves that become tinged with red due to stress, such as from drought or freezing weather. Like many succulents, broadleaved stonecrop roots easily from its stems, spreading to form low mats of foliage about four inches high and up to two feet wide. Sprays of bright yellow flowers appear in spring, rising four to six inches above the plant. In the wild, broadleaved stonecrop prefers to grow on coastal bluffs, riverbanks, and rocky outcrops, where it forms hanging mats of foliage. Seeking moisture with its roots in winter, it survives our dry summers by retaining water in its fleshy stems and leaves. The grayish waxy coating of the leaves reflects sunlight and is another mechanism for the plant to survive dry summers.

Broadleaved stonecrop is pollinated by bumblebees and other native bees, who use the flowers for nectar and pollen. Larvae of two butterfly species use the leaves and flower buds for food: Moss' Elfin, *Callophrys/Incisalia mossii*, is fairly common and never far from sedum; Rocky Mountain parnassian, *Parnassius smintheus*, is only found on sedum at high elevations. In addition to being beneficial to insects, the plant has human uses, including treatment of sore gums, constipation, and nerves.

Broadleaved stonecrop in bloom, growing on the roots of a Douglas-fir tree in the Sinkyone Wilderness State Park. ALL PHOTOS THIS ARTICLE BY CHERYL LISIN

In the garden, broadleaved stonecrop is a nice, neat, small-scale groundcover for sun or shade, requiring little or no summer water. It looks just as fabulous spilling over the side of a flowerpot as it does on a rocky outcrop! Unfortunately, native succulents can be at risk from poachers who denude whole embankments of the plants and send them to markets overseas. Rather than collect in the wild, it is best to purchase plants from nurseries or get cuttings from a friend.

Ranging from British Columbia to Southern California, broadleaved stonecrop is most abundant in Northern California's Coast Ranges and the western Sierra Nevada. The scientific name is *Sedum spathulifolium* and it is in the plant family *Crassulaceae*, which also contains jade plant, hens and chicks, and many other well-known, garden-variety succulents. The species name, *spathulifolium*, refers to the spoon or spatulate shape of the leaves, *spatil* being Greek for spoon and *folium* being Latin for leaves.

Broadleaved stonecrop loves to grow in the cracks on rocks. Here it is growing in the King Range National Conservation Area.

Cheryl Lisin is a native plant enthusiast, landscape designer, and President of Friends of the Lost Coast (formerly Lost Coast Interpretive Association) whose mission is to inspire passion for nature in the Lost Coast Region. She is currently working on a native plant garden at the King Range BLM office for the education and enjoyment of all. You can contact her at Cheryl@lostcoast.org. *Special thanks to Pete Haggard for the information on insects!*

Wildlife Notes

Neotropical Migrant Songbirds

A Miraculous Journey

By Kyle Keegan, *Fools Farm*

As the days become longer and the storms of winter pass, each year brings the promise of an ancient ritual that has taken place on the North Coast for millennia—spring migration. Oak woodlands, forests, and meadows that were virtually silent during winter months come alive with the songs and antics of some of our most colorful and vibrant bird species: Western Tanagers, Black-headed Grosbeaks, Lazuli Buntings, Vireos, Warblers, Hummingbirds, and Swallows. Some of these birds who just weeks before may have been foraging in jungle canopies alongside Howler Monkeys and Toucans now find themselves in a temperate world—among Gray Squirrels and Steller's Jays.

Why Leave the Tropics?

Why do these small birds leave the tropics in the first place, risking their lives on this long journey? Scientists theorize that the greatest draw to neotropical migrants is the brief yet spectacular abundance of insect activity during our spring and summer months. During this short period, the explosion of insect life provided by temperate ecosystems is virtually unparalleled, allowing migrant birds to coexist with our local resident species while capitalizing on the highly nutritious food. Research also suggests that breeding success may be higher here than in the tropics where parasites and predators are more prevalent.

The Western Tanager is perhaps our most colorful neotropical migrant. It winters from Mexico, south to Costa Rica, and in summer it can be found breeding as far north as western Canada.

A Dangerous Journey

Migration is inherently dangerous. Neotropical migrants must travel over mountains, deserts, forests, vast expanses of industrial monocultures, and urban sprawl during their northbound journey. Many species fly by night. Some birds such as the Cliff Swallow (*Petrochelidon pyrrhonota*) come from as far south as the Amazon Basin in Brazil, while most other migratory species winter in Mexico and Central America. During this journey they use a complex array of strategies to navigate. Over their lifetime neotropical migrants learn the "sky map," using the stars and sun as a travel guide. They also utilize topographical landmarks and wind directions, as well as subtle cues from the magnetic field of the Earth. The course they take is a learned one, shaped over evolutionary time and passed on by their elders.

During the extended journey they may be threatened by storms, pesticides, house cats, collisions with windows, wind turbines and high-rise buildings, and, increasingly, the erratic weather caused by climate change. A freak frost or a spate of prolonged cold, wet weather can cause large numbers of migrants to perish.

A male Rufous Hummingbird during migration feeding on the nectar of *Pedicularis densiflora* in the Salmon Creek watershed. Rufous Hummingbirds winter in Mexico and breed as far north as Alaska in the summer. For their size, they make the longest journey of any bird in North America.
BOTH PHOTOS THIS ARTICLE BY KYLE KEEGAN

Despite the risks, great numbers of them arrive each spring to serenade us amidst blooming wildflowers and lush green landscapes as they quickly get to work establishing territories, finding mates, and building nests.

Linking Landscapes and Culture

Neotropical migrant songbirds comprise over half of the species that we hear singing during the spring and summer months on the North Coast. Their presence serves as an indicator of the health of our North Coast ecosystems, as well as the health and integrity of their tropical winter lands. Linking the landscapes of Humboldt to the far-off territories of Latin America, these well-traveled little songbirds are a unique example of cultural and ecological interconnectedness.

Originally published in The Redwood Times

Activist Corner

Green Diamond to Log Sproul Creek

Green Diamond clearcuts adjacent to Redwood National and State Parks

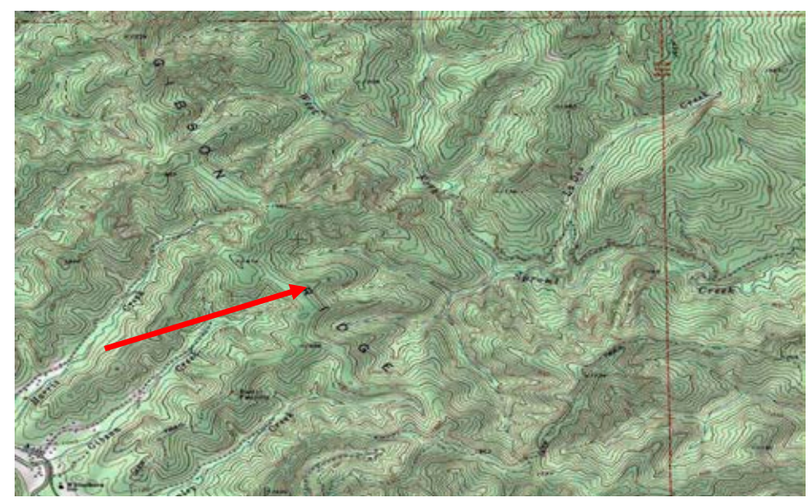
By Sproul Watershed Advocates

Green Diamond recently acquired 9,400 acres in the Sproul Creek watershed, extending from near the Garberville airport to Ettersburg Junction to the ridges south of Whitethorn. This land once belonged to Barnum Timber, which was infamous for phenoxy herbicide spraying in the 1970s.

Sproul Watershed Advocates (SWA) was formed to keep an eye on their plans. Washington-based Green Diamond (GD) inherited two approved Timber Harvest Plans (THPs) from the former owner, and the company re-submitted a revised Gibson Ridge THP, 1-20-00024-HUM, on March 19, 2020.

This is a revision of a THP that was submitted on Feb. 7, 2020 and returned by CalFire because it was seriously flawed. This THP borders the Van Arken watershed near Whitethorn Junction, and trucks will exit at Ettersburg Junction. *Forest & River News* readers know that Sanctuary Forest is protecting the ecologically significant Van Arken watershed in cooperation with Lost Coast Forestlands. The GD lands are also important for the recovery of Coho Salmon and other species.

SWA members can assist others in studying and commenting on this and future THPs. Comments on this THP will be due as early as April 27, 2020. The many documents comprising the THP can be viewed at CalFire's new website, *https://caltreesplans.resources.ca.gov/caltrees.* Unless you are submitting something, you do not need a login. At "Search" you can enter the THP number, the record type "THP," and "submit." With some patience or help, you can also access a list of newly submitted THPs to review. It may be possible to get information from the CalFire office in Fortuna, 707-725-4413, Resource Management staff.



Topographic image from USGS Briceland Quadrangle map, showing Gibson Ridge, where Green Diamond plans to clearcut 201 acres in 7 units. This ridge is the major hydrologic divide between the Sproul Creek Watershed and the Upper Mattole. Whitethorn School is in the lower left corner.

Sproul Watershed Advocates has met several times and maintains an email list. The group held a meeting with seven Green Diamond employees, including the Vice President, in which GD represented that its "openings" (clearcuts, usually) would average 15 acres, with scattered "leave trees". However, the Gibson Ridge THP as submitted in February included 201 acres of clearcuts, in approximately 30- to 40-acre units. Members of SWA expressed their hopes that herbicide use could be minimized, and GD said it would no longer use glyphosate (commonly known as Roundup) but listed many other chemical herbicides that it plans to use. They said they tend to harvest 45-55 year old trees, generally. The company has also taken SWA members on a tour of its holdings, including two active THPs near this new THP.

People wishing to make contact with SWA can do so by contacting Richard Gienger at *rgrocks@humboldt.net.*

Activist Corner

Green Forest Certification Does Not Stand Up to the Timber Industry

...And It's Especially Impotent When It Comes to Emphasizing the Role That Forests Play in Combatting Climate Chaos

By Michael Evenson, *Lost Coast League*

The Forest Stewardship Council (FSC) was created when environmental, social justice, and wood-working groups came together in 1993 with a common goal. The sustainable certification scheme was intended to nudge the timber industry to adopt practices that protect the public trust when state regulatory agencies fail to enforce environmental law. In particular, this green certification was a response to the Timber Wars of the late 20th century. It was embraced by those in Humboldt County who formed the Institute for Sustainable Forestry around sustainable certification principles.

According to the FSC website (*fsc.org*), the governance of FSC is based on "a three-chamber model, guaranteeing balanced, multi-stakeholder decision-making across environmental, social, and economic interests." The image of a three-legged stool was promoted as symbolizing a cooperative venture among the three entities interested in forest management. For this sustainability model to work, however, each leg of the stool must be of equal length or the results will be unbalanced.

It is increasingly evident that the economic leg is being given far more consideration in the FSC process than the environmental and social legs. There is strong pressure for the FSC to bow to industry financial pressures, and that runs roughshod over serious environmental issues and local community concerns. This "drift" of the FSC has exposed a serious conflict of interest, for the FSC receives funding from industry in the form of membership dues and certification fees. While nonprofit social and environmental groups have lower membership dues than for-profit businesses, the reality is that large logging companies can afford to put more resources and staff hours into FSC membership working groups. . These inherent conflicts of interest has led to widespread "greenwashing" in the name of sustainability, but the reality is worse—it is a cover for harmful and destructive practices. The public is being defrauded.

Rainbow Ridge with the Douglas-fir hardwood forest draining steeply to the Mattole on the left side. by Thomas B. Dunklin

Another significant, perhaps fatal, flaw of the FSC certification program is its failure to amend the FSC Principles to account for the climate-change impacts of forest operations and how forest communities (thinking globally, acting locally) strive to protect the carbon-sequestering abilities of their homelands.

The Mattole community interaction with FSC-certified Humboldt Redwood Company (HRC) on Rainbow Ridge reveals that here, HRC's economic concerns are subverting those of the environment and the forest community. At first, HRC pledged to be the industry leader in environmentally and community friendly practices and received FSC certification in 2009. It was greeted in Humboldt as a relief from Hurwitz' rape-cut of Pacific Lumber Company forests.

The Mattole community participated in FSC review of HRC practices in the watershed (2012) and found inadequate protections on Rainbow Ridge. Mattole Stakeholders reached agreement (October 2014) with HRC's President and Chief Forester Mike Jani to re-do their Watershed Assessment by incorporating community expertise acquired from more than 40 years of watershed-wide assessment and restoration activities.

Soon after, though, HRC replaced Jani with management from Sierra Pacific Industries who refused to honor the commitment to cooperatively study the basin; and draft a management plan that would include the restoration from legacy impacts; and allow for harvests that would contribute to watershed recovery of ecological function.

Mattole stakeholders, in 2018, led by the Lost Coast League (LCL), formally challenged certification of HRC under FSC Principles and Guidelines. The intricate, difficult-to-navigate legalistic process appeared to work when the complaint was found to "have merit" in regard to the cutting of High Conservation Value Forests (HCVF) as well as on the grounds of HRC's excessive herbicide use (practices that run counter to FSC Principles and Mattole community mores). As a result, HRC was forced to draft a plan to assess where HCVF exist on their lands, as well as a plan to phase out the use of poisons to kill native trees.

Controlling the use of herbicides has widespread public support in northern California. Neighboring Mendocino County voters overwhelmingly passed a ban on all herbicide use. Yet HRC continues its use and the FSC takes no action other than to request that HRC draft a new herbicide plan.

In June of 2019, HRC began logging on Rainbow Ridge despite failure to adopt an HCVF Assessment or Vegetative Management Plan (long form for herbicide use). When Lost Coast League objected, the FSC simply looked the other way.

Only after the logging was well underway did HRC file the required plans, but it did so without noticing the LCL, contrary to FSC dictates.

The Lost Coast League was given just two weeks to review these plans. Undaunted, LCL submitted detailed comments along with those by published research

An old-growth Douglas-fir on the slopes of Taylor Peak that was **not** considered in a High Conservation Value Forest by Humboldt Redwood Company's THP. by Lost Coast League

scientists—all of whom found the plans to be rationalizations for cutting wherever there were large, mature trees. HRC ignored the reviews without even a discussion of their merits. The FSC again paid no attention. LCL raised the alarm within the FSC system, filing a second formal complaint at higher levels. When logging operations commenced in June, 2019, Lost Coast League and other groups began organizing direct action efforts to halt the logging and bring public attention to HRC's failure to comply with FSC standards. Protestors were roughed up by para-military security forces, tree-sitters' lives were put in danger, and elders were arrested.

LCL finally appealed to the international FSC body in Bonn, Germany, to honor the process. They are considering the appeal and promise an "appraisal" by the end of March.

Meanwhile, the FSC clings to its complicated legalistic framework, unsure how it can address climate chaos—a specific issue brought forth by LCL and for which there is no category in the FSC's well-lawyered Principles. International FSC Director General Kim Carstensen has taken notice of the Mattole/HRC conflict (*www.ethicalcorp.com/standoff-rainbow-ridge-northern-california-tree-protesters-take-aim-fsc-and-home-depot*).

The relationship between the certifier who depends on the client (timber companies such as HRC) to fund the certification program presents a conflict of interest that can easily lead to the unbalanced-stool situation while the old trees fall, compounding climatic effects that constitute an assault against all living creatures.

The March edition of *Ethical Corp* focuses on deforestation. Here are the links to articles on certification, and on Rainbow Ridge: *www.ethicalcorp.com/fsc-certification-worth-paper-its-printed*; and *www.ethicalcorp.com/standoff-rainbow-ridge-northern-california-tree-protesters-take-aim-fsc-and-home-depot;* as well as the magazine in its entirety: *events.ethicalcorp.com/reports/docs/589646/March-2020.pdf*

For more information: *lostcoastleague.org*, *lostcoastleague@gmail.com*, and *fsc-watch.com*

30 Years Ago in May: The Bombing of Earth First! Activists Judi Bari and Darryl Cherney

Bay Area Coalition for Headwaters

On May 24, 1990, a pipe bomb planted in the car of Earth First! activist Judi Bari exploded, sending her and fellow activist Darryl Cherney to Highland Hospital in Oakland—Judi with life-threatening injuries. Despite the location of the bomb—hidden under her driver's seat—the FBI proceeded to blame Judi and Darryl for the bombing. The FBI's allegations of affiliation with violence, "matching nails," and the location of the bomb (police told media at the time the bomb was in the back seat, even while their own photos revealed its true location) were later found to be fabricated or misrepresented when Darryl Cherney and Judi's estate won a civil rights lawsuit filed against the FBI and Oakland Police in 2002. In 2005, the City of Oakland by decree declared May 24 to be "Judi Bari Day." Judi died in 1997 of breast cancer.

Judi Bari gives the raised fist salute outside the Oakland Federal Courthouse after winning a round in her lawsuit against the FBI and Oakland Police. March 3, 1995.
BY XIANG XING ZHOU, FIRST PUBLISHED BY THE SAN FRANCISCO DAILY JOURNAL

The Bombing of Judi Bari: 30 Years Later

Mendocino County Remembers

May 2nd – June 7th

Schedule may change. Check with the museum.

Programs

Saturday May 2nd: Redwood Summer 1:00–3:00

Friday May 8th: Remembering Judi. Guest speaker Alicia Littletree 5:00–7:00

Saturday May 9th: Film screening with guest Darryl Cherney, "Who Bombed Judi Bari?" 1:00

Sunday May 17th: Building Bridges: Timber-workers and Earth First! 1:00–3:00

Saturday May 23rd: The Car Bombing of Judi Bari? Guest speaker Darryl Cherney 1:00–3:00

Saturday May 30th: Who Bombed Judi Bari? Film screening with guest Darryl Cherney

Sunday May 31st: Judi Bari and the FBI: Discussion with the legal team panel 1:00–3:00

Friday June 5th: Remembering Judi through Song: Live concert 5:00–7:30

A planned exhibit will mark this 30th anniversary at the Mendocino County Museum in Willits, scheduled for May 2 – June 5, 2020. With the rapid changes in current events and everything else evolving daily, make sure to check in May to see if the exhibit is still on schedule. Details are above.

The bomb attack took place on the eve of Redwood Summer, planned as a summer-long effort to stop or slow down liquidation logging in coastal Northern California by the multinational timber companies operating at the time. The mass organizing sought to bring people to the North Coast in the midst of the Headwaters Forest Campaign opposing Maxxam–Pacific Lumber's rapacious cutting of old-growth redwood forest; the campaign also challenged Louisiana-Pacific and Georgia-Pacific's liquidation logging. Many believe the attack was meant to stop the campaign. But people came—thousands, from all across the country—and carried out forest defense on a scale previously never seen.

Judi and Darryl's legal victory against the FBI is an important and unprecedented mile marker to remember, as is the bombing itself. **We commemorate it 30 years later because it is necessary that we never forget, and that we remember to never give up and to maintain a bold resistance to strong-arm tactics, as well as to assaults on Mother Earth.** But what Judi Bari brought to the forest-protection movement and to Earth First! goes far beyond the challenge to the FBI. She brought lessons from her background as a labor organizer, and her analysis that helped evolve radical thinking, philosophy, and strategy. Her booklet "Revolutionary Ecology," where she discusses biocentrism in the context of radical social change thinking (e.g., Biocentrism Contradicts Capitalism, Biocentrism Contradicts Communism, and Biocentrism Contradicts Patriarchy), can be found at the link *www.judibari.org/revolutionary-ecology.html*.

You can also check out the history, many photos, and a lot of other information at *www.judibari.org*.

The world around us changes, sometimes at breakneck speed. The context of movement building is always in flux and demands that we diligently evolve our thinking and strategic organizing. At the same time, it is valuable (and smart) to weave in institutional memory and not lose the wisdom embodied in the revolutionary thinking of our compañeras who are no longer around. Viva Judi.

For more information: *HeadwatersPreserve.org*

Moving Forward on Responsible Transportation. Join the Coalition!

Coalition for Responsible Transportation Priorities

The Coalition for Responsible Transportation Priorities is about to celebrate five years since our founding in 2015. In that time, we've accomplished a lot that we're proud of on California's North Coast. Browsing through the Reports & Analysis page on our website, you'll find dozens of comment letters and research reports on all the significant local transportation-related issues of the day, from Regional Transportation Plans to zoning codes to major development projects. We bring a unique, data-driven perspective to all of these topics, motivated by the urgency of the climate crisis and the bike and pedestrian safety crisis to find the ways that work to reduce driving and increase active transportation and transit use.

And we get results. We have had an impact on numerous local plans and projects, resulting in improvements to bike and pedestrian design that will be felt for decades to come. For example, our comments on the current Del Norte Regional Transportation Plan were so comprehensive that the agency in charge hired a consultant just to respond to them. In the end, the Plan was changed to address the climate crisis more realistically, and to remove any mention of projects catering to extra-large trucks.

Our advocacy around better pedestrian design in Arcata resulted in the creation of the Arcata Plaza Improvement Task Force, which is now recommending that the City Council consider pedestrianizing some of the surrounding streets. And our engagement in revisions of the Humboldt County zoning code led to significant improvements to the new Mixed Use regulations, which will allow more walkable development in McKinleyville and other local town centers.

We also put an emphasis on public education, because we know that the status quo car culture won't change if people don't understand its impacts on our environment and our communities. Hundreds of local residents read The Collector, our weekly North Coast transportation news roundup. And we reach many more through our presence at local events, on the radio, and in regular publications like this one. We've even started working with interns from Humboldt State University.

And there remains so much more to be done! In 2020, we plan to continue our strategic engagement in local transportation and land use planning, as well as expanding programs such as our bike valet and research initiatives.

To find out more and to join the Coalition, visit *transportationpriorities.org*.

Mendocino National Forest Backtracks on Logging Project Amidst Scrutiny

1,284 Acres Spared from Logging Under Revised Plan

Environmental Protection Information Center

Another EPIC win: In response to criticism by the public, the Mendocino National Forest has drastically scaled back proposed logging in the "Green Flat Restoration Project." Originally planned for 1,534 acres, the Forest Service is now proposing to cut 250 acres. The agency was criticized for its apparent attempt to characterize logging activities as other more benign actions, such as "reforestation." The downsizing of the project proves that even in the age of Trump, large public outcry can still influence government decisions. In addition to EPIC's lengthy comments, 528 members of the public sent in comments through an action alert opposing the project.

The Green Flat Restoration Project was proposed in response to the 2018

Aerial view of Ranch Fire footprint. by Kimberly Baker of EPIC

Ranch Fire. The project quickly elicited controversy because it appeared that the Mendocino National Forest was attempting to characterize commercial logging under other names to more easily facilitate environmental review of the project. Nearly all federal projects are subject to the National Environmental Policy Act (NEPA), which demands that they be evaluated to consider potentially significant environmental impacts as well as alternatives and mitigation measures to reduce impacts. A small subset of actions—so-called "categorical exclusions"—are exempt from this longer environmental review process. The Forest Service has defined what types of activities can be pursued under a categorical exclusion. These include post-fire logging of 250 acres or less and "reforestation."

In January, the Mendocino National Forest announced the initial project. In a letter soliciting public comment, the Mendocino National Forest proposed 250 acres of post-fire logging, 1,066 acres of "fuels reduction" associated with reforestation, and 218 acres of commercial logging coined as "forest health treatments." Both fuels reduction and forest health treatments were effectively logging. In its comments on the project, EPIC outlined that this renaming of activities to fit under a categorical exclusion is illegal.

On March 11, the Mendocino National Forest withdrew the proposed project, announcing it would only pursue a smaller 250-acre commercial logging operation. Further, the Mendocino NF indicated that it would reduce the number of living trees logged by taking trees that were estimated to have a 70%+ chance of dying in the near future.

"Post-fire forests are ecologically sensitive and respond poorly to intensive logging—that's why only smaller projects are allowed to utilize a categorical exclusion. Simply renaming logging something else to bypass the rules was clearly illegal and the Forest Service was caught," said Tom Wheeler, Executive Director of EPIC.

"It is clear to see the agencies' disregard for science and ecology by prioritizing the extraction of large trees while it leaves the smaller vegetation to fuel the next fire," said Kimberly Baker, Public Land Advocate for EPIC.

Post-fire logging is inherently harmful to the environment. Logging adds more disturbance to the disturbance caused by the fire. This results in increased sediment pollution, increased fire behavior (unless the fine fuels produced by logging are removed), and it retards natural regeneration of the forest. For wildlife, post-fire logging removes the complex woody structures necessary for so many species. Many species, including northern spotted owls, will continue to use post-fire forests if they remain unlogged; once logged, it is often without habitat value.

EPIC's Kimberly Baker inspecting marked tree in timber sale. by Amber Jamieson

In response to the Ranch Fire, the Mendocino National Forest has aggressively tried to increase logging in the fire footprint. The "restoration" project was one of nine projects that the Mendocino NF put forward, all through categorical exclusions. The Mendocino NF's over-use of categorical exclusions appears to be a tactic of the Trump administration to reduce process and paperwork and laws in order to expedite logging. In October, EPIC filed litigation to challenge numerous logging projects pursued through misapplied categorical exclusions.

For more information: *wildcalifornia.org*

Two Klamath National Forest Timber Sales

One Is an Old-Growth Timber Grab, The Other Is a Legitimate Plantation Thinning Project

Klamath Siskiyou Wildlands Center

These days many Forest Service timber planners like to call everything they propose "restoration," regardless of the impacts to wildlife and watersheds. So it's always a good idea to get out on the ground and make sure that the agency rhetoric matches reality.

On the Klamath National Forest we are monitoring two timber sales that both purport to be restoration projects. One of the sales involves old growth logging on unstable landslide-prone slopes in the back country; while the other consists of second-growth plantation thinning near communities. Both could be logged soon and KS Wild intends to challenge the old growth logging project while encouraging the proposed small-diameter plantation thinning effort.

Dense fire-suppressed young forest stand in the Klamath National Forest. by Kimberly Baker of EPIC

Getting It Right: The Thompson Plantation Thinning Project

In early 2020, the Klamath National Forest released an initial proposal to thin dense second-growth Douglas-fir tree plantations near the town of Happy Camp. The "Thompson Plantation Thin" logging units are composed of uniform planted stands that were the result of decades of clearcutting during the Forest Service logging heyday in the 1960s and 1970s. The extensive network of logging roads is well established, and the proposed logging units are generally at low elevation and near homes and private property. Thompson Plantation Thin is the type of second-growth small-diameter thinning project that is often supported by stakeholders across the ideological spectrum.

Getting It Wrong: The Crawford Timber Sale

Nearly a decade ago the Happy Camp District Ranger began the Crawford timber sale process by asking his planning staff to identify dense second-growth timber plantations located near the existing road system that might benefit from thinning. Initially the project looked promising, but as District leadership came and went the project silviculturalist (forester) took control of the planning effort and added in a number of old-growth timber sale units to help "float" the sale of economically marginal plantation units in the backcountry. In other words, the forester wanted to log old growth in order to help pay to fix the damage that previous old-growth logging had caused. Additionally, many of the proposed Crawford logging units are located on steep unstable headwater slopes designated as dormant landslides

Old-growth forest canopy within a Crawford timber sale logging unit. by Kimberly Baker of EPIC

by the Forest Service. As timber sale planning progressed, the agency added in more proposed logging road construction in the backcountry. Finally, just weeks before issuing a decision to approve the Crawford timber sale, Forest Service timber planners hastily threw in a large swath of ridgeline old-growth logging that involves the "take" (death) of two reproducing Northern spotted owl pairs.

The Klamath National Forest Is on Autopilot

As Forest Service budgets get tighter and tighter and many core agency positions remain unfilled, projects can take on a life of their own that leaves science, collaboration, and communities behind. This is especially true on Forests in which District Rangers have a high rate of turnover and where the agency has no appetite for collaboration or community engagement. While surrounding National Forests have project planning mechanisms that attempt to bring in stakeholders and communities, the Klamath National Forest is particularly averse to public engagement.

Legitimate second-growth plantation thinning projects like the Thompson Plantation Thin could receive a shot in the arm if Klamath planners were willing to meaningfully engage with local tribes, conservation interests, and impacted communities. Similarly, the negative impacts of timber sales like Crawford could be largely avoided if the Forest Service had been willing to include community and conservation values into its planning effort and project layout.

Stay Involved

KS Wild recognizes and supports all the conservation, tribal, and community efforts to influence Forest Service planning for the better in Northern California. Please keep at it! Visit proposed projects, encourage real restoration, and work to halt damage to our watersheds and wildlands. We stand with you and appreciate your efforts.

For more information: *kswild.org*

Summer Adventure Camp

Field Activities for Kids in Southern Humboldt and Northern Mendocino

Friends of the Lost Coast

Summer Adventure Camp (SAC) is a science and nature day camp for children 4–13 years old. A program of Friends of the Lost Coast (formerly Lost Coast Interpretive Association), SAC has been providing outdoor opportunities for children in Southern Humboldt and Northern Mendocino counties since 2014. SAC takes place for five weeks during the summer, with participants divided into three different age groups (4–6, 7–9, and 10–13).

A variety of diverse ecosystems in Southern Humboldt and Northern Mendocino counties provide wonderful locations to explore and learn about the natural world. The teachers continue to scout new locations to introduce to the children to keep things fresh year-to-year. By hiking in forests, meadows, and mountains; observing the life in and around creeks, rivers, and the ocean; being introduced to restoration projects; performing service projects; and journaling and doing nature-inspired arts, crafts, and games, the children are exposed to a plethora of experiences that broaden their perspectives of the environment.

The excitement that children share and the wonder they exhibit when having adventures in the wild is enough to give instant gratification to the teachers. However, when you factor in their intelligent questions, their concern for the future, and their curiosity about life cycles and beyond, it becomes exponentially rewarding for all involved. It is so much fun and so educational to have nature as your classroom, and the children thrive when they are in an outdoor learning space.

Summer Adventure Camp 2020 will visit several new locations to explore different aspects of our area and introduce a variety of new projects in which the children will get involved. Some places that we will re-visit are Richardson Grove, Hidden Valley, the Southern Humboldt Community Park, Shelter Cove, Bridge Creek, Avenue of the Giants, The King Range, Benbow State Park, the Mattole River, and Sinkyone Wilderness State Park. All these places have a variety of hikes and areas to explore that appeal to each of the age groups, plus some of them have splashing and swimming opportunities as well.

7- to 9-year-olds hiking north in Sinkyone Wilderness State Park. by Michele Palazzo

Friends of the Lost Coast has developed a native plant garden in Whitethorn that continues to expand and has the benefit of having two barns that provide teaching space and storage space. In conjunction with BLM, Friends of the Lost Coast is creating a wonderful learning center for the community that Summer Adventure Camp utilizes. At the native plant garden, children are able to learn about native plants and pollinators, help in the garden by sheet mulching or potting up plants in the nursery, create arts and crafts projects in the education barn, and enjoy Bridge Creek, which is adjacent to the garden down a flight of stairs through the forest.

4- to 6-year-olds climbing in an oak tree in Hidden Valley. by Michele Palazzo

The dates and times for Summer Adventure Camp 2020 are as follows:

- Week 1: June 22–26, ages 4 - to 6, 10 am – 3 pm
- Week 2: July 6–10, ages 7- to 9, 10 am – 4 pm
- Week 3: July 13–17, ages 10- to 13, 10 am – 4 pm with a possible overnight from Friday to Saturday
- Week 4: July 20–24, ages 4- to 6, 10 am – 3 pm
- Week 5: July 27–31, ages 7- to 9, 10 am – 4 pm

The cost for each week is $150–$250 on a sliding scale, and there are scholarships available. Summer Adventure Camp is supported by the Monroe Tobin Family Fund, a fund of the Humboldt

7-to 9-year-olds enjoying the Eel River at Richardson Grove State Park. By FoLC

Area Foundation, as well as the Bill Graham Foundation of the Jewish Federation and Endowment Fund.

To register, call or email Michele Palazzo at 707-223-0112, *mamapalazzo@yahoo.com*, or Reta Willmore at 707-223-1927, *reta@lostcoast.org*. There is also information at *lostcoast.org* and on the Friends of the Lost Coast Facebook page.

SPAWN to Remove Central California's Top-Priority Fish Barrier This Summer

Salmon Protection And Watershed Network

The Salmon Protection And Watershed Network (SPAWN) will manage another large-scale restoration project on the former San Geronimo golf course this summer to remove the highest-priority fish passage obstacle in central California, which currently limits the migration of endangered Coho Salmon and threatened Steelhead Trout and creates poor habitat conditions.

In addition to providing critical habitat for young salmon, making valuable floodplain corridors for terrestrial wildlife movement, and greatly increasing the amount of trees for nesting birds, the "Roy's Pools Fish Passage and Floodplain Restoration Project" will replace a failing pedestrian bridge with a new prefabricated bridge, linking trails and offering fish viewing over a wider, more complex, and stable creek channel.

"A restored creek channel and expanded riparian zone will provide unimpeded passage for Coho, Steelhead, Lamprey, and other fish through the watershed at all times of the year," said Preston Brown, SPAWN's director of watershed conservation. "Other wildlife including nesting birds, deer, bobcats, and more will benefit from a larger and more intact riparian area. A larger forest of trees and riparian plants will allow more opportunities for wildlife to hunt, forage, nest, rest, and find refuge along a naturally-flowing and healthier creek."

Throughout the construction process, SPAWN will lead tours of the restoration area and host workshops on topics such as stream bank stabilization, bioengineering, and native plant restoration. Once construction is complete, volunteers, students at partner schools, and other organizations will help plant thousands of additional native plants and trees to jump-start revegetation of the riparian area, which will ultimately result in more trees at the site than there are now.

A Coho Salmon jumps through Roy's Pools right after it was constructed in 1998. By Reuven Walder/SPAWN

Volunteers learn how to plant redwoods to restore salmon habitat on the former San Geronimo golf course property, as part of one of the many important habitat restoration projects that SPAWN and other local groups have worked on for many years on the property. By SPAWN

"This project will be an excellent opportunity to learn about stream restoration and get involved with a local project within our community," Brown said.

The Roy's Pools Fish Passage and Floodplain Restoration Project is a collaborative project made possible by the California Department of Fish and Wildlife Fisheries Restoration Grant Program, NOAA National Marine Fisheries Service Restoration Center, and the members and volunteers of Turtle Island Restoration Network, SPAWN's parent organization.

In 1998, NOAA Fisheries developed designs for a series of pools composed of metal sheet piles, concrete, and large boulders to help get fish over the former Roy's Dam. This effort resulted in the Roy's Pools structure we know today. Although the conversion of Roy's Dam to Roy's Pools helped in getting adult fish over the dam, the Pools became traps for young fish. Stagnant water created breeding sites for mosquitoes and a home for invasive bullfrogs. In addition, the pools cut off access for young fish moving upstream and downstream of the site.

In a collaborative effort beginning in 2012 with the Lee Family, the previous owners of the former San Geronimo golf course, SPAWN secured grant funds to design a functional restoration of the creek channel through the Roy's Pools reach, where a natural channel would replace the metal and concrete structures. In 2012, SPAWN began the design process and hosted community meetings where neighbors gave input on the project and toured the site with the engineering team.

The SPAWN team is looking forward to continuing progress on the project this summer.

For more information: *https://seaturtles.org/our-work/our-programs/Salmon/*

SPAWN will remove this large obstruction of sheet metal, concrete check dams, and fish ladder (known as Roy's Pools) that currently limits migration and creates poor habitat conditions for endangered Coho Salmon and threatened Steelhead Trout. By SPAWN

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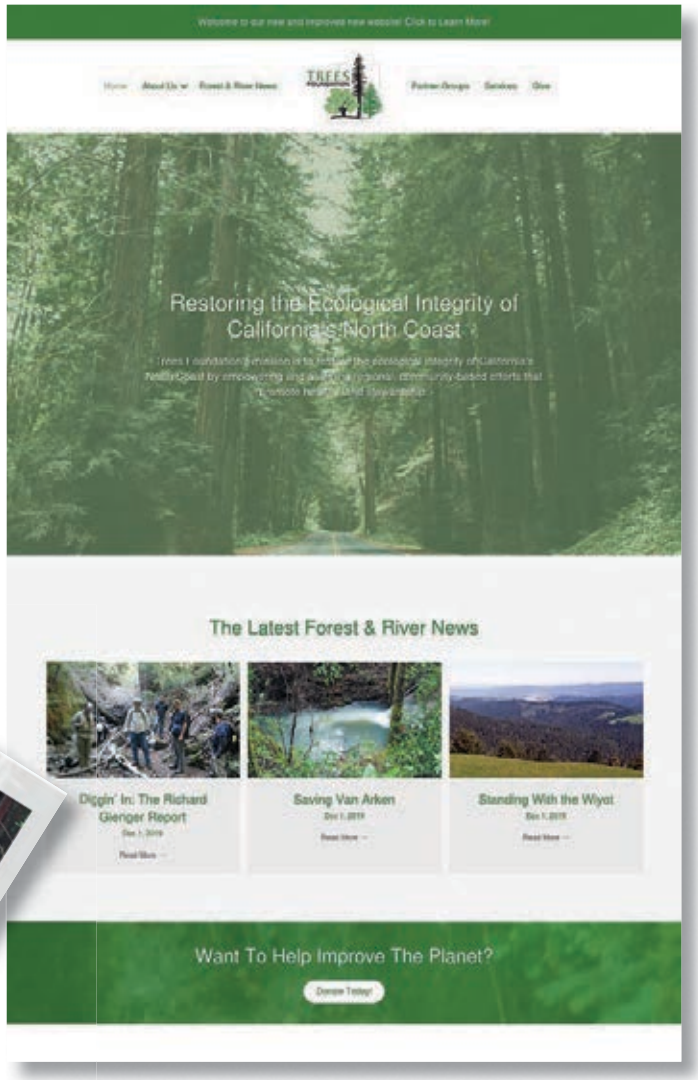
We are proud to announce that we have a brand new website launching very soon!

Not only will our new home on the web have a fresh look, but it will also make our *Forest & River News* articles easier to find, read, and share from any digital device.

A generous grant from the Bill Graham Supporting Foundation made this website revamp project possible. We would also like to send a heartfelt thank you to Eli Madrone and Madrone Communications for turning our vision into a reality. Visit us at *treesfoundation.org*!



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