Creek Chronicles

Friends of Corte Madera Creek Watershed

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Two Major Wildfire Risk Reduction Projects Underway in Ross Valley

by Mike Swezy

A 50-year-old eucalyptus forest stretches between Sorich Park and the Tamalpais Cemetery and is the target of a wildfire prevention program. Mt. Tamalpais and Bald Hill are visible on the skyline. Photo by Charles Kennard

The Marin Wildfire Prevention Authority (MWPA), funded by the 2020 Measure C property tax, has embarked on two large-scale projects in Ross Valley to reduce risk of wildfire in adjacent neighborhoods. These projects aim to reduce vegetation in open areas to diminish wildfire intensity and allow firefighters a safer and more effective zone within which they can suppress fires.

Spurred by the 2017 wildfires in the North Bay and the increasingly destructive wildfires in the state, all of Marin's cities and towns (except Tiburon and Belvedere), all independent fire departments, and the County of Marin, formed MWPA, a regional joint powers authority, to implement a comprehensive wildfire prevention program that includes evacuation planning and preparedness, home hardening, defensible space inspections, grants, public education, and vegetation management.

The first major vegetation management project initiated by the MWPA is the Greater Ross Valley Fuel Break Project (GRVFB). It defines a broad swath immediately adjacent to homes in a 38-mile, roughly 200-foot-wide shaded fuel break from Fairfax to Corte Madera. It is located between homes on private and public lands that cross about 1,700 parcels. The fuel reduction zone covers about 1,300 acres.

The project plan was approved by the MWPA board in June of 2022 and included mapping, modeling, project design, collaboration with partner agencies, public outreach, field surveys, and environmental compliance. Project implementation began in summer 2022 and is expected to continue through 2024.

The GRVSFB is a collaboration of MWPA, Marin County Fire Department, Ross Valley Fire Department, Kentfield Fire Protection District, and Central Marin Fire Department, MMWD and Marin County Parks. The project is funded by a $3.25 million Cal Fire grant and Measure C funds.

Continued on Page 2

Also in This Issue

Major Wildfire Risk Reduction Projects in Ross Valley

Continued from Page 1

Actions taken to create shaded fuel breaks include removing lower limbs of trees up to about 8' to keep ground fires from climbing into the forest canopy. Dead and down material is removed and small trees and shrubs may be thinned. Mature trees are retained to create cooler and moister ground conditions.

Limited access behind houses and the steepness of the slope of the hills surrounding Ross Valley limits the use of heavy equipment to construct fuel breaks. Therefore, most of the work is accomplished with hand crews using chainsaws and either dragging the material to a wood chipper or placing it in piles to be burned outside of fire season. Goats have been used to reduce grass fuels near communities in some locations.

The fact that California's landscape evolved under the stewardship of Native Americans using frequent fires to create more open and fire-resilient forests is fundamental to this work. After European settlement, wildfires were suppressed and vegetation density increased. Further, homes were built in the hills, and heavily watered gardens increased wildfire fuels. In the open areas in Ross Valley, natural plant communities have been disturbed and, in many cases, invaded by non-native French broom, eucalyptus, and acacia, thereby increasing the amount of vegetation available to wildfires. In many cases the primary activity in fuel break construction is removal of these invasives, effectively helping to restore more natural conditions.

With long-term funding from the tax measure, MWPA promises to maintain fuel breaks including follow-up removal of invasives.

The San Rafael–San Anselmo Fuel Reduction Zone project (SRSAFRZ) is a more focused project covering a 145-acre stand of eucalyptus that is bounded by the Ridgewood Fire Road in the north and Red Hill next to Sir Francis Drake Blvd on the south. The primary landowners are the Town of San Anselmo, the Cedars of Marin, Mt. Tamalpais Cemetery, and Marin County Open Space District. This eucalyptus stand is mature and particularly hazardous. A wildfire in the 70's completely consumed the eucalyptus forest but the trees sprouted back and now it is arguably a greater wildfire threat than ever before. A wind-driven wildfire in a eucalyptus forest in this condition would generate extreme wildfire behavior and generate substantial ember production that increases fire spread.

The stated objectives of this project are to: 1) restore native habitat by thinning smaller eucalyptus, retaining a mosaic of oak, grassland, and other common native tree and shrub species; 2) selectively remove mature eucalyptus; 3) reduce overall acreage of eucalyptus stands; and 4) keep remaining eucalyptus trees spaced and maintained in a way that reduces their fire risk to neighboring and downwind communities.

Removal of eucalyptus will focus on trees less than 10" in diameter. Tree stumps will be treated with a direct application of herbicide to prevent resprouting. Under the plan most of the mature eucalyptus will remain.

The decision to retain larger trees is in part a cost consideration, and also recognizes the risk of landslides that could occur once soil-bolstering root systems decompose.

Because of the size and quantity of trees being removed, work will be accomplished using conventional cable logging and other tracked heavy equipment. Disposal of wood will be costly so that in addition to chipping and spreading on site or pile burning, larger stems may be processed on site and trucked to biomass plants or possibly burned on site using large "curtain burners" that burn in a way that minimizes smoke production.

This project was approved by the MWPA board in November 2023 and staff are developing grant proposals to augment MWPA funding for implementation.

From the outset of the MWPA there has been detailed and consistent involvement with the environmental community. Also, MWPA has had significant interaction with the general public, hosting public meetings during the planning process, and field trips to view work in progress. Work on all properties requires a written right-of-entry agreement that fosters even more detailed one-on-one conversations.

The general public and representatives of environmental organizations expressed early concern that thinning vegetation would increase invasive plant populations, that wildlife habitat structure would be reduced, and that erosion could increase post-project. The two projects covered here were evaluated using the California Vegetation Treatment Plan and Programmatic Environmental Impact Report (CalVTP), a comprehensive plan and environmental process developed by the California Board of Forestry and Fire Protection to guide implementation of vegetation management projects across the state. It includes practices and required mitigations to address potential impacts. In addition, the MWPA has adopted standard practices that in some cases are more stringent than CalVTP.

Examples of mitigations employed include conducting work outside of bird nesting seasons, protection of wood rat nests (wood rats are favored prey for the northern spotted owl), and special protection of riparian habitats. In practice most stream corridors are not included in project areas due to their inherent diminished fire risk.

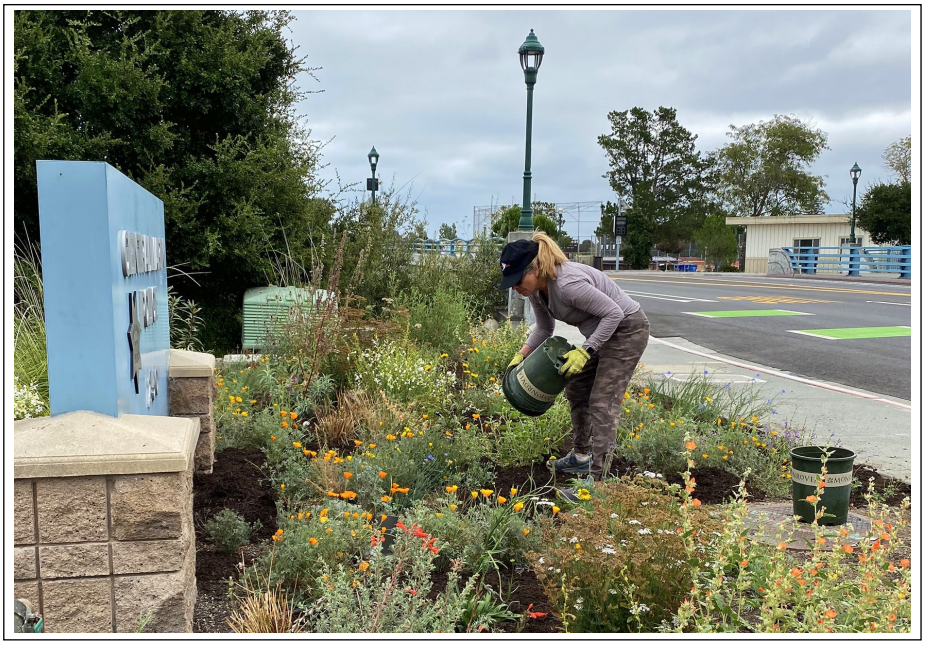
Biodiversity Gets a Boost in Larkspur

by Laura Lovett

In the face of steady loss of species and habitat complexity due to a changing climate and extensive development, it is important not to be discouraged, as everyone can take steps to help combat losses. One of the key things we can do is to find ways to make the habitat welcoming to wildlife in our urban and suburban spaces. Our public spaces are notably underutilized, often planted solely with thirsty lawn grass.

In the summer of 2023, the City of Larkspur became the first in the county to pass a biodiversity proclamation, joining the state of California in proclaiming September 7th as California Biodiversity Day, and declaring that City employees will do all they can to support biodiversity, thereby improving the well-being of humans and our environment.

They followed up this declaration with an important hands-on project. The old and outdated landscaping surrounding Larkspur's downtown parking lot (at the corner of Magnolia Ave. and Ward St.) was removed, the soil amended, and the beds replanted with California native plants. The layout and species list were drawn up by the Marin chapter of the California Native Plant Society, with help from non-profit Refugia Marin and Roseann Dal Bello, ASLA. Plants were sourced from nurseries in Marin and Sonoma. On September 28th, a team of enthusiastic volunteers plus the City's Public Works crew gathered for planting. With many hands to help, it was finished in a few hours. The entire project was paid for by the Larkspur Community Foundation, many of whose members showed up on planting day, donned a blue LCF T-shirt, and got to work digging holes. Joan Lundstrom, president of the Foundation, was the galvanizing force behind the idea and its successful execution. In spring, we will be treated to a flourishing display.



Dana Swisher of Refugia Marin applies mulch to a native plant garden in front of Larkspur's police station. Photo by Laura Lovett.

Any list of other landscapes around Larkspur in need of upgrade would have to include the parcel set aside on Rose Lane for the future Larkspur Library. Julian Skinner, Director of Public Works, confirms that the City is selecting a design/build team through the RFP process now. We are happy to report that the specifications they were given for the new library state, "The entire property/site (approximately 2 acres) shall be fully landscaped with biodiversity plants that are drought resistant and California Native."

The City will choose the best team to design and build the project. Design will take place in the first six months of 2024, with building beginning later that summer. The team's scope also includes the landscaping. We look forward to seeing their ideas for it and discussing their suitability for the site.

Two other special garden projects are located along Doherty Drive: the Marin chapter of CNPS planted a pollinator garden around the sign in front of the Central Marin Police Station this year, and Refugia Marin has received a grant to upgrade and replace plantings along the road frontage of Hall Middle School.

With the anticipated addition of a rich and diverse landscape at the library parcel across the road, the City will have made big strides in implementing their brand-new Biodiversity Proclamation. Kudos to the Larkspur City Council and the Central Marin Police for their foresight and willingness to promote biodiversity using available public spaces. The green spaces being created will greatly enrich the town and provide a beautiful urban corridor for all to enjoy.

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The End of the Tunnel

by Ann Thomas

Pine Mountain Tunnel, an integral part of Marin County's water conveyance system for more than a century, was converted to a major water storage facility for Ross Valley water in 1971, but will soon be decommissioned altogether. The tunnel, above the Cascade area of Fairfax, will be replaced by two 2-million -gallon concrete tanks located along the upslope (west) side of Concrete Pipe Road near Bolinas and Sky Oaks roads on Water District property.

According to Jack Gibson's book, *Mount Tamalpais and the Marin Municipal Water District*, planning for the tunnel began in 1915—just three years after the new water agency held its first board meeting—as part of the Alpine Dam construction project. The young board, charged with forming an integrated supply and transmission system to serve a growing population, conceived of a new reservoir that would be created by constructing Alpine Dam at the confluence of Cataract and Lagunitas creeks. The reservoir water would be conveyed by gravity beginning with a four-mile concrete pipeline from the dam to the side of Pine Mountain. To continue the route, a tunnel was excavated with gas-powered pneumatic drills through the mountain. On the 1,760-feet-high mountain's east side, pipes exited the tunnel and continue traveling downhill to Fairfax.

The tunnel is eight feet in diameter and 8,700 feet long, with a concrete lining six to 12 inches thick, and was an engineering marvel when it was built. Its capacity works out to be 3.2 million gallons.

Water currently stored in Pine Mountain Tunnel is later treated to meet all public safety standards at the water district's Bon Tempe Treatment Plant, located on the Mount Tam watershed, from where it flows to users in the Ross Valley. The necessity for tunnel closure and replacement is driven by the tunnel's deterioration due to age, along with the growing need to have a larger water supply in storage for day-to-day and emergency usage.

Leakage of water from the tunnel has been augmenting the flow of Carey Camp Creek, a tributary of San Anselmo Creek, and it will be interesting to see if closing this source affects creek conditions for fish.

A 2009 risk assessment of the tunnel revealed cracks, calcium deposits, holes in the wall, and groundwater infiltration. This deterioration led state regulators to require either removal of the facility from the system or its complete repair. In addition, a two-year Ross Valley water supply master plan, finalized in 2022, estimated that the water storage need was far greater than that available, partly because of heightened fire risk. The tunnel replacement tops a list of about two dozen major capital projects now in various stages to upgrade or replace aging district infrastructure.

Pine Mountain Tunnel and Ross Reservoir, on the side of Bald Hill, together comprise most of the Ross Valley's water storage. Ross Reservoir holds about one million gallons, a third of the tunnel's capacity.

Excavation and site preparation for the new tanks began this past fall. The project entails concrete foundation slabs, concrete walls and roofs, and site drainage facilities; steel pipes up to 30 inches in diameter; valves to connect each of the new tanks with the existing 30-inch pipe that follows Concrete Pipe Road; and perimeter fencing and motion-sensor lighting. Excavated spoils are being deposited near the Meadow Club, at Bullfrog Quarry and other already disturbed sites on district property.

The first phase of the project involves grading and the installation of a retaining wall in preparation for construction of the tanks. This work will continue through the end of January 2024, then pause through spring. The first phase is expected to be complete by the end of January 2025. Periodic road and trail closures and vehicle parking restrictions will be implemented during the construction.

No project-related activity is anticipated at the Pine Mountain Tunnel site, other than draining the tunnel when the replacement tanks are in use. At that time water will be moved from Pine Mountain to the new tanks. There has not been a decision about whether the tunnel could have another use or be filled in.

Major excavation is required to accommodate two new water tanks downhill from Sky Oaks Road. Photo by Gary Leo

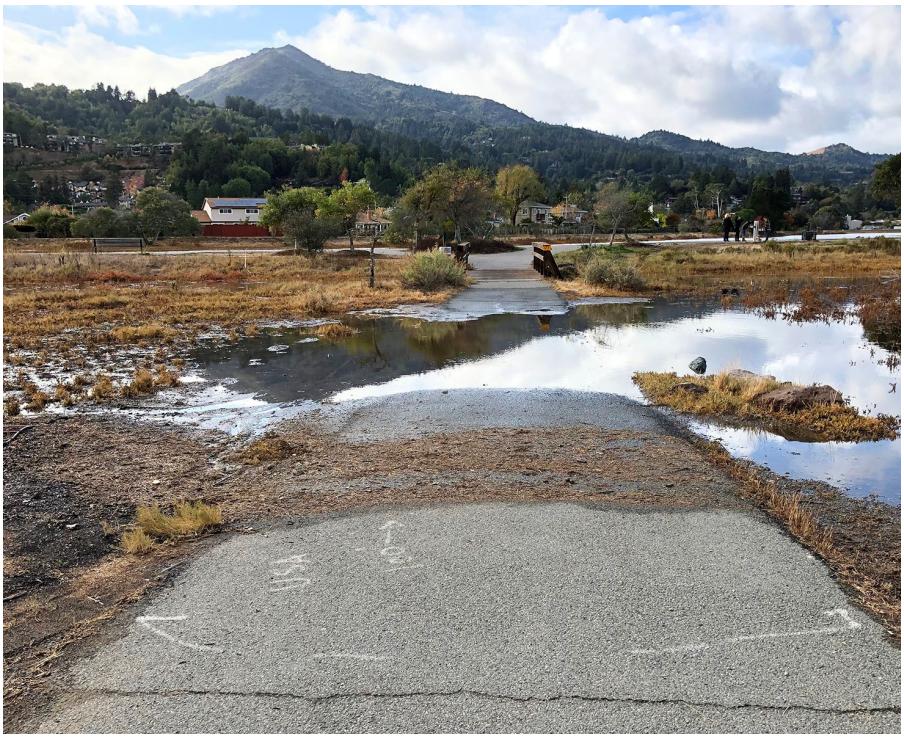
Dry Shortcut Planned

by Sandy Guldman

Walkers and bikers taking a shortcut across Creekside Marsh from Bon Air Road to the multi-use path (Route 20) along Corte Madera Creek are faced with a small lake at times of high tides. Although young kids love to ride their bikes through the puddle, most users prefer to stay dry. Fill cannot be added to raise the path because it would cover wetlands and further impair drainage southeast of the bridge where the path already traps saltwater. As the sitting saltwater dries, the soil becomes hypersaline and the marsh plants struggle. Another solution is needed.

After years of planning, Marin County Parks has final plans for a new bridge and boardwalk that will raise the path above the level of the tide and re-contour the area so that it drains properly underneath the pathway. Water quality in this part of the marsh, native plants, and users of the parks will all benefit.

The new pathway comprises a 120-foot-long prefabricated steel bridge at the southwest end and a 47-foot boardwalk at the northeast end, both with wooden decks. Cable railings will be used where the bridges are more than three feet above grade. The foundations of the existing bridge will be completely removed and the west entry to the new bridge will be completely out of tidal wetland.



A new, raised pathway will replace this frequently-inundated one in Hal Brown Park. Photo by Sandy Guldman

The project will go out for bid in January 2024. However, because prefabricated bridges take a long time to construct, it is likely that the installation will not occur until fall 2025. In the meantime, keep your galoshes handy!

Harbor Seal Meets Chinook Salmon

Salmon and steelhead are not the only animals that migrate up Corte Madera Creek when the fall and winter rains come. Robin Winning photographed this encounter between seal and Chinook in early November where Tamalpais Creek empties into Corte Madera Creek, just downstream of the concrete channel. A pair of Chinook was seen in San Anselmo Creek in early December.

Down in the Dumps

by Sandy Guldman

The unpleasant surprise of a trove of garbage in an area of Piper Park has halted work to create new marshland adjacent to Corte Madera Creek. Photo by Sandy Guldman

According to the book *Larkspur Past and Present*, the main part of Piper Park, established in 1971, had been an uncontrolled dump for several years. A former City Councilman is quoted as saying, "People brought… anything they wanted to get rid of and left it on the site."

Record-keeping was poor, and available maps did not show that the dump had extended into the far west side of Piper Park where the dog park was located.

Zooming forward 45 years, permits issued for construction of the new Bon Air Bridge required mitigation measures to both reduce impacts of the project and to compensate for lost habitat. Specifically, to compensate for the loss of tidal wetlands caused by the wider new bridge, the City of Larkspur agreed to develop a new dog park at Piper Park and create new tidal wetlands at the site of the existing dog park. A few borings were made on the site of the dog park and nothing unusual was encountered.

Unfortunately, excavation soon revealed that the mapping was incomlete and that the borings did not accurately represent what appeared: old tires and concrete rubble. At that point, the Marin County Health Department shut down construction, just in case the site was contaminated with hazardous material. This guaranteed that the project could not be completed by the end of October 2023.

The City consulted with the regulatory agencies and agreed that the site would be covered for winter to keep sediment from being washed into the marsh. A cap of Bay Mud that had already been delivered to the site, intended for use in the restoration, was placed on the excavated area. The extra Bay Mud is stored in a pile on the site and covered with a tarp. Although the bare dirt is supposed to be sown with seeds, as of late November 2023 that has not happened. Friends has requested that a native seed mix be used in the hydroseeding.

The marsh at Piper Park is breeding habitat for the endangered Ridgway's rail, so work cannot resume until September 1, 2024 when their breeding period ends. In the meantime, we expect that the site will have been evaluated. If a solution for disposal of the landfill of refuse can be agreed upon and the permits can be extended, then the marsh creation can resume in September 2024.

If the Piper Park site proves too challenging for the creation of new wetlands, then the City will have to locate another site. The Bon Air Bridge permits require that the compensation be implemented, even if the original plans prove unfeasible.

Piper Park Bioblitz

Friends' held its second successful bioblitz at Piper Park marsh in mid-October. Bioblitzes entail observing as many species as possible in a designated location and time frame, often by using the free iNaturalist app. Bioblitzes are a great way to engage the community in developing a sense of place by learning more about the local flora and fauna while generating scientific data. Around 20 attendees uploaded observations of 96 species. The Marin County Fish and Wildlife Commission funded a new educational booklet for attendees, highlighting common and charismatic marsh species. At left: parasitic dodder, photographed by Lorri Gong. At right: Redwood High School students Maya Mihara and Olivia Murphy photograph alkali bulrush. Photo by Alycia Matz

Calendar of Events

January–June 2024

Please check www.friendsofcortemaderacreek.org for updates.
Board meetings will be both in-person and via Zoom.

January	18	**Monthly Board Meeting**, Thursday, 7:00 p.m., 82 Camellia Circle, Larkspur
	27	Ring Mountain Grassland Restoration with Marin County Parks, Saturday, 10:00 a.m.–1:00 p.m. Join a drop-in workday to help restore native grasslands. We'll learn about the plants and animals that inhabit this unique place and the importance of volunteers. Activities include removing invasives, collecting seeds, installing tarps, or planting natives. Appropriate for ages 10 and older. Bring gloves and a water bottle. Adverse weather or poor air quality may cancel; if in doubt, text or call (415) 250-0941 two hours before the event to confirm the status. Questions: Contact Greg Reza at greza@marincounty.org.
	28	Planting at Hal Brown Park with Marin County Parks, Sunday, 9:00 a.m.– 2:00 p.m. Be a part of a successful 13-year community-based effort to restore habitat at a site once dominated by weeds and nonnative grasses—activities including weeding, planting, and more. Appropriate for ages 10 and older. We'll provide snacks and water. Bring gloves and a water bottle. No pets (except service dogs) are allowed. Adverse weather or poor air quality may cancel; if in doubt, text or call (415) 763-2977 two hours before the event to confirm the status. Registration is required. Questions: Contact Kirk Schroeder at kschroeder@marincounty.org.
February	15	**Monthly Board Meeting**, Thursday, 7:00 p.m., 82 Camellia Circle, Larkspur
	24	Ring Mountain Grassland Restoration with Marin County Parks, Saturday, 10:00 a.m.–1:00 p.m. See entry for January 27 for details.
March	21	**Monthly Board Meeting**, Thursday, 7:00 p.m., 82 Camellia Circle, Larkspur
April	18	**Monthly Board Meeting**, Thursday, 7:00 p.m., 82 Camellia Circle, Larkspur
May	16	**Monthly Board Meeting and Annual Meeting**, Thursday, 7:00 p.m., 82 Camellia Circle, Larkspur
June	20	**Monthly Board Meeting**, Thursday, 7:00 p.m., 82 Camellia Circle, Larkspur.

Check our website for events scheduled after publication of this newsletter. Our habitat restoration projects still need care. Please contact us to schedule individual or small group volunteer opportunities.

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

Thank You!

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

- Parker Pringle, who has installed and maintained temperature and DO loggers in the watershed since 2008
- Marin County Fish & Wildlife Commission for funding educational booklets used at bioblitzes
- The Coastal Conservancy for continuing to fund our participation in the Invasive Spartina Project and for working with us to obtain construction funding for the Lower COM Project
- The Town of San Anselmo for continued efforts to obtain funding for removal of the fish barrier on San Anselmo Creek at Saunders Avenue
- Marin County Parks for support of our work at Hal Brown Park by providing the very limited amount of water we use for irrigation and providing mulch and volunteers
- Ross Valley Sanitary District for support of our work at the Ecology Study Area by providing water we use for irrigation
- Other dedicated volunteers who make our activities possible, including removal of invasive plants, especially *Salsola soda*
- The many people who make financial contributions that allow us to continue our day-to-day work