

Ecologically Sound Practices Partnership: Community Collaboration Delivers for the Environment

by Mike Swezy

A first of its kind collaboration between Marin's fire agencies, environmental community and a diverse group of community stakeholders has delivered a new document that wisely guides implementation of wildfire protection measures in a way that can also protect and restore ecological health. The grassroots, informal collaboration termed the "Ecologically Sound Practices Partnership" (ESP) was launched in 2020 in conjunction with the formation of the Marin Wildfire Prevention Authority (MWPA). The MWPA, whose mission is to develop and implement a comprehensive wildfire prevention and emergency preparedness plan throughout most of Marin County, is funded by nearly \$20 million per year from the March 2020 voter-approved property tax Measure C. Marin Conservation League actively supported the measure, based on the opportunity to promote ecological health and environmental resiliency while planning and implementing wildfire prevention projects. (See ["Wildfire-action for climate and environmental resiliency"](#), MCL September/October 2020 newsletter).

Community Collaboration cont. pg 2

INSIDE THIS ISSUE

Marin Biodiversity Corridor Initiative	pg 3
Nature Note	pg 9
MCL New Directors	pg 11

2020 Woodward Fire Case Study: Examining the role of fire as an ecological process in a coastal California ecosystem



Photo: NPS/Michael Wasielewski

Woodward Fire Burn Mosaic, Oct. 6, 2020

Article by permission, Alison B. Forrestel, Chief of Natural Resources Management and Science - GGNRA, NPS

Record-breaking – in a word, that describes 2020 for California wildfires. As Fall 2021 approaches, what did land managers learn from last year? What was it like to make decisions on the ground as wildfire burned through the landscape? And did all of the 2020 fires fit the prevailing narrative of unprecedented destruction?

The Woodward Fire, which ignited in August 2020 and burned nearly 5,000 acres of Point Reyes National Seashore wilderness lands, provides a valuable counterpoint to the ecological devastation seen from many of the other 2020 California fires. The fire did not cause significant damage to human safety or structures, and presents a unique opportunity to observe

the effects of a mixed-severity fire on an ecologically rich patchwork of coastal California habitats. National Park Service ecologists reflect on the impacts of the Woodward Fire in a recent publication in [UC Berkeley's Park Stewardship Forum](#).

FIRE IN A COMPLEX ECOLOGICAL CONTEXT: POINT REYES FIRE REGIMES, THEN AND NOW

A unique combination of geology, hydrology, and climate shapes the varied habitats and ecological niches of Point Reyes. This patchwork of wild coastal beaches, headlands, bays, estuaries, and uplands hosts an incredible diversity of native plant and animal species,

Woodward Fire Case Study cont. pg 4

Fire and Water and a New World



My heart was broken this week when Greenville, California, the adopted hometown of my eldest daughter, was destroyed by the monster Dixie Fire. Soon after receiving that news, I watched the Marin Water Board struggle with the prospect of our community exhausting our supply of domestic water.

We are accustomed to thinking about climate change as a trend whose impact is decades out. With the recent spike in megafires in California we have had our noses rubbed in the very present reality that the impacts of the climate catastrophe are happening now.

A recent LA Times editorial takes it a step further: "There is no drought. If 'drought' means a period of dry years followed by a return to the norm, California is not in drought. The current climate is the norm." In other words, the climate has already changed, and the natural world is adjusting to it. The pregnant question is how are we humans going to adapt.

The forests in the Sierra that are burning, and our lush gardens here in Marin, were both sustained by a steady supply of water over the last century that no longer exists. We have faced past water supply shortages with an expectation that rainfall will return to average. Waiting for rain to return is not a strategy. Buying water elsewhere and piping it here may work in the short term but at what cost? Does building more reservoir capacity make any sense when we don't have enough rain to fill them?

We already have enough water to sustain Marin's populations if we stop using the estimated 40% of our drinking water supply to irrigate lawns and ornamentals. At the same time, we must reduce the vegetation that puts our homes at risk of burning in a wildfire. We need a radical makeover. Essentially, we can do the makeover ourselves or we can leave the work to an inevitable wildfire. Wildfire is like the banker collecting on the past due mortgage payment—it exacts a larger toll, and it will return. What happened in neighboring Sonoma and Napa County in the past few years can happen here.

There is hope. We can reduce the volume and arrangement of the vegetation in our yards. While we make our yards safer in the event of wildfire, we can replace what's there with native plants that are adapted to summer drought -- that use little water, support native pollinators and wildlife, and won't burn readily if properly maintained. Cash incentives to remove grass may move the needle, but we may need to outlaw lawns like we outlawed drunk driving.

To quote the LA times editorial: "We need to understand that the years of steady and predictable water flow are over, and there is no sign of them coming back in our lifetimes. This is it. We have to build, and grow, and legislate, and consume for the world as it is, not as we may remember it."

There is a growing recognition that we must work swiftly and at a large scale to create resilient and biologically rich landscapes in the face of a changing climate. We hope you will join us in supporting these efforts.

Mike Swezy

Community Collaboration Delivers for the Environment from page 1

AN EXTENSIVE EFFORT

An "[Ecologically Sound Practices for Vegetation Management](#)" (Practices) document was developed by three ESP committees focused on (1) vegetation management in open space lands near communities, (2) creation of defensible space around homes and commercial properties, and (3) vegetation management practices across all of Marin with an eye towards minimizing greenhouse gas emissions and sequestering carbon. Committees met from July 2020 through May 2021 in nearly 40 separate meetings. The early stages of the coalition were guided by a small group of Marin Conservation League members, members of California Native Plant Society, Marin Chapter, (CNPS) and local climate activists, working with key fire chiefs. Participants grew to include representatives of many environmental organizations as well as fire professionals,

public land managers, and other interested agency staff. The environmental community contributed expertise in wildlife, native plants, insects (pollinators), and gardening. The meetings featured invited subject-matter experts, lively debate and, on some issues, careful negotiations. In the end, the three committees wove their work into a single document that received consensus approval.

THE PRACTICES

Among many other wildfire protective activities, MWPA will fund selective vegetation removal in public open space lands next to neighborhoods in the wildland urban interface (WUI) and along yet-to-be-determined escape routes. Best practices for vegetation treatment in wildlands include long-term management of these sites for ecological health, and measures for monitoring MWPA-funded project sites to

"The ESP Partnership has facilitated bringing engaged members of the environmental and fire communities together to collaborate and work towards solutions that support healthy ecological practices and increasing wildfire preparedness and safety. The strength of the ESP Partnership is the drive to create solutions to the challenges we are presented with in today's wildfire environment."

**— Mark Brown Executive Officer
Marin Wildfire Prevention Authority**

evaluate efficacy and also ensure transparency and accountability.

Another focus of the ESP was to develop a guide for homeowners to create defensible space in zones around their homes. MWPA is

Loss of biodiversity and the new Marin Biodiversity Corridor Initiative

by Paul Da Silva

In these critical times, myriad environmental challenges make it difficult to know where to focus our attention. Earlier this year, the United Nations Environment Program (UNEP) helped to clarify the problem by identifying the three main global threats as climate change, pollution, and loss of biodiversity. Just a short time later, the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) released a report emphasizing that these threats are interrelated and must be addressed together rather than separately.

Unfortunately, not only is our environmental crisis, as a whole, being treated with the seriousness it should be, but also the individual global threats are not getting the recognition they deserve. In general, biodiversity loss is the one most likely to be neglected. This is probably because it is the most difficult to describe and also the one whose negative impacts on humans are less readily apparent.

Diversity is easy enough to comprehend in a general way. It is simply the opposite of uniformity. A more precise description of the diversity of life must consider its different components. The best-known of these is the number of species that occur in a community or ecosystem. Others include the functions and evolutionary histories of the species themselves, and the size, distribution, and genetic structure of the populations that compose them. Measurements of these components have revealed a shocking, steady loss of biodiversity, but it takes heightened alertness and awareness to appreciate the magnitude of what has been called a gradual and permanent "blinking out of lights" in place after place across the world.

This contrasts with the more obvious increases in temperature, sea level, and dirty air. It is difficult to find images of biodiversity loss as striking as those of raging fires, inundated coastlines, and masses of discarded plastic on land and in water. Yet the impacts of the loss of biodiversity are already having human



A Wildlife Food Desert? -- Doherty Drive, Larkspur

Photo: Paul da Silva

impacts. These include increased pest damage, loss of pollination, and disease epidemics. In a time when equity is receiving renewed attention, it is also significant that the areas most at risk are those where high human cultural diversity coincides with high diversity of other species.

ADDRESSING THE CAUSES OF SPECIES VULNERABILITY AND EXTINCTION

While scientific studies have revealed that they can interact in complex and sometimes unexpected ways, habitat loss, habitat fragmentation, shifting environmental conditions due to climate change, water and air pollution, and invasive species are repeatedly given as the driving factors of biodiversity loss. Obviously, efforts to curb or stop climate change and pollution as they affect humans will also benefit biodiversity. However, it is also essential to stop and hopefully even reverse habitat loss and fragmentation. Fortunately, recent efforts such as biologist E.O. Wilson and his "Half-Earth" idea, as well as California's recent "30 x 30" executive order, aim to slow or stop habitat loss and fragmentation by dramatically increasing the area of protected land and water in parks and preserves. This is part of

the venerable and logical "spare" approach to conservation, which tries to restrict the areas where most human activities are permitted in order to give living space to other species.

Another tendency is gaining ground among conservationists, however. This is to help other species not by excluding humans, but rather by harmonizing our activities with their needs. This has been termed the "share" approach. While the two strategies have sometimes been portrayed as being opposed to each other, the reality is that both can be complementary. Indeed, both are essential to the conservation of biodiversity.

HOW DOES THIS AFFECT US IN MARIN?

The most famous Marin conservation victories fall into the "spare" category. This makes perfect sense when we consider the historical threat of urbanization in our county. As a result, over half of our lands are protected in some way. But what about the other lands where most of the people live and work? Unfortunately, they are, to a large extent, vacuums of biodiversity. This is where the "share" strategy has great potential.

Biodiversity Corridor, cont. pg 7

Woodward Fire Case Study

from page 1

including species that are rare, federally listed, or endemic (found nowhere else.)

The fire history of Point Reyes and likewise its role in shaping the ecology of the region is extremely complex. Native peoples throughout California used fire to improve seed harvests and keep scrub and tree species from encroaching onto grasslands. But as development expanded and land-use strategies shifted in the early to middle 20th century, Native American burning ceased almost entirely. Fires in the modern era have been less frequent.

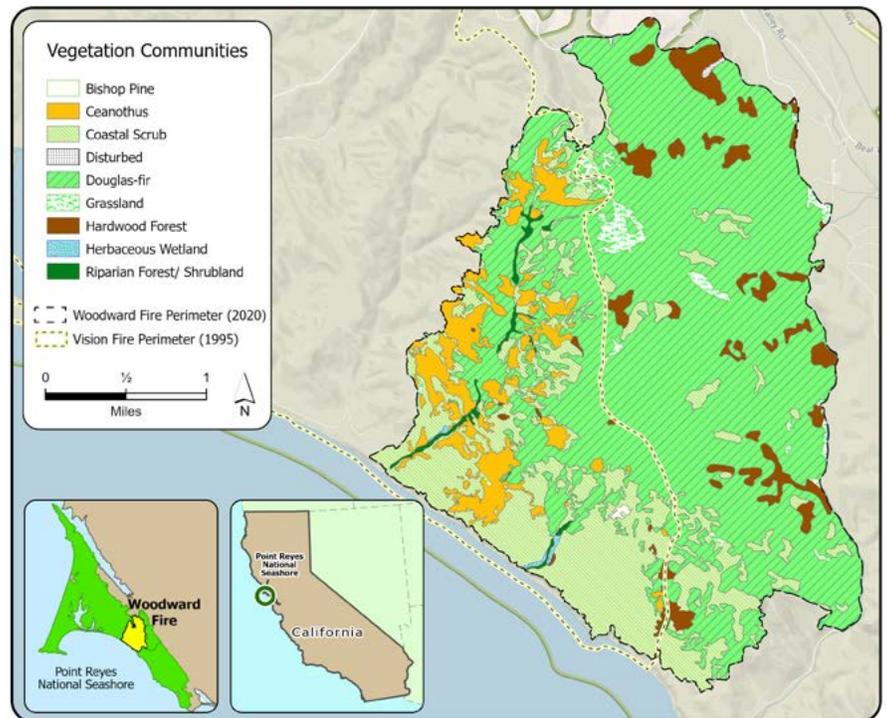
Still, much of the native vegetation at Point Reyes is adapted to tolerate or even require fire in order to persist. Several species of native chaparral scrub found at Point Reyes, including some manzanita and Ceanothus species, are obligate seeders: their seeds only germinate after exposure to heat or smoke from a wildfire. Other vegetation communities in the region are fire tolerant, with species that can regenerate following fire, but do not need it to reproduce. Periodic fire in these areas could have ecological benefits, including regenerating fire-following species, maintaining California native grassland habitats, and reducing surface fuels.

However, the park's proximity to homes and urban development limits the use of fire as a management tool. Thus the Woodward Fire poses a unique opportunity to better understand the impacts of fire in a region where it has been relatively infrequent since Native American burning.

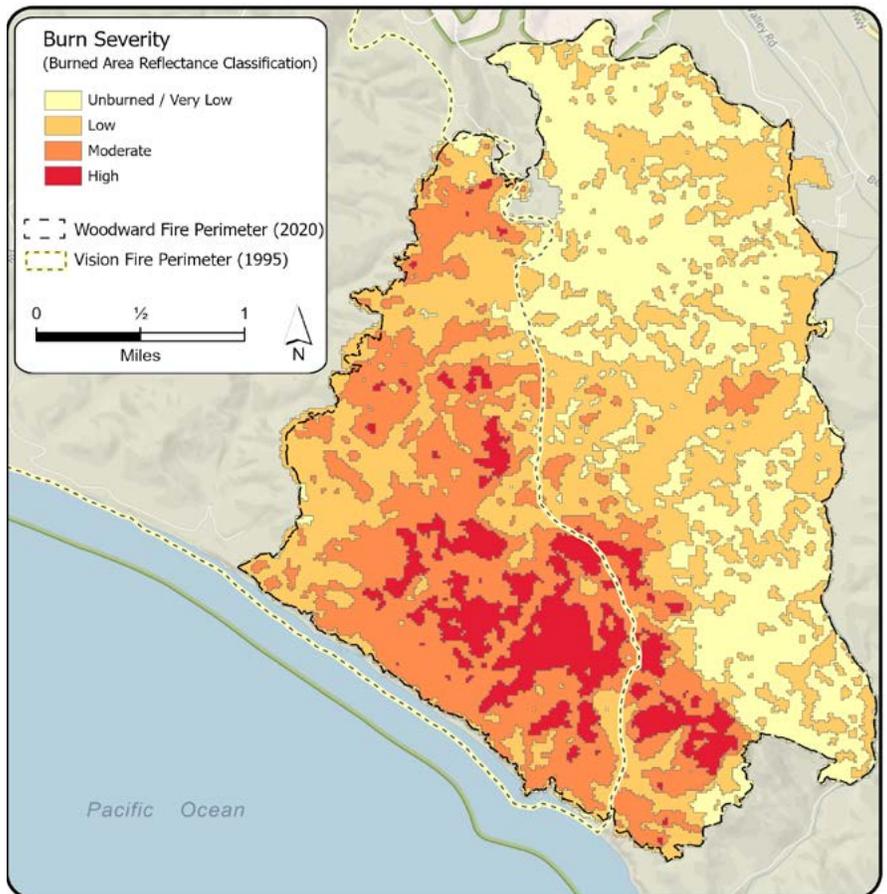
SPARKED BY AN UNUSUAL LIGHTNING STORM

The circumstances of the Woodward Fire were unusual for the region. The San Francisco Bay Area, along with many regions of California, experienced record-breaking high temperatures in August 2020. Thunderstorms and dry lightning swept across large portions of the state, sparking hundreds of wildfires. Many of these fires grew at a rapid pace due to dry vegetation and thinly stretched fire-fighting resources. At Point Reyes, the unusual weather pattern disrupted the fog—which is usually heavy in the summer—and shifted wind patterns. In addition, vegetation in the area was much drier than normal.

Lighting sparked two fires at Point Reyes National Seashore during the August 15–17 lightning event, which spread quickly and merged to become the Woodward Fire cont. next page



Woodward Fire location and vegetation in Douglas-fir (3,059 acres), coastal scrub (1,102 acres), and Ceanothus (366 acres) vegetation community types.



Woodward Fire burn severity. Park staff used Burned Area Reflectance Classification (BARC), a method using remote sensing data to compare different kinds of infrared reflectance of pre- and post-fire landscapes, to assess the severity of fire damage to vegetated areas. Burn severity was mapped as "high" (424 acres), "moderate" (1,230 acres), "low" (1,871 acres), and "unburned / very low" (1,486 acres).

Woodward Fire Case Study

from previous page

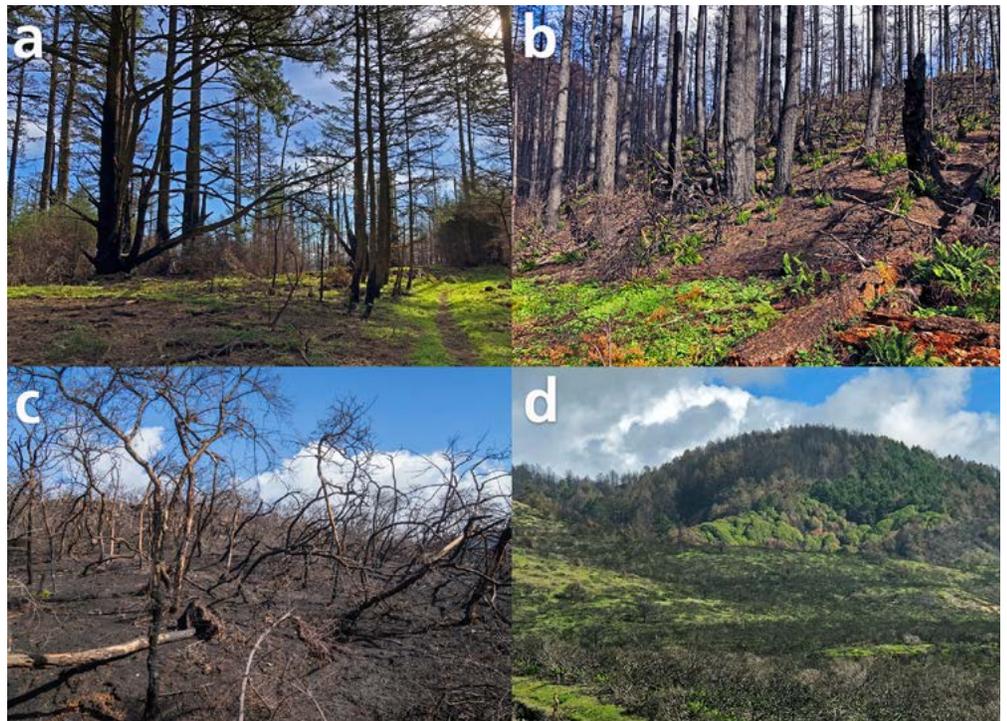
single larger Woodward Fire. Local firefighters worked to control the fire, but due to numerous fires elsewhere in the state, no air firefighting support was available during the initial days of fire spread. Based on the lack of available firefighting resources, the proximity of the fire to the neighboring communities, and the fact that the fire was burning through designated wilderness and sensitive natural and cultural resources, a Type I incident management team took over management of the Woodward Fire. This type of firefighting team is dispatched from the National Interagency Fire Center and includes highly-trained staff with a range of expertise from federal, state, local, and tribal entities.

Park staff collaborated with the firefighting team as they worked swiftly to control the fire, using strategic approaches to protect structures and to mitigate damage to the landscape from the firefighting operations themselves. After the initial period of rapid spread, much of the remaining growth of the fire occurred during burn-out operations, where firefighters set back fires from established containment lines. Evacuation orders and warnings for surrounding communities were lifted in early September, and the fire was declared contained on September 30 at 4,929 acres. Intermittent flare-ups and smoldering continued in the interior area of the fire until January 2021.

HOW ARE PARK ECOLOGISTS TRACKING THE EFFECTS OF FIRE ON THE LANDSCAPE, AND WHAT HAVE THEY OBSERVED SO FAR?

Park staff used remote sensing data to assess the severity of fire damage to vegetated areas. Most of the area of the Woodward Fire burned with low or moderate severity (*map, pg. 4, top*). The majority (67%) of the fire area was mapped as "unburned or low severity," 25% was mapped as "moderate severity," and only 8% was mapped as "high severity."

Most of the areas that burned with the highest severity occurred in the early days of the fire when it was spreading rapidly, primarily in habitat characterized by coastal scrub or *Ceanothus thyrsiflorus* (285 acres). These species, which are common in areas



Different levels of fire severity affected various plant communities across the landscape.

(a) Low severity, Douglas-fir forest. (Forrestal)

(b) Moderate severity, Douglas-fir forest. (Forrestal)

(c) High severity, *Ceanothus* scrub. (O'Gallagher)

(d) Heterogeneous patchwork of plant communities burned with varying fire severity. (Forrestal)

that previously burned in the [1995 Vision Fire](#) (*map, pg. 4, bottom*), are relatively well adapted to high-severity fire and are expected to regenerate quickly. Though biologists have not seen signs of *Ceanothus* regeneration yet, park managers will be watching to see if germination occurs in the second year post-fire.

In addition, some areas of Douglas-fir forest burned with high severity (135 acres). The canopy of these forests experienced significant damage. Based on similar areas that burned in the 1995 Vision Fire, some of these areas may eventually regenerate as new Douglas-fir forests, but the fire may cause shifts to coastal scrub or perhaps even trigger germination of a previously dormant seedbank of chaparral species such as *C. thyrsiflorus* or manzanita.

POTENTIAL WILDLIFE IMPACTS

The most significant wildlife impacts also likely occurred in the high-severity burn areas. It is likely that the [1995 Vision Fire wiped out a significant portion of the Point Reyes mountain beaver](#). Mountain beaver distribution, populations, and ecology are not well understood, but it is likely that additional

mortality occurred in the Woodward Fire. (More on mountain beaver in **Nature Note**, page 9.) The Woodward Fire also burned through several [northern spotted owl](#) territories. There were no known direct effects of the fire on individual spotted owls, with the fire occurring outside of nesting season and burning with low or moderate severity in owl habitat. But the long-term and indirect effects of the fire on northern spotted owls remain to be seen. Biologists will monitor both species post fire, including a [multi-agency comprehensive population study for northern spotted owls](#) to conduct acoustic monitoring throughout the burn footprint and other areas of the species' habitat in the region.

A large portion of the fire burned with low or moderate severity, particularly after the initial days of rapid spread and during burn-out operations. In these low-severity burn areas, fire crept through the ground cover with very little damage to the secondary canopy (primarily oaks and bay trees) and almost no impact to the upper canopy (primarily Douglas-fir; Figure 3a). These areas will remain shaded

Woodward Fire Case Study

from page 5

enough to provide valuable moisture retention and cover for wildlife, but the fire effectively reduced understory and surface fuels. Re-growth is already beginning, with ferns and huckleberry re-sprouting (Figure 3b). Because cover is still present in these areas and signs of regeneration are apparent, ecologists do not expect significant shifts in vegetation or wildlife activity in low-severity burn areas.

ROLE OF FIRE SUPPRESSION

In addition to the direct effects of the fire on the landscape, fire suppression efforts also had a large role in the overall ecological impact of the Woodward Fire. The policy at Point Reyes National Seashore is to suppress all unplanned ignitions due to the relatively small size of the park and the close proximity of homes and infrastructure. The Woodward Fire was burning within a few miles of the communities of Olema and Inverness Park, as well as neighborhoods on Inverness Ridge that were previously impacted by the Vision Fire. Because of this park policy and the location of the Woodward Fire, the fire was actively suppressed, in spite of the wilderness location and potential for ecological benefits. As part of the suppression efforts, 8.5 miles of bulldozer line were constructed, much in designated wilderness, 7.5 miles of handline were constructed, and more than 50,000 gallons of fire retardant were dropped across the landscape.

Park ecologists and resource advisors worked closely with the incident management teams to minimize the ecological impacts of these suppression actions. Bulldozer lines were kept to the minimum effective width (generally this was two blades wide; approximately 15–20 feet) and were located, when possible, in the same locations as bulldozer lines that had been installed as part of the Vision Fire suppression effort. The team avoided fire retardant drops over riparian (stream adjacent) areas in order to prevent harm to aquatic species. Resource advisors worked with incident management staff to avoid the spread of invasive species and impacts to rare species.

Although park staff carefully rehabilitated bulldozer lines and handlines after the fire,

long-term efforts to control invasive plant species in the fire footprint will be required. The spread of invasive species post-fire is of particular concern, especially around bulldozer lines, retardant drop sites, and in areas that burned with higher severity. Invasive plant species within the burn area before the fire include jubata grass, panic veldt grass, and ox-eye daisy. Park staff have already initiated monitoring plans for post-fire recovery and invasive plant management.

REFLECTING ON A UNIQUE OPPORTUNITY TO UNDERSTAND THE IMPACTS OF FIRE AT POINT REYES

The Woodward Fire presented an opportunity to return the important ecological process of fire to the Point Reyes landscape—something that would have been very challenging to accomplish at the same scale using prescribed burning given the extensive wildland-urban interface surrounding the park.

Based on the effects observed following the 1995 Vision Fire, the careful management of suppression impacts, and the overall mixed severity of the Woodward Fire, ecologists expect most of the vegetation communities burned in the Woodward Fire to regenerate well. Due to the rich ecology and complex fire history within the burn area, ecologists anticipate that various habitat types will recover from the fire differently, resulting in a more diverse network of habitats on the landscape. Post-fire re-growth will likely include shifts in vegetation types and the possible appearance of rare fire-following species (such as *Arctostaphylos virgata*, *Ceanothus masonii*, or *Crocantemum scoparium*) as well as reduced fuel loading.

However, the full ecological effects of the fire remain unknown. Many factors affect how the area will recover, including weather for the next few seasons, availability of seed sources, and impacts of invasive species. In particular, the 2021 water year was unusually dry, with Marin County receiving less than 40% of average rainfall. This may negatively affect vegetation regeneration. In addition, major disturbances like wildfires can themselves cause climate-related shifts. Park staff will be tracking whether detrimental changes, such as vegetation failing to regenerate, a loss of sensitive species or habitats, or a shift towards non-native invasive species occur.

With the complexities of climate change, longer fire seasons, and more frequent and larger fires on the horizon, learnings from the Woodward fire have inspired managers to consider the role fire can safely play in stewarding some of California's last remaining native coastal habitats. The challenge remains of how to balance the potential ecological benefits of fire with the political realities of managing wildlands in close proximity to residential communities and urban development. 🌿

MCL is grateful for permission to share this edited version of the 2020 Woodward Fire Case Study published in Berkeley's Park Stewardship Forum earlier this year.

Edited for MCL's use by Maritte J. O'Gallagher, Science Communications Assistant - Golden Gate National Recreation Area (GGNRA), National Park Service (NPS)

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MARIN WATER WATCH Continue to Conserve!

MMWD

Week ending 8/22/2021

Water Production: 21.88 avg million gal/day
Reservoir Water Storage: 30,658 acre feet
Percent of Capacity: 39%

Same Week in 2020

Water Production: 33.56 avg million gal/day
Reservoir Water Storage: 57,056 acre feet
Percent of Capacity: 72%

Average for this Date

Reservoir Water Storage: 60,223 acre feet
Percent of Capacity: 76%

Current water production is 65% of production for same week last year. Current storage is 51% of average storage for this date.

NMWD

Week ending 8/22/2021

Water Production: 5.85 avg million gal/day
Lake Water Storage: 489 million gal
Percent of Capacity: 35%

Same Week in 2020

Water Production: 10.64 avg million gal/day

Current water production is 55% of production for same week last year. Quantity available for delivery is 99 million gallons, which is 390 million gallons less than lake storage.

Fiscal YTD Rainfall 7/1/21 – 8/22/21 = 0"

Marin Biodiversity Corridor Initiative *from page 3*

Our modern environmental meltdown is often ascribed to the pervasive loss of multiple intimate connections that once existed among humans and the other species around them. People still can get to know some of these species by visiting protected lands. However, they can also support a voluntary conservation and restoration of these other species in the places where most of the humans live and work. This approach has the advantage of reducing both fragmentation of habitat and the separation of humans from their natural environment. It can enhance important ecological and psychological functions by rebuilding lost webs of relationships, one link at a time.

THE MARIN BIODIVERSITY CORRIDOR INITIATIVE

Thinking about this approach has led to a new concept – the Marin Biodiversity Corridor Initiative (MBCI). This could be a very local solution to an important global problem. The Initiative has several complementary objectives. These are:

1. Raising awareness of biodiversity among public agencies and private institutions by encouraging adoption of goals and policies promoting local biodiversity enhancement and restoration.
2. Supporting new on-the-ground projects of local biodiversity enhancement and restoration through sharing of information and other resources. Projects could include restoring local degraded vacant lots, improving existing public and commercial spaces, enhancing ephemeral or other creeks, or using the gardens of willing homeowners as demonstrations.
3. Maintaining a database and map to record the success of local restoration and enhancement efforts.
4. Engaging the public in understanding local biodiversity through educational and cultural activities and other experiences.

Key to understanding the implementation of MBCI is a basic ecological observation that



TOP: Diversity comes to a thoroughfare – University Avenue, Berkeley; and a bird that needs insects – Oak Titmouse



BOTTOM: Diversity arrives downtown – Magnolia Avenue, Larkspur; and a specialist chewer – Manzanita Looper



Photos: Paul da Silva, except Oak titmouse: Alan Vernon (Wikimedia Commons)

is often forgotten. This is that the vast majority of species in the world are specialists in feeding or other preferences. This contrasts with generalists, such as humans, Norway rats, Argentine ants, French broom, and many other very visible species, which show incredible ranges of tolerance and adaptability. Specialists, though very restricted in where they can live, tend to be very efficient at doing what they do under their preferred conditions. Specialist species thus not only make up most of biodiversity, but also support the stability and efficiency of the biosphere. These should be the aim of restoration.

WHAT THIS MEANS PRACTICALLY AND LOCALLY

Fundamental to the success of this initiative is the need to increase the native plant species and other habitat resources that are available to support our local native insect species, which in turn are the basis for sustaining our native bird species, and so on up the food chains and around the food webs. Information about links among particular species can be found in many places, but the most impressive evidence for what we need to do has been assembled by entomologist Doug Tallamy. He quantified the bioenergetics

Community Collaboration Delivers for the Environment *from page 2*

funding higher levels of home evaluation and wildfire mitigation assessments as well as increased public education for homeowners and businesses to improve their near-structure wildfire safety, i.e., defensible space. ESP participants saw this issue as a potential means for increasing biodiversity across Marin communities by educating homeowners to replace unmanaged, fire-prone yards with native plants. A guiding vision was a fire-smart, biologically diverse, and low water-use native plant garden in everybody's backyard!

Finally, the Partnership developed a wide-ranging set of practices for homeowners, fire service, and large landowners to address greenhouse gas implications associated with large-scale wildfire fuel reduction work. Practices include finding opportunities for carbon sequestration, such as maintaining mature trees and soil carbon, and better utilizing the removed biomass, such as for compost or energy. Such practices would also serve to educate the public about climate change in general.

UNEXPECTED BENEFITS

The deep, issue-focused discussions during the preparation of the Practices produced other positive outcomes. Public education organizations, such as FIREsafe MARIN (FSM) and Marin Master Gardeners, began to incorporate fire and environment-smart



Belle Cole, MCL member and chair of Organizing for Action Marin, has worked tirelessly to move the ESP Partnership forward.

best practices in their websites and printed materials. FSM produced a webinar entitled "Supporting Biodiversity and Pollinators in a Fire-smart Garden." ESP members were invited to present at the initial training programs for defensible space home evaluators and wildfire mitigation specialists. The Marin Chapter of the California Native Plant Society produced an online guide that featured native plants suggested to replace species called out as "fire hazards" in local fire codes such as those in Mill Valley or San Rafael. Above all, the collaboration has led to sharing of values between environmentalists and fire professionals.

NEXT STEPS

The MWPA is considering formally adopting the Practices document as a guide for all member fire agencies in their project implementation. In the short term, the Authority has adopted a large number of specific recommendations as part of their operational framework. For the near term, the ESP Partnership will focus its efforts on monitoring key projects

"We are pleased with the level of cooperation and open communication between fire officials and environmental groups that produced the Ecologically Sound Practices for Vegetation Management. The unique biodiversity of Marin County has been recognized as a UNESCO Biosphere Reserve. This document provides a roadmap for protecting our amazing variety of native plants and plant communities while acting to reduce wildfire risk."

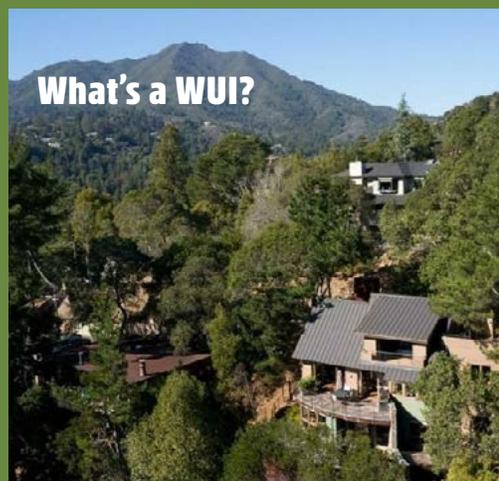
**— Dave Long
Co-President Marin Chapter
California Native Plant Society**

and convening discussion around MWPA priority initiatives, such as prescribed burning and increased public education. The ESP can also serve as an expert subject-matter advisory clearing house both for the work on-the-ground and for developing educational programs around wildfire prevention and ecological health directed to residents, fire agency staff, landscape design and maintenance professionals, and landscape workers.

MARIN CONSERVATION LEAGUE WILDFIRE POLICY

At the time ESP Partnership conversations were ongoing, MCL's Fire and Environment Working Group adopted a policy titled "[Marin Conservation League Policies for Vegetation Management to Reduce Wildfire Risk](#)". Although it is largely consistent with ESP Practices, it includes policies about reducing fuels and creating forest structure for biological goals, use of prescribed fire, standards for long term monitoring of vegetation management treatments and public education. This policy is intended to guide MCL as it considers public positions and advocacy related to future community-based wildfire risk reduction programs and projects and seeks to provide guidance on how to avoid impacts to natural resource values. 🌿

The Wildland-Urban Interface (WUI) is a zone of transition between undeveloped wildlands and human development, specifically the area where houses meet or intermingle with undeveloped wild vegetation. Communities in the WUI are generally at a greater risk of exposure to wildfires. In Marin, WUI is a political boundary and designation adopted by local and county jurisdictions based on input from fire agencies and GIS analysis to determine the communities and locations that meet this definition. In Marin, all structures in the WUI and/or State Responsibility Areas are required by law to maintain defensible space.



Woodward Fire Kickstarts Monitoring of the Point Reyes Mountain Beaver

by Maritte J. O'Gallagher,
Science Communications Asst., GGNRA, NPS

The 2020 Woodward Fire has created a unique opportunity for biologists to investigate an elusive and mysterious mammal population: Point Reyes mountain beavers (*Aplodontia rufa phaea*).

Mammals are notoriously hard to study, and the Point Reyes Mountain Beaver is no different. But fire has revealed some clues. In some areas, fire burned off the top layer of soil, exposing complex networks of tunnels two or three inches under the ground. Biologists are applying this 'x-ray' vision of mountain beaver habitat to locate active burrows in unburned areas.

A PRIMORDIAL PART OF THE POINT REYES FOOD WEB

Biologists call mountain beavers 'primitive rodents' because they are the last species left of the ancient family *Aplodontidae*, which split off from other rodents by the late Eocene. They look pretty different from gophers, rats, and other contemporary rodents. While other rodents evolved adaptations to efficiently conserve water, the moisture-rich vegetation available at Point Reyes allowed mountain beavers to persist with a simpler kidney system. As such, mountain beavers can only survive in areas near water or with extensive summer fog along the Pacific coast. The subspecies of mountain beaver found at Point Reyes is endemic to the area—found nowhere else. They have co-evolved with Point Reyes flora and fauna, acting as food for mesocarnivores like coyotes, foxes, and spotted owls, and shaping habitat by creating burrows, turning over soils, and converting the plants they eat into nutrient-rich pellets.

Mountain beavers do not travel far from their burrows, so if their habitat changes, they likely won't find a new home. With the climate changing and seeps like those found at Point Reyes becoming drier, mountain beavers are found in fewer and fewer areas. [Data](#)



Mountain beavers are an unusual and primitive species of rodent. They are about the size of a muskrat, 10–12 inches (27–30 cm) long.

[collected 10 years after the Point Reyes Vision Fire](#) indicate that the mountain beaver population in the burned area had only recovered to half their previous numbers.

FIRE AFTERMATH PROVIDES CLUES FOR TRACKING AN ELUSIVE MAMMAL

Post-Woodward fire, biologists are looking for empty burrows within the burn footprint. Unfortunately, it's unlikely that these small animals got out of the fire alive.

Biologists hope that finding empty burrows in the burned area will help them find active burrows in the unburned area. But so far, the unburned habitat has proved extremely difficult to navigate. Mountain beavers favor vegetation cover so thick that you can barely walk through it, and biologists will have to look for burrows square foot by square foot.

Despite the challenge, seeing where burrows are in the burned areas has revealed recurring patterns in the kind of vegetation and topography around burrow sites. For example, mountain beavers prefer areas with certain plant species, like sword ferns and salmon berry.

Biologists will use data from these surveys to determine how the population may have recovered after the Mt. Vision and Woodward Fires. Ultimately, they hope to create a 'habitat suitability model' that will help natural resources staff and park managers collaborate to avoid damaging areas that mountain beavers may be using as habitat.

For more information:
[Pacific Coast Science & Learning Center Mountain Beavers webpage](#)
[Point Reyes National Seashore Mountain Beaver webpage](#)

Biodiversity Corridor

from page 7

of different links in the webs and concluded that once the proportion of native plants falls below 70% by volume in any landscape, the local biodiversity plummets.

Alas, the proportion of native plants in most of our urban and suburban Marin landscapes is far below this total, with 5% being typical of most districts, and with the lowest percentages often in the poorest neighborhoods. Some cities and towns have no native species at all on their recommended planting lists. Thus, much of our landscaping is now a "food desert" for most native wildlife. And most people are not aware of what has been lost.

But we can change this! Projects already inventoried by MBCI are living proof. The drought and the need to create defensible space around homes give added opportunities to replace existing ornamentals with drought-resistant natives. We have many local resources to help. Groups such as the [Xerces Society](#), the [California Native Plant Society](#), and the [Marin Master Gardeners](#) have prepared materials expressly to aid in this effort.

Whether you want to transform your own land, seek to help projects already started, or are interested in influencing local policy, now is the time to plan so that our county can take advantage of future rains to green itself in a new and important way. 🌱

Paul da Silva is a Marin ecologist, educator, and environmentalist. He holds a MS in resource management and a PhD in entomology. He taught biology, natural history, and environmental science at the College of Marin (COM) for 23 years before retiring and was elected to the COM Board of Trustees in 2020. Paul is one of the original organizers of MBCI and he recalls he was first introduced to MCL in 1971. (50 years ago!)

SEPTEMBER 7 IS CALIFORNIA BIODIVERSITY DAY!

Details of events for 2021 can be found at:
<https://resources.ca.gov/biodiversityday2021>

MEASURE A

OUR LOCAL TAX DOLLARS AT WORK – YOUR INPUT WILL MAKE A DIFFERENCE!

MEASURE A, the Marin Parks, Open Space, and Farmland Preservation Transactions and Use Tax Ordinance of 2012, will expire at the end of March. An extension of Measure A is anticipated to be on the June 2022 ballot.

For the past 9 years, the quarter-cent (1/4¢) sales tax has supported the management of 16,000 acres of county parks and open space by funding maintenance, vegetation management and fuels reduction, habitat protection and restoration, and trail improvements. In addition, it has funded land acquisition, city parks and open space improvements, recreation and community programs, and provided support for local agricultural lands.

The County has released a community survey to “ensure priorities and budget allocations remain relevant and aligned with community wants and needs.” Please take 10 minutes to weigh in on future priorities for Measure A funding.

<https://www.marincountyparks.org/projectsplans/2021-community-survey>

The survey will close **September 13**. Results will be shared with the community and reported to the Parks and Open Space Commission and the Board of Supervisors this Fall.

September is California Coastal Cleanup Month!

SEPTEMBER 18 IS COASTAL CLEANUP DAY!

It's the time of year, as together we prepare (and hope!) for winter storms, that we pick up trash to prevent it from flowing through our watersheds—into storm drains, creeks, marshes, along shorelines and ultimately out to the magnificent San Francisco Bay, Pacific Ocean and beyond.

MCL will host its two annual cleanup locations.

NOVATO CREEK–WARNER CREEK–SCOTTSDALE POND

TIME: 9 am – noon

INSTRUCTIONS: Meet at 9 am at the Scottsdale Pond Gazebo on Redwood Blvd at Rowland in Novato. Bring other volunteers!

SITE CAPTAIN: Susan Stompe

FOR MORE INFO OR TO REGISTER: Contact Susan at ssstompe@aol.com

SAUSALITO WATERFRONT–BAY MODEL VISITOR CENTER

TIME: 9 am – noon

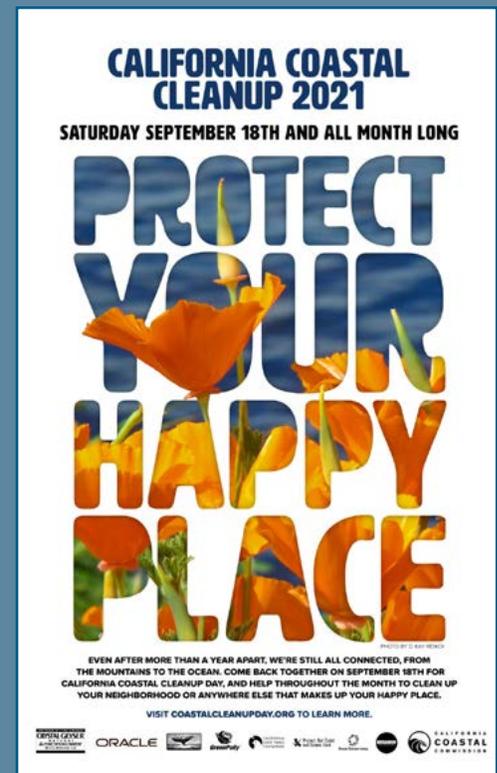
INSTRUCTIONS: Meet at 9 am at the Bay Model, 2100 Bridgeway Blvd, Sausalito.

SITE CAPTAIN: Vicki Nichols

FOR MORE INFO OR TO REGISTER: Contact Vicki at subvw1@gmail.com

Please bring a bucket or reusable bag and reusable gloves, if you have them, and a refillable water bottle. Site captains will also have supplies on hand. For more information and to fill out a Waiver Form before you reach your site, visit the [Bay Model's Coastal Cleanup webpage](#).

Join us and others in California and around the world on **September 18!** “And help **throughout the month** to clean up your neighborhood or anywhere else that makes up your happy place.”



LEAVE YOUR MARK ON THE FUTURE OF MCL



Start Being Remembered Today

Do you want to make a significant donation or gift that will ensure the good work of the Marin Conservation League now and into the future?

You can do it today – with a donation or a gift to the **LEGACY OF THE LAND ENDOWMENT**.

Interested?

Contact us or visit our website for more information.

www.conservationleague.org/images/WaysToGive/WaystoGive.pdf

Richard Jensen, Treasurer
Marin Conservation League
175 N. Redwood Dr., Ste. 135
San Rafael, CA 94903

MCL New Director Profiles



MADELINE KELLNER

Madeline grew up in Berkeley and spent her early years enjoying nature in Inverness. Fast forward to 1993 when she and her family moved to Novato to take an administrator position at Kaiser Santa Rosa. In addition to a 12-year career with Kaiser, Madeline served as Marin County Health Services Director and as Executive Director of the In-Home Supportive Services Public Authority of Marin. She has served on two non-profit boards in Marin: 10,000 Degrees and Homeward Bound of Marin.

Madeline was elected to the Novato City Council, 2007-2015, serving as mayor in 2011. She served on the Marin Transit, Transportation Authority of Marin (TAM), and Sonoma Marin Area Rail Transit (SMART) boards and on the board of the League of California Cities.

More recently, Madeline and husband Clint served as Peace Corps volunteers in Guatemala, 2016-2018, and in the Amazon of Peru in 2020. Madeline serves on the NorCal Peace Corps Association board.

Madeline and husband Clint, a biologist and environmental consultant, hike in the local open space daily. She has a strong interest in making the outdoors accessible to the community while maintaining the natural integrity of the land.



PAUL JENSEN

After 40+ years as a City Planner, Paul retired earlier this year. His interest in pursuing the city planning profession was influenced by the 1973 Marin Countywide Plan, which balanced the protection of open space and agricultural land by concentrating growth along the urban (US 101) corridor. His career in city planning started with the City of San Rafael in 1980 and included owning and operating a planning consultant business specializing in development project management, environmental review, and policy writing for Bay Area cities. During the last 10 years, Paul served as the City of San Rafael's Community Development Director. (See MCL interview with Paul, page 8, in [Nov-Dec 2020 newsletter](#).)

Paul's philosophy about planning for our future is about balance. He believes that balancing environmental protection with community needs such as housing and commerce is necessary for a healthy future. He also sees that the lens of climate change must be considered in our actions as Marin County is vulnerable to increased fire hazard and flooding, as well as sea level rise.

Paul is a native San Franciscan and has lived in Marin County since 1980. He has been a member of MCL for 30 years. He holds a BA in Geography/Urban Planning and an American Institute of Certified Planner (AICP) certification.

**MARIN CONSERVATION LEAGUE
BOARD OF DIRECTORS**

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Board of Directors meetings are held at 6:00 PM on the 3rd Tuesday of the month.

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Issue Committee Meeting Schedule
(subject to change—check website)

Land Use and Transportation:
1st Wed. of the month, 10:00 AM—12:00 PM

Parks and Open Space:
2nd Thurs. of the month, 3:00 PM—5:00 PM

Fire and Environment Working Group:
2nd Mon. of the month, 3:00 PM—5:00 PM

Climate Action Working Group:
3rd Fri. of the month, 9:00 AM—11:00 AM

Agricultural Land Use:
Meets quarterly, 4th Fri. of the month,
9:30—11:30 AM

North Marin Unit:
Check website for times

Marin Conservation League was founded in 1934 to preserve, protect and enhance Marin County's natural assets. MCL is a non-profit 501(c)3 organization. All contributions and memberships are tax-deductible to the extent allowed by law.

Editor: Kate Powers

Design & Production: Kiki La Porta

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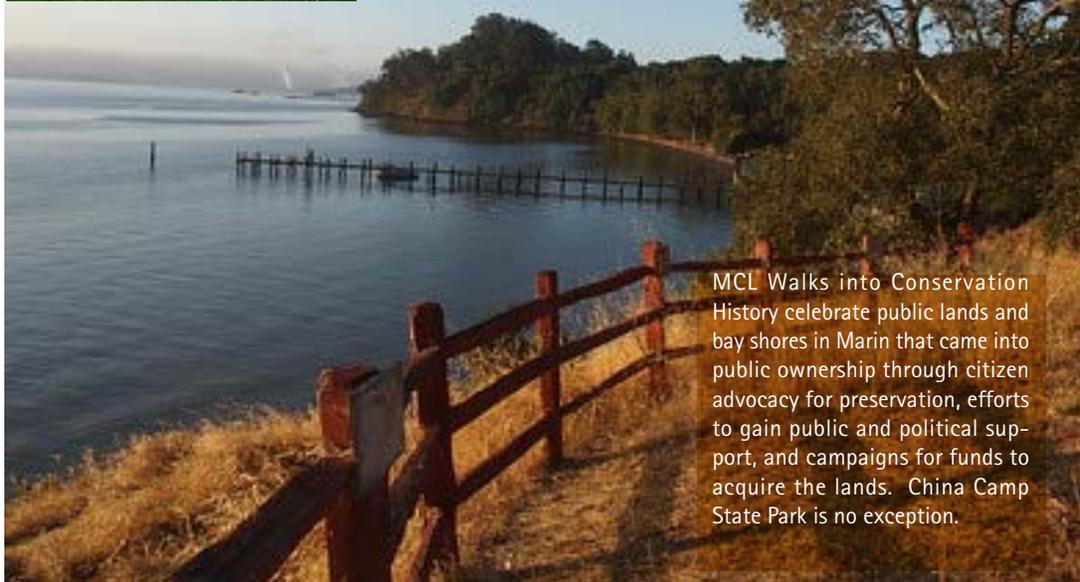
MCL WALKS INTO CONSERVATION HISTORY RESUME!

Join us: China Camp State Park

REGISTRATION AND HIKE DETAILS COMING SOON



SEPT 25
2021 9:30 am – 1 pm



MCL Walks into Conservation History celebrate public lands and bay shores in Marin that came into public ownership through citizen advocacy for preservation, efforts to gain public and political support, and campaigns for funds to acquire the lands. China Camp State Park is no exception.