Journal

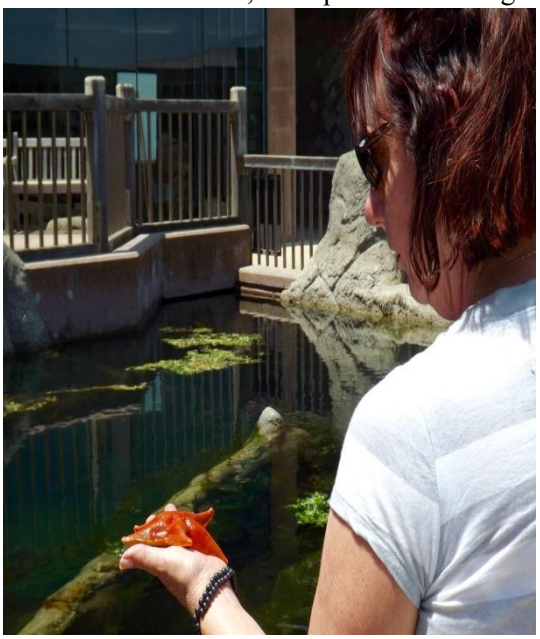
Bodega Land Trust

"... When we see land as a community to which we belong, we may begin to use it with love and respect." ... *Aldo Leopold (1886-1948), American Forester*

On Sept. 17, 2016 the Bodega Bay Marine Lab celebrated its 50 anniversary. We congratulate them and wish them continued success as they enter their second half-century.

Science with a view: a day at the Bodega Marine Laboratory with Ellie Fairbairn

In June 2015, supporters of the Bodega Land Trust (BLT) joined Ellie Fairbairn, a scientist at the Bodega Marine Laboratory (BML) and former BLT board member, to explore the Bodega Marine Laboratory. The lab is situated on the 362 acre Bodega Marine Reserve, which provides protected land for research and teaching, and is part of the UC Natural Reserve System. BLT visitors ventured outdoors for a bluff-top walk on the trails of the Reserve and were introduced to the wide variety of coastal habitats the Reserve boasts, from sandy beaches, extensive lagoon mudflats and tidal saltmarsh to sand dunes, coastal bluffs, coastal prairie and freshwater wetlands. Indoors, visitors received a behind-the-scenes tour of the facility, including world-class research spaces and the wet labs where marine animals are housed. Visitors learned about the fish and invertebrates that inhabit the tide pools and waters of our coast, and got to hold spiky red and purple sea urchins, leathery sea stars, and slippery worms. They also heard about current research at BML, from the efforts to save the endangered white abalone, to the impacts of ocean acidification on oysters in Tomales Bay, to the effects of the Cosco Busan oil spill on herring in San Francisco Bay.



Batstar Photo: James Fitzgerald

The UC Davis Bodega Marine Laboratory is celebrating its 50th anniversary this year! The lab officially opened its doors in 1966, but coastal scientists had been drawn to the Sonoma Coast for research and teaching for many decades before that. Since 1966 the lab has expanded, and its location on California's north coast has continued to shape the research questions addressed by BML scientists. Although the coast in Bodega Bay is still known for its relatively unspoiled beauty, valuable fisheries, and extraordinarily diverse and productive marine ecosystems, the

(see page 11)

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A Message from the President

CLIMATE CHANGE

The basic mission of Bodega Land Trust, like all land trusts, is to protect and improve our environment. Therefore we are deeply concerned with climate change and the threat it poses to the landscapes for which we care. Decades from now, we cannot be sure that the redwoods will still stand in the Salmon Creek watershed; we cannot be sure that our beaches will not be submerged.


Don Sherer

At a meeting in Paris in early December almost every nation in the world made specific commitments to reduce their greenhouse gas emissions to combat global warming. The agreement was hailed as a great step forward. It is an important and welcome development. But we have to understand that it is still limited and inadequate.

1. The Paris Agreement provides no penalties for a nation that fails to meet its commitment since the stated commitments are all voluntary.

2. The Paris Agreement has no enforcement mechanism.

3. Even if every nation meets its commitment to reduce greenhouse gases, it is very doubtful that the stated goal of limiting the world temperature rise to 2 degrees Celsius can be achieved. The two-degree target is central to international attempts to stave off the worst consequences of global warming.

We cannot relax. Everyone who cares about the environment must continue to push for more effective action in the face of climate change. Tell our politicians that America must not only fulfill the commitments made in Paris, it must exceed them.

Usually it is best for a non-profit land trust to refrain from public comment on a national election. However we are now faced with an alarming situation: a major party candidate who advocates eliminating the Environmental Protection Agency, weakening the laws that protect our water and air, and withdrawing from the Paris agreement on climate change. Bodega Land Trust is an organization devoted to protecting the environment. It cannot remain neutral.

It is very very unlikely that California, as a state, will support such extreme anti-environmental positions. The significant electoral contests will occur in other states. Therefore, attempts to assist pro-environmental propositions or candidates are best directed outside California. One organization that deserves consideration because it focuses its efforts completely on the environment is the League of Conservation Voters. They are doing everything they can to make sure that candidates who care about the environment will be elected, and they have been focused and effective. At this juncture in our history the future health of our environment may depend on their success.

Our mission

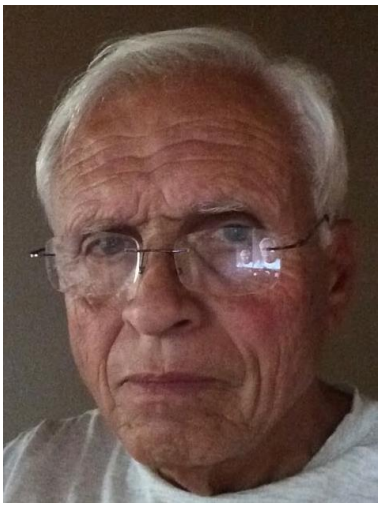
Our primary purpose is the conservation of land and its communities, especially in the Salmon Creek watershed. Our main tools are conservation easements and education.

We have a total of 12 easements including two in the Atascadero watershed.

The heart of our educational program is our annual Walks and Talks series. The Walks allow participants to become intimately involved with some aspect of the watershed. The Talks are by experts in their fields and allow for questions and personal observations.

We are very pleased to introduce our new board member

Robert Fink



After graduation in Electrical Engineering at Georgia Institute of Technology in 1963, Bob spent 40 years in the computer field, first as a development engineer in the supercomputing field during the early 1960's, then at Lawrence Berkeley National Laboratory as a computer scientist working on research and development in the computer networking and Internet fields. Upon retiring in 2003 he and his wife Penny moved to Truckee where they participated in local environmental activities with the Truckee Donner Land Trust and Truckee River Watershed Council, as well as other local social issues such as community gardens, food for the homeless, and those disadvantaged by the great recession. Now living in the Occidental area since 2013, Bob and Penny built a new home on Fitzpatrick Lane at Joy Road where they extensively garden, and Bob continues to work on environmental issues.

Sadly, we must say goodbye to our board member **Rhen Benson**, architect and photographer, who has moved to Port Townsend, WA. His creative energy and good advice over the past years have been much appreciated. We wish him well in his new life.

For two of Rhen's photos please see p. 9.

BLT'S NEW ADVISORY COUNCIL

Carl Blanco
Website administrator

Alastair Bleifuss
Director, Santa Rosa Creek Stewardship Program, former BLT Board member

Ann Cassidy
Board member, Gold Ridge Resource Conservation District

Ellie Fairbairn
Post-Doctoral Research Fellow, Bodega Bay Marine Lab; BLT Walks & Talks; former BLT Board member

Hazel Flett
Shepard; BLT Walks & Talks Program; BLT Journal editor

Eric Koenigshofer
Former Chair, Sonoma County Board of Supervisors, former BLT Board member

Allison Pharis
Real Estate Broker

Robin Rudderow
President, Rancho Bodega Historical Society; lawyer

Subir Sandyal
Mycologist; chef

Sandy Sharp
Treasurer; Journal editor and layout; former Board member

David Shatkin
President, Salmon Creek Watershed Council

Nick Tipon
Native American educator

We have long been aware of the importance of forests for the sequestration of carbon, but it turns out that grass land can sequester even more carbon that forests due to the deep, intense root structure. The following article is reprinted from the fall 2015 issue of Edible Marin and Wine Country with gracious permission from the author and from Gibson Thomas, the publisher.

Hope Under Our Feet: Farming Carbon for the Future

By Katy Mamen

When I first moved to Sonoma County over a decade ago, I didn't give much thought to the knuckles of golden hills rising on either side as I drove home up the 101 corridor and through Two Rock Valley. These parched hills struck me as barren, idle space. But where some people see emptiness, others see gold.

In 2007, a small group of agriculturists sensed great potential in "them thar hills"—not to strike it rich, but with a much more noble and grand goal: reversing climate change. Guided by the question "How can agriculture engage proactively in the climate crisis?" the Marin Carbon Project was born. It quickly became a forerunner in demonstrating how agricultural soils can scrub carbon out of the atmosphere and store it away in the soil, reducing the concentration of the greenhouse gas carbon dioxide. The fact is, the world's soils are perhaps the greatest remaining storage compartment—or "sink"—for atmospheric carbon.

John Wick and Peggy Rathmann's Nicasio Native Grass Ranch became the pilot test site for the Marin Carbon Project. Wick spread compost—pure organic matter, about half of which is carbon—over their test site at the ranch and sat back to see what would happen.

Project co-founder Jeff Creque says they were amazed at the results: In the first six months, they measured significant increases in soil carbon, as well as the moisture content of the soil and plant productivity. "The important piece is that the increase in soil carbon was not from the compost, but from photosynthesis resulting from increased plant growth from the compost application," says Creque. "This underscored something that should have been obvious from the beginning: if we could increase plant growth, we would increase carbon capture from the atmosphere."

This boost in photosynthesis is the crux of carbon farming. Recall from high school biology class: photosynthesis is that immutable gesture of plants that takes in carbon dioxide (CO_2) and spits out oxygen (O_2), giving us clean air to breathe and taking only a carbon atom in payment. Amazingly, while plants and root systems store this acquired carbon, almost half of all carbon captured is passed on to the soil, in essence feeding it.

Carbon farming, simply put, is about managing land in ways that pull as much carbon from the air as possible into the soil as organic matter and storing it there for long periods of time. Carbon farming is quickly becoming a poster child of the climate fight. But can agriculture really pull enough carbon out of the atmosphere to meaningfully impact climate change?

A New Harvest: Carbon

Farming has had a long and not altogether friendly relationship with the climate. In fact, agriculture is widely blamed as a big contributor to climate change—scientists say it is responsible for 12–14% of greenhouse gas emissions globally. While the biggest sources are livestock emissions and synthetic fertilizers, carbon lost from the soil also contributes. Renowned soil scientist Rattan Lal estimates that the world's cultivated soils have lost more than half of their original carbon stock because of poor farming methods that disturb and degrade soils.

The good news is that there appears to be serious potential to reverse the trend. "We now understand that our landscapes not just in Marin, but also globally, have enormous potential to increase their carbon capture and storage," says Creque. "With that understanding, when we do the math we realize that we could in fact have a significant impact on climate change if we were to change the way we manage our landscapes and begin to manage them for carbon capture."

Eric Toensmeier, author of the forthcoming book *The Carbon Farming Solution* (Chelsea Green), puts it this way: "When we talk about climate solutions and clean energy, we need to talk about carbon farming right alongside that, because if we switch to 100% clean energy today, we're still over the tipping point; we're still toast. And if we sequester all the carbon but don't switch to clean energy, we're also toast."

Where California is concerned, Creque explains that a mere 1% increase in soil organic matter across California's 46 million acres of rangeland, grasslands and arable lands would result in about 6.6 million acre feet of additional water holding capacity and the equivalent of 1.5 billion tons of CO_2 sequestered.

These are impressive-sounding numbers, but what do they actually mean? I did some quick back-of-the-envelope calculations and was astounded to discover that implementing this small but widespread change would be the equivalent of taking 1.1 million cars off the road or replacing about 4 *billion* 60-watt light bulbs with compact fluorescents.

When I asked Toensmeier what it would actually take to increase soil carbon by 1%, he chuckled, saying, "There

are lots and lots and lots of examples where people increased soil organic matter by far more than that in far worse conditions than California farmers face". In his book, Toensmeier profiles 40 different techniques for building soil organic matter, covering annual and perennial crops, livestock production, the soil amendment biochar and rainwater harvesting.

While the emphasis in carbon farming is on sequestering carbon to offset climate change, proponents underscore that it solves many problems at once. Boosting carbon-rich organic matter also serves to retain substantial amounts of water, helping to ease the effects of both drought and flooding. Carbon farming also reduces erosion, enhances fertility and boosts crop yields.

Point Blue, a conservation science organization headquartered in Petaluma, is among those at the forefront of the carbon farming movement in the region. Through its Rangeland Watershed Initiative, Point Blue collaborates with the Natural Resources Conservation Service and local ranchers to build healthy soils for multiple benefits. Point Blue's Working Lands Program Director Wendell Gilgert says, "If we treat the soil right, we get all we're looking for—modification of drought, climate-smart management activities, restoration activities and more."

Point Blue starts by eyeballing how much bare soil there is on a property and how much capacity the land has to produce more vegetation. Gilgert says they use a "one ounce—one inch" approach—just one more ounce of vegetation per square foot would enable the soil to hold one more inch of rainfall in the soil profile. In turn, this would provide about 2,700 more pounds of feed per acre, translating to real financial savings (particularly given the high cost of hay in the present drought) and significantly helping mitigate drought conditions. Gilgert's team then supports the rancher in developing grazing management plans that include a broad set of carbon-building practices.

Singing Frogs Farm: Whistling a Different Tune

Carbon farming is not limited to ranching. In fact, cropland typically has greater potential to sequester carbon on a per-acre basis. One of the leading innovators in this field nationally is Singing Frogs Farm in Sebastopol. Singing Frogs Farm is a small, diversified operation run by Elizabeth and Paul Kaiser. The couple grows 140 different crops on three cultivated acres in West Sonoma County. They market their products at five farmers' markets, nine restaurants and a 130-member CSA, as well as through the wholesaler Feed Sonoma.

Researchers and fellow farmers alike are flocking to the Kaisers' farm to learn how their approach has achieved mind-bending rates of carbon sequestration: the Kaisers have managed to increase their soil organic matter from 2.4% to an optimal 7–8% in just six years, an average increase of about ¾ of a percentage point per *year*.
The Kaisers achieve this by dialing up to the extreme several core principles of sustainable agriculture. For example, they maximize photosynthesis by continually keeping plants in the ground, literally planting the next crop just a day or two after harvest. In this way, they are constantly "feeding the soil" with carbon by producing five to seven cycles of crops per year. The constant plant cover also serves to protect the soil from erosion and water loss, essentially taking over the role of mulch.

The Kaisers also add much more organic compost to their soils than the norm to improve fertility and water-holding capacity.

Singing Frogs Farm also takes great care not to disrupt the soil structure—this means no tillage. Tillage impacts the soil by breaking it down, degrading the soil and releasing valuable nutrients (carbon and nitrogen) into the air (incidentally, these get released into the air as the greenhouse gases nitrous oxide and carbon dioxide), and killing soil-building earthworms and microbes. Paul Kaiser warns that decades of soil building can be undone in a single season of tillage.

The results have been transformative. "When we started out, we were doing two to three hours of drip [irrigation] every other day. Now we are really pushing it. We're down to about 20–30 minutes per week." To illustrate the point, the Kaisers planted carrots this spring, which they hand-watered until they germinated, at which point they typically switch to drip irrigation. Paul says: "This year, we forgot to switch to drip. We came back six weeks later, and discovered that we had almost-ready-to-harvest carrots that we hadn't watered in six weeks!"

Carbon Farming the North Bay

While Singing Frogs Farm is unusual in the extreme to which they take these practices, a burgeoning community of local growers and ranchers is bringing soil health back to the center of farming.

Doug Lipton, a Sonoma County farmer and co-owner of SHED, Healdsburg's popular market, café and gathering place, has always incorporated compost into the fields at his farm, but thanks to the restaurant, he is now able to provide his own. "Now, with SHED, I don't haul in any outside material", he says. "It's all connected to SHED—all the waste I can't feed to my chickens, I'll throw in the compost." Lipton also boosts carbon sequestration by planting arugula, salad greens and "green manure" crops between orchard rows, and experimenting with biodynamic sprays and compost teas.

More broadly, our entire North Bay region has a relatively high potential to increase carbon capture through photosynthesis. The area's active and functional Resource Conservation Districts and other technical support agents, as well as its progressive agricultural community, promise to

make it easy to scale up solutions.

David Lewis, who directs the Marin office of UC Cooperative Extension and has been a collaborator on the Marin Carbon Project, celebrates Marin's leadership in setting up a legacy of preserved working landscapes that took place decades ago.

"At the time, we didn't appreciate all the benefits that come back to the community from that early pioneering," says Lewis. "I hope people appreciate that agriculture continues to be part of the solution, and that small and medium-scale family farms in Marin are a critical part of our community and are playing that role."

Doug Lipton notices the way sustainable agriculture has brought new communities of people together, tying the farm community and the environmental community together, as well as the broader population. In the '60s and '70s, "it was the hippies and back-to-the-landers who would appreciate compost and soils. Now, probably because of the food movement and knowledge that good food comes from good farms, soil has moved beyond being appreciated by narrow sector of population to a much larger group that includes the Millennials who enjoy wine country."

A Watershed Moment for Carbon Farming

This is a particularly exciting time for sustainable agriculture in California in other ways. For the first time, farmers are beginning to be recognized financially for the benefits they provide to society by farming carbon. According to Renata Brillinger, executive director of the California Climate and Agriculture Network, "we're really poised to be the first state in the country and possibly in the world that is going to figure out how to invest cap-and-trade funds and incentivize voluntary farming practices, things growers might want to try but are risky."

Last year, the carbon offset program American Carbon Registry (ACR) adopted a way to compensate ranchers for applying compost to grazed grasslands that was developed by the Marin Carbon Project and its collaborators. The California Department of Food and Agriculture recently launched the Healthy Soils Initiative, which has proposed a $20 million set aside in this year's budget to pay farmers and ranchers for practices that sequester carbon, such as applying compost and planting cover crops and trees. Two bills currently in the legislature, AB 761 (Levine) and SB 367 (Wolk), would expand this support as well as the range of practices that qualify for funding.

The California legislature is in the final stages of creating even more ambitious greenhouse gas reduction targets for 2050. "We think we can't achieve those goals unless we involve these really unique and potentially powerful agricultural solutions," says Brillinger.

Black is the New Green

Realizing the potential of carbon farming is not without major hurdles. For example, the local availability of compost, the application of which is one of the most effective ways of quickly boosting soil health, has just been made very difficult by the forced closure of the company Sonoma Compost over water quality concerns at its facility. The closure is "highly significant and couldn't come at a worse time," says Jeff Creque. "The importance of compost is finally being recognized and we are having legislation passed that requires the increased diversion of organic waste from landfills. To be closing the preeminent compost facility is nuts."

Yet in spite of the obstacles, there is much to be hopeful about. The capacity of nature to heal itself, for healthy agro-ecosystems to temper climate change, is truly humbling. There is no doubt that the founders of the Marin Carbon Project were on to something significant when they looked up into the hills and saw its golden potential. And in the process, they inspired, in me at least, not only a fresh way of seeing, but a deeper connection to the place I call home.

For more info please go to MarinCarbonProject.org

Growing Our Farms: Connecting Farmers and Ranchers with the Land

Bodega Land Trust was pleased to participate in this forum on May 21, 2015 to "share resources and collaboratively explore opportunities for farmers and landowners (both public and private) to increase the availability of farmland in Sonoma County for food production". The forum was organized by the Agriculture and Natural Resources Team of the Sonoma County Food System Alliance and focused on four questions: what is happening in the county today as regards land availability? What is it to be an aspiring farmer? What is it to be a land owner leasing land for food production? What additional resources and strategies could make more land available? Many organizations hosted the forum and each explained what they do. Prominent among them were California Farm Link, Sonoma Land Trust, and the Sonoma County Agricultural Preservation and Open Space District (SCAPOSD). UC Cooperative Extension started the County Land Program and the Young Farmer Program to use that land. The idea of an incubator farm to incubate young farmers may become a reality on a 40 acre property in the Rohnert Park green belt, owned by SCAPOSD. If anyone has some land they would like to lease to a young farmer please contact the Food System Alliance.

Notable Walks and Talks of 2015/16

We would like to give a very special "Thank you" to all our leaders and speakers. They have helped us fulfill our educational function by being both entertaining and enlightening. Here are a few reviews of our Walks and Talks for 2015 and 2016.

Lambing at Bodega Pastures, *with Hazel Flett* — January 2015 and 2016

Back by popular demand! Hazel continues to lead the annual lambing walks at Bodega Pastures.

Photo: Bodega Land Trust Archive

Photo: Bodega Land Trust Archive

Midwinter is the season of new life. People often ask why the lambs are born then: when the grass gets more nutritious (less watery) in early spring the lambs are old enough to eat it. They grow on green grass but not on the dry grass of summer and fall.

In 2015 we were lucky enough to see a lamb being born and taking its first faltering steps to nurse. In 2016 we started with the theme of sustainability and looked at all the beautiful products that we sell to wool and sheepskin discussed the benefits of keep the flock afloat. We looked at the fields the rotational grazing and

Photo: Renata Langis

We helped feed hay, sheep have grazed. lambs in our very diverse looked at all the ewes and the land, and got a chance flock, which helps sustain something many grown-ups to hold a lamb at the barn - They are just as enchant as have never done before. on school field trips. the kids who come out here

We learned how to care for new lambs, to check the pastures twice a day and bring any sheep needing special attention to the barn, how to distribute the hay and water on the pastures, and how we are bringing the flock through the drought.

Badgers! *with Susan Kirks* — March 2015

On Saturday, March 28th, Badger Ecologist and Naturalist Susan Kirks presented "The True Nature of American Badger" at Salmon Creek School. Susan shared observations based on 15 years of field study, including living among the American badger in Sonoma County. Of interest to BLT members may be the significance Susan shared about the Salmon Creek and Dutch Bill Creek watersheds for badgers. The open meadows and grassland areas of Bodega and Occidental as well as outlying Sebastopol are

important movement areas for badgers between the Sonoma Coast and inland to Valley Ford, Marin County and Petaluma, all longstanding documented areas for American badger residents.

Seasonal behaviors ranging from mating season in autumn, to the significance of female adult badger habitat selection for giving birth and raising young in winter and spring were discussed. In summer, juvenile badgers disperse to seek their own territory. This is a time when many juvenile badgers are unfortunately killed from vehicle strikes as they cross roads following their natural movement patterns.

American badger is a native mammal of California. The small stable population in Sonoma County relies on the good will of property owners who allow badgers to forage for gophers, voles and mice (their preferred prey), stay temporarily while they forage, and then move on, leaving some holes behind. One property in Petaluma on Paula Lane has been specifically acquired as permanent open space, with a conservation easement, to protect American badger as its primary conservation value. The Bodega Land Trust fiscally sponsored the nonprofit involved in this beneficial conservation acquisition, the Paula Lane Action Network, back in 2003 while the group awaited its tax exempt designation. Maintaining open wildlife corridors for American badger will also support movement for many other species, contributing to biodiversity.

Photo: Andy LaCasse

American badger is a mammal in the *Mustelidae* family, along with wolverine, river and sea otters, ferret, weasel and skunk. The very distinctive claw-paw feature – 5 long claws on each paw – is a natural "construction" feature to observe. According to naturalist Kirks, badgers can individually dig with any of their 4 limbs or dig collectively with 2 or 3 at a time. Susan explained that badgers are not really reclusive, as we humans describe them. While considered nocturnal, the nocturnal behavior is usually directly related to less encroachment by humans and less threat from humans at night. Badgers are also not the fierce top level aggressors they're often portrayed to be. An adult female badger will fiercely defend her young, similar to other adult female wild species. That is about the only time a badger becomes defensive, however. Badgers prefer to retreat when confronted with a threat or encroachment. Kirks pointed out, "Many myths need to be dispelled, created by hunters, and ranchers who fear their animals will step in holes created by badgers, resulting in injury. There are multiple direct observations and reports to contradict these myths." Susan expressed appreciation to mammal biologist Kim Fitts of Sonoma County, a collaborator on badger issues.

"In my 10th year of field study," said Kirks, "I gained an insight that continues to create wonder for me. I observed wild creatures, like badgers, owls and various raptors such as red-shouldered hawks and white-tailed kites, who seek the same prey, for example, gophers, in a particular area, never deplete the prey base. Each species hunts and takes what it needs, and then moves to a different area, returning later to the same preferred prey area where a nearby water source is often present. This reflected a facet of nature, subtle and powerful, in terms of sustaining balance in ecosystems. Wildlife know how to approach this so they all survive. It may not be intentional, or it may be. Either way, balance appears inherent in wild lives."

Susan acknowledged the West County conservation efforts of Occidental Arts and Ecology/Water Institute, Ocean Song, and The Bodega Land Trust as very useful in helping American badger sustain, and move freely in its environment.

If you have badgers on your property and have questions, and/or would like a complimentary property visit, contact Susan Kirks, Naturalist and Badger Ecologist, 707-241-5548, or susankirks@sbcglobal.net.

Tannery Creek Canyon, *with Darlene LaMont* March 2015

On March 7 Darlene led a beautiful and informative early spring hike along the upper trail of our Tannery Creek Canyon 187-acre "forever wild" conservation easement. Amid the new grow she identified and discussed many species of plants, both flowering and otherwise. This was a rare opportunity to join a docent-led tour of this privately held property.

We include here two of our former board member Rhen Benson's last photo studies of Tannery Creek.

What's Up in the Woods, *with Jill Butler* April 2016

Intern Ryan Galloway from Sonoma State University was invited to write his impression of Ms. Butler's event.

Keeping your trees, and yourself, healthy

by Ryan Galloway

This past March, the Bodega Land Trust provided the opportunity for the public to participate in a Walk and Talk with the former member of CALFIRE, Jill Butler. Ms. Butler is also a co-founder of the Sonoma County Forest Conservation Working Group. Along the forest trail in back of Salmon Creek School in Freestone, she led the walk while speaking about various forestry issues including sudden oak death, thinning for better tree growth, and fire hazards associated with land and property owners.

Photo: Ryan Gallway

Upon looking at many of the different tree species throughout the walk, decaying limbs and sickly looking leaves could be found. They are telltale signs of sudden oak death, a recent epidemic of disease that has spread across a high number of tree and plant species in both California and Oregon. The disease is caused by the water mold *Phytophthora ramorum* and can, as a result, cause safety hazards to those who unknowingly walk under dead limbs and next to trees that have rotted and are ready to fall. As recommended by the speaker, limbs or whole trees that have succumbed to sudden oak death are best left alone as they provide beneficial habitat, but if found in a place that represents a safety or fire hazard, are best removed, or pruned in order to lower risk and allow the rest of the tree to remain healthy.

Further into the walk and after seeing a variety of blooming spring flowers and vibrant ferns and plant life, Ms. Butler brought up some of the issues

surrounding fire safety for property owners. With the drought that has been plaguing California over the past years, in addition to the rise of population and development, fires that would occur naturally have become reduced in number but increased in severity, and for land owners, making sure to maintain certain standards of safety can be vital. Tips for staying prepared in case of fire include maintenance such as being aware that flames can rise to 3x the height of the fuel burning, so keeping debris buildup low, trim tree branches and keeping driveways and paths in and out of one's property open is highly important. Additionally, having a clearing around fuel tanks and buildings of between 10 and 30ft is an important reduction in fire hazard, and lastly, creating an unhindered path to hydrants, ponds, and other water sources for both yourself and firefighters is of great importance in any fire emergency.

While we walked through the serene forest, with cool air and spring sun shining, Ms. Butler had discussed a number of topics that foresters concern themselves with today. Walking out of the forest, I knew I was much better informed on what to look for when out in the woods of our surrounding counties, and I look forward to future BLT Walks and Talks with great anticipation.

Coastal Prairie Hike at Ocean Song, *with Kathleen Kraft* May 2015

This was a wonderful walk, led by Kathleen Kraft the coordinator of the Coastal Prairie Enhancement Feasibility Study and an expert on California native grassland conservation. As was explained in the 2015 Journal (see our website), the Study had three components: a mapping component; a treatment component including five different ways of tackling velvet grass, the villain amongst local grasses, on five different sites; and an educational component covering a training program for Sonoma State University students and the design of a very fine website: www.sonoma.edu/preserves/prairie/. Kathleen showed us how to recognize the most important grasses, and explained their ecological function in maintaining the local environment.

The website contains an excellent survey of the botanical ecology of the coast, including the troublesome invasive grass from Europe: velvet grass, which needs to be eradicated. There are several photos and diagrams of native species to help in identification. There is also a link to a through reference library on coastal botanical ecology.

Pacific Reedgrass

Cobbwebby Thistle

Both from www.sonoma.edu/preserves/prairie/

Birding in the Tannery Creek Reserve, *with Mike Heffernon* May 2016

This year our Walk in Tannery Creek Reserve focused on recognizing birds, mostly by their calls. Mike is studying the birds of this area to help update the Sonoma County Breeding Bird Atlas for the Madrone Audubon Society (*www.madroneaudubon/birds-*). Mike led us through the woods and down into the canyon to Tannery Creek, stopping frequently to listen to bird songs. So far Mike has confirmed 25 different species in his research block. We wish him great success as his research progresses.

Bodega Marine Lab (continued from front page) June 2015

lab is located less than 50 miles from one of the most heavily impacted estuaries in the world, San Francisco Bay, and many human impacts to the environment, like climate change, know no boundaries. Much of the research at BML reflects this dichotomy. BML's unique location has shaped its research focus: investigating ocean processes in a high biodiversity area, and examining environmental impacts from human activities. The oceanographic process called upwelling contributes, in large part, to what makes our location so biodiverse and unusual, and

Kelp crab Photo: Ellie Fairbairn

is one of the reasons why there is such a long history of research on our coast. Bodega Bay lies within one of only four coastal upwelling ecosystems on Earth. Upwelling is driven by the strong spring winds that our coast is renowned for, and results in nutrient rich water moving to the surface where it feeds our coastal eco-systems. Researchers at BML study coastal oceanography, as well as the diverse communities of organisms that inhabit our coastline. However, the impacts from human activities are never far removed. Scientists at BML also study the effects of climate change and ocean acidification, invasive species, chemical pollution, disease, and other stressors.

Red abalone Photo: Ellie Fairbairn

To learn more about the Bodega Marine Laboratory, please visit *bml.ucdavis.edu*.

Coho, Steelhead, and People in Deepening Drought: August 2015

A Summing Up of a 3-Year Research Project on Salmon Creek, *with Cleo Woelfle-Erskine*

On August 29 Cleo Woelfle-Erskine presented results from his 3 year study on Fay and Tannery Creeks investigating streamflow over the summer dry season and the ways in which it influences salmonids survival, and identifying which headwater aquifers feed perennial springs and tributaries. He received much valuable assistance from Daisy Gonzales and other volunteers. The event was held in the auditorium at Salmon Creek School.

Cleo's research is something that the Salmon Creek Watershed Council has been following and participating in across the 3 years. It has taken part in each of the September wet/dry surveys, along with other volunteers. Cleo emphasized how important collaborative science is and that citizen science has come of age. Citizens measured the state of fragmentation of the creeks across years, they counted salmonids during the survey and on during the year, and they kept records on rainfall, wells and springs.

Local residents came to see themselves and other species as members of multispecies communities, and spoke of their water systems not just as pipes and tanks but also as rain, fog, streams, aquifers, trees, salmon, raccoons, etc.

Local water cultures foster different individual water use practices and social norms:

1. a different awareness of watery entanglements arising from an acute awareness of scarcity and extending to concern for other creatures;
2. detailed local knowledge of one's own water source, of neighbors' water use practices and of local hydrological cycles, accompanied by a preference for local autonomy over outside regulation; and
3. a commitment to finding solutions that sustain both salmon and agriculture as essential to local lifeways and culture.

Is there an emerging interspecies commons? As a Salmon Creek resident put it: the creek should be preserved for the benefit of all living beings. If that means a regulation of consumption, then maybe we need to self-regulate.

As a related Walk and Talk, a Workshop on Water Conservation Techniques and Ground Water Recharge was convened by Cleo on July 12, 2016. It was the 3rd Salmon Creek Research Collaborative Workshop in the series. This time he was joined by researcher John Green of the Gold Ridge Rural Conservation District (GRRCD). It was co-hosted by the Salmon Creek Watershed Council. Berkeley's multi-disciplinary Energy and Resources Group supported the workshop financially and with student energy. While the Salmon Creek Watershed Management Plan of the GRRCD (www.goldridgercd.org/htm/watershed-documents.htm) was exciting when it was finished in 2010, this discussion brought us up to date with new results from Fay and Tannery Creeks and new thinking about salmon habitat and our underground water supply. We discussed ways in which local residents and scientists can expand their collaboration to better understand what is happening in and around our creeks. Salmon survive only where dissolved oxygen is sufficient so it's a very important statistic. By measuring habitat conditions where salmon live and die, we can begin to understand the conditions necessary for their persistence. Both Cleo and John presented detailed, clear and entertaining Power Points describing their work in full. They can be seen here: John's Power Point.ppt and Cleo's Power Point.pdf

Singing Frog Farm, with Paul Kaiser — September 2015

Every year for the past several years we have visited with Paul at his farm. He has created his own mulch and soils, and has developed an extremely efficient watering system. Please see p. 5 for a detailed discussion of his farming methods.

The North Pacific Railroad Then and Now, *with Rick Coates* — September 2016

This was the fourth presentation in Rick's series for us on the history of our local railroad. It was held in the theater of the Occidental Center for the Arts. The place was packed. He showed a marvelous series of old photos taken along the railroad with recent photos he had taken from the same spots or as close as he could get, given that now there were sometimes homes, schools, offices or highways on the original photo sites. After enthusiastic applause we progressed to Salmon Creek School where we hike the old road bed from behind the school north to the horse shoe curve near the head of the valley. Most of this stretch of road bed lay on private property and had never been available to the public before. From the school some of us drove up toward the sight of the Brown's Canyon Trestle. Remnants of the footings on either side of the creek are still visible and some huge timbers (whole redwood tree trunks squared off) are still in the bottom of Brown's Canyon Creek.

The line ran 84.3 miles from Sausalito to Cazadero. It was built mostly in the 1870s, reaching Duncan's Mill (as it was then known) by 1877, but didn't reach Cazadero until 1889 due mostly to political/financial problems. It survived into the 1930s when trucking, busses and the Depression put it out of business. The Brown's Canyon Trestle (on one of BLT's easements) was the highest in the world at the time. Four well known Californians - Charles Crocker, Leland Stanford, Cornelius Huntington and Mark Wilkins - pushed the idea of the railroad. After a suitable amount of infighting over financing and the route, a terminal was built on the docks in San Francisco and the line was begun. It ran from Sausalito through Samuel P. Taylor State Park and San Geronimo to the tip of Tomales Bay, up the east side of the Bay to Tomales, then to Valley Ford, Freestone, Occidental, Monte Rio, Duncan's Mills and finally Cazadero. All the villages along the railroad are there because of the railroad - what we'd now call transit centered development. The Grange also supported it because it revolutionized the agrarian economy: farmers, ranchers, and dairymen could now get their produce to market much faster and easier. It also made it much easier for the lumber industry to get their products to market. Thus began the decimation of the great Coast Redwood forests. By the end of the century there were seven mills in the Salmon Creek valley alone, with more in Occidental, on the Russian River, and in Cazadero.

The Monitoring Report *by Sharon Sadler, Monitoring Co-ordinator*

Monitoring 2015 and 2016

We were lucky to have the assistance of Ryan Galloway as an intern from Sonoma State who graduated this

June in Environmental and Planning. He monitored two legs of the Tannery Creek Easement this spring and helped teach a portion of the Annual Monitor Training. He was indispensable to the monitoring program and the monitoring coordinator as he plowed through the seemingly endless paperwork involved in copying and filing monitoring reports and gluing photos into the monitoring books.

We want to give a big "THANK YOU" to the following 23 volunteers who valiantly monitored Bodega Land Trust's twelve conservation easements in 2015:

> Carol Sklar, Jack Proctor, Lori Curtis, Paula Smith, Jackie Screechfield, Joan Mortenson, River Mortenson, Janet Drucker, Walt Drucker, Michael Parrish,
> Eileen Jang, Steve Pye, Dan Arendt, Jay Sliwa, Jeremy Sharp, Bart Simmons,
> Connie Meyer, Mark Burchill, Rhen Benson, Mary Biggs, Ellie Fairbairn, Armin Anderson and Jessie Jamison.

We would also like to thank the 12 landholders who hold the easements and so graciously welcome us onto their properties once a year.

Now the 2016 monitoring season is in full swing. We held the training in April and we want to welcome Bob Fink and Steve McNeal to our monitoring program. We would like to thank Bob Fink who bought a new camera for our monitoring program. If you would like to monitor or otherwise volunteer with Bodega Land Trust, call Sharon Sadler, Monitoring and Volunteer Coordinator at 707-483-5407.

Analy Choir Concert

Bodega Land Trust was delighted to be chosen as the beneficiary of Analy High School's May 2015 choir concert. The students chose BLT as their small local charity to support. The music was wonderful, with individual students singing and playing their own choice of music. Board President Don Sherer was invited to say a few words about BLT to the audience and director. Russ Pinto had earlier spoken to all three choir classes about land trusts, and BLT in particular. It was wonderful to have this kind of educational opportunity.

Choirmaster Andy Del Monte presented Don with a check for $1,100 earned from ticket sales, a raffle and a sale of cupcakes. Thank you so much Analy High choir!

Not yet an associate? Here's your opportunity!

Yes! I want to help my community protect land and agriculture in West Sonoma County.
Here is my contribution of $ _____

Support Level

- ☐ $1000 Redwood Sponsor
- ☐ $500 Prairie Protector
- ☐ $100 Salmon Creek Supporter
- ☐ $25 Individual Donor

☐ I am interested in volunteering

☐ I am interested in talking about an easement on my land

Name: _____
Address: _____
_____
Phone: _____
E-Mail: _____

Please mail this form and your tax - deductible donation to:
BODEGA LAND TRUST *PO Box 254, Bodega, CA 94922*

Thank You for Your Support!

MANY THANKS

TO OUR MANY DONORS TO

THE 2015 AND 2016 DINNER AND AUCTION

- ABBY KILLEY
- ANN HINES
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- YEUNNY THE DRESSMAKER

SPECIAL THANKS TO OUR WONDERFUL GUITARIST PABLO RODRIGUEZ

Many others deserve thanks

As usual there were a plethora of tasks to be accomplished. Thanks to Don Sherer and Mary Biggs for getting the liquor license and to Sandy Sharp, Sharon Sadler, Don Sherer, Joan Mortenson and Bill Peterson for picking up auction items and for shopping. Abel Damkoehler, Donny Freight, Eric Menuez, Bill Peterson and Bob Fink set up the hall and helped set up the auction. Linda Sauter, Bree Douma and April Gibson gave the flowers and arranged them beautifully. A big thank you to Charlotte Reis and Alyssum Revallo for cooking the dinner (both years for Allysum), with help in the kitchen from intern Ryan Galloway, Jay Sliwa, Barbara Peterson, and Dane Bowman. Colleen Falconer from Colleen's Coffee provided delicious coffee and sliders. Volunteers brought yummy salads and desserts. Benedicta Jacobs and Steve Killey ran the bar, while appetizers were served by our charming young servers: Kennedy Parrish, Trinity Burnham-Pohlmann, Mary Screechfield, Carley Covel, Demetri and Moses Voelker, and Orion Burnham-Pohlmann; Ellie Fairbairn, Sharon Sadler, and Sue Head worked with Mary Biggs as cashiers. James Fitzgerald, Bob Fink, Mary Biggs and Alistair Bleyfuss pitched in with clean up and any volunteers still in the kitchen or hall helped with this gargantuan task. Any new volunteers for the 2017 dinner please consider helping with clean up!

Thank you all. Your dedicated work is what turns gifts of food and auction items into money for land conservation.

Coming Attractions

Oct. 29 - Madrone Audubon Society bird field trip in Bodega Bay, 8 am to 3 pm. See *madroneaudubon.org/fieldtrips* for all kinds of interesting outings.