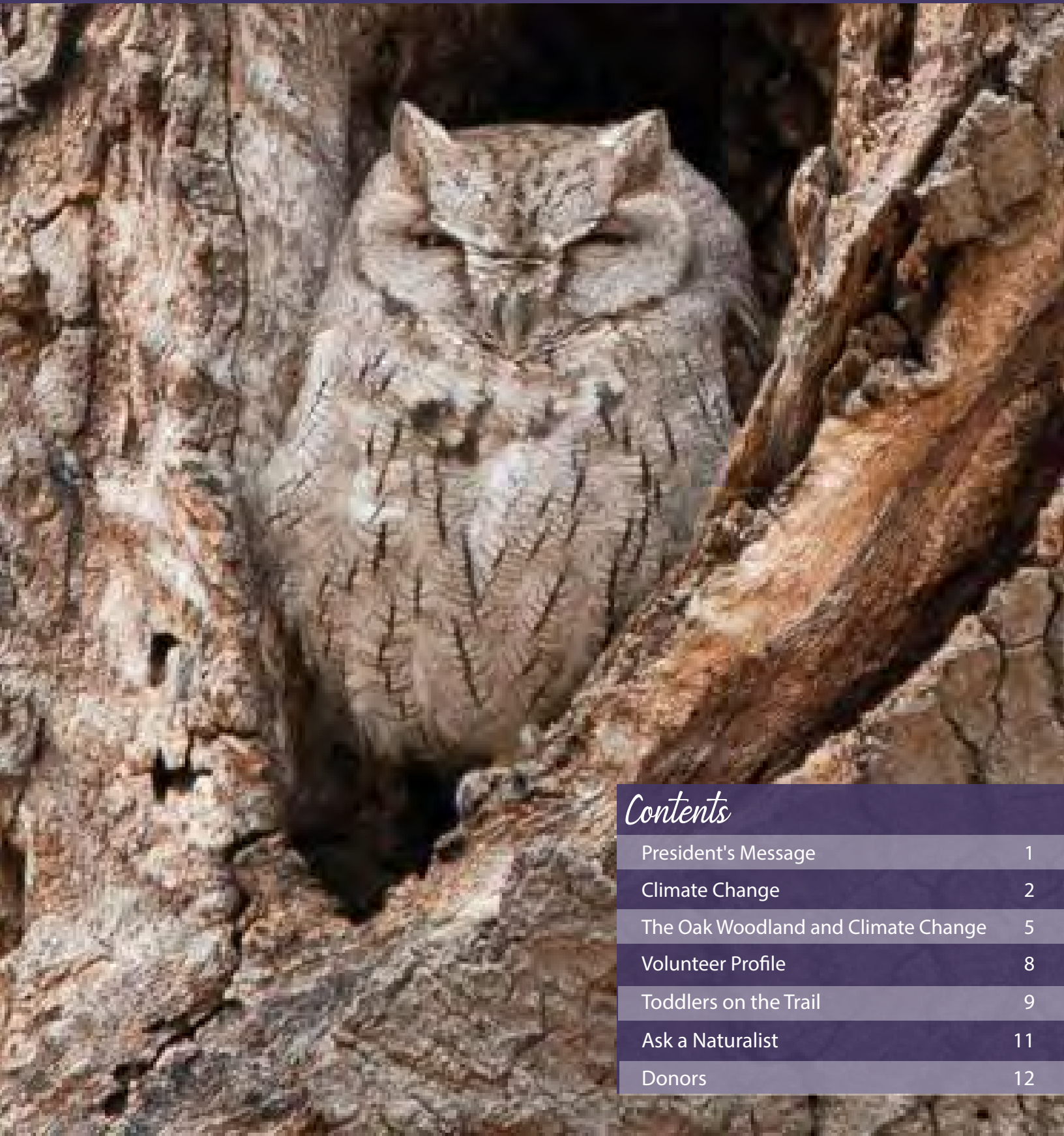


THE ACORN

American River Natural History Association Quarterly Magazine – Fall 2023



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Message from the President, Fall 2023



Laurie Weir

I am still riding high from all the great energy and support the Nature Center received at the Spring Gala and Auction in June of this year. With an amazing amount of planning by the staff, Board and committee members, the event exceeded expectations and raised over \$110,000 – a new high for fundraising for us! See page 7 for some great photos of the event. I am so grateful to our event sponsors, including Fred and Betsy Weiland, Kip and Illa Skidmore and Sierra National Construction, Deborah and Bob Moskovitz, Marcy Friedman, and SMUD just to name a few. Special thanks and kudos go out to our artists and everyone that donated experiences. The Nature Center is lucky to have such great support from our members and community.

Also, we have just completed a record-breaking summer of educational programs and camps. For the first time we were able to offer extended day camps in addition to our half day programs. Over the past year we have been able to offer 676 programs providing nature education to almost 16,000 children in our community. Staff are constantly seeking ways to meet the ever-growing demand for these popular programs.

Your Board has been productive this year participating in meetings, events, and committees (including for nominations, fund development, and media). We are lucky to have thirteen board members with great skill, dedication, and collegial attitudes. Should you be interested in serving on the board or one of the board's committees, don't hesitate to send me an [email](#). We are always seeking talented individuals willing to dedicate their valuable time and effort to the governance and oversight of the Nature Center.

With our beautiful site, Animal Ambassadors, and Maidu Village, the Nature Center is an exciting place to visit and work. There are many opportunities to volunteer at the Nature Center. You can assist with animal care, fundraising, outreach, special events, and nature education. Our volunteers also help with and lead habitat restoration projects, become trail stewards, and serve visitors at our reception desk. If you are interested in volunteering go to our [website](#) for more information.

We could not accomplish what we do without the help and participation from our members and community. We rely on and benefit from over 200 volunteers that literally make our organization come to life. Our volunteers have our enduring gratitude and thanks for all that they do.

Warmest regards from the Board,
Laurie Weir

The Acorn is published quarterly by the American River Natural History Association (ARNHA), a 501(c)(3) non-profit organization that supports the Effie Yeaw Nature Center and Nature Study Area.

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The Effie Yeaw Screech Owl

This photo, which appears on this issue's cover, was taken by Joey Johnson in October 2015. At the time there was a large snag just off the Main Trail that seemed to provide ideal accommodations for this western screech owl. For several weeks it happily resided there, coming out to look at the photographers who lined up to take its portrait. However, towards the end of the month strong winds blew the snag over. The owl didn't seem to be in the fallen tree, so it must have taken off and found other accommodations.



Cover: Western screech owl at EYNC by Joey Johnson.



Climate Change is All Around Us

By Kari Bauer

Climate change has become one of the most pressing challenges of our time, affecting ecosystems and communities around the globe including the habitat surrounding the Effie Yeaw Nature Center (EYNC). According to NASA, the last nine years have been the warmest years on Earth since modern recordkeeping began in the 1880s, and the heat wave is not likely to let up (Figure 1.)

As Earth's temperature rises, scientists predict extreme climate events will become more frequent and more devastating. Rainfall patterns will change causing droughts, floods, and disruption of food and drinking water supplies. Wildfires will become more frequent and intense. Hurricanes will form more quickly and become stronger.

By the year 2100, one-half to two-thirds of the world's glaciers (including most in California) will melt, causing sea level rise, floods, and loss of meltwater for agriculture, hydropower and drinking. At the current rate of warming, habitat destruction brought on by climate change could result in extinction of large numbers of plant and animal species in the next half century.

GLOBAL AVERAGE SURFACE TEMPERATURE

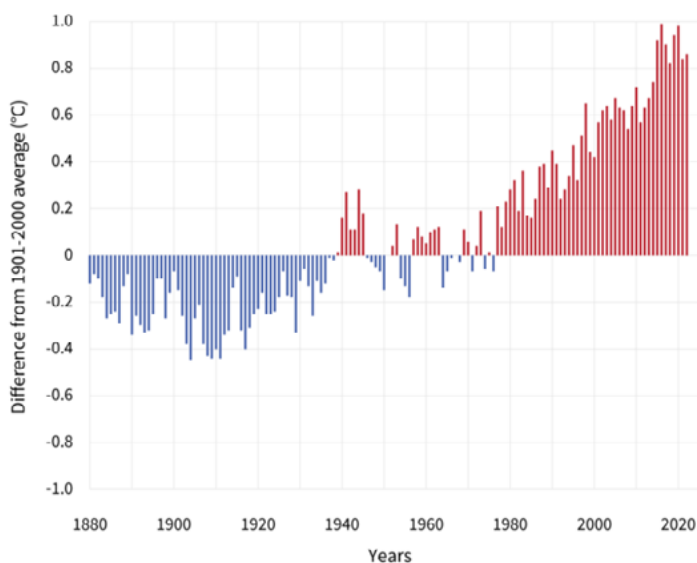


Figure 1. Yearly actual global surface temperature 1880-2022 compared to the 20th century global average. Blue bars indicate cooler-than average years; red bars show warmer-than-average years. NOAA Climate.gov graph.

Note from the Editor: This article and the one that follows are the first in a series highlighting how climate change is affecting our region and how we may be able to mitigate its most serious impacts. Watch for more in future issues of *The Acorn*.

Oceans, which will likely absorb most (about 93%) of the excess heat, will become warmer and more acidic ($\text{CO}_2 + \text{H}_2\text{O} = \text{carbonic acid}$) leading to dead zones, toxic algal blooms, bleaching of coral and destruction of thin mollusk shells. By the end of the century, waters will become too warm for 40-60% of fish to reproduce successfully.

Many of these climate changes are already evident both globally and locally. Heat waves in the United States have become longer, hotter and more frequent since 1901. In the summer of 2023, a "heat dome" formed over the southern and southwestern U.S., breaking many day- and night-time records. Record high temperatures at night are especially dangerous to the human body, which needs a cooling time to recover from the heat of the day.

Droughts in California have become more severe and even our native oaks, well adapted to the California climate, have suffered. Dead and dry vegetation has contributed to more frequent and intense California forest fires, air pollution, and loss of structures. Fires are a major concern in our Nature Study Area and for the entire American River Parkway. In 2021, fires burned over 15% of the area along the Parkway destroying habitat for native plants and animals. Droughts have not been limited to California; the summer of 2023 saw forest fires raging throughout North America and beyond and diminishing air quality in much of the United States.



Figure 2. Climate change has brought extremes of flooding and drought over recent years. Major flooding was experienced in 2017 in the EYNC Nature Study Area. Photo by Kari Bauer.



Warmer air holds more water and contributes to severe rain events. One example is an increase in damaging hurricanes in the southeastern U.S. Closer to home, water from heavy rains such as experienced during last winter's "Pineapple Express" rushed downstream causing major flooding. Normal California winter rains linger longer and seep into the earth to replenish our ground water. Later in spring 2023, abundant water was again an issue, as a record-setting snowpack in the Sierra melted and water releases from Folsom Lake had to be increased. As a result, the Lower American River rose and became too swift and cold for early summer water activities. Citizens have had to adapt accordingly.

What is causing this climate disruption? The science behind the major contributing factor is clear: An increase in the amount of greenhouse gases (GHGs) surrounding Earth is changing our weather. When light from the sun hits the Earth, some is reflected back into space as heat. The natural layer of GHG prevents a portion of this heat from escaping. Indeed, without this layer, the Earth would be covered with ice. However, as more GHGs enters that layer, more heat is reflected back and the Earth becomes warmer. This trapping of heat by the GHGs is referred to as the "Greenhouse Effect".

The most important GHG is carbon dioxide, which makes up 79.4% of the atmosphere and is released when fossil fuels such as coal, oil and natural gas are burned. (Carbon dioxide is also released naturally through animal respiration, forest fires and other burning, volcanic activity, and additional natural processes.) Other GHGs associated with human activities include methane (11.5%) produced by agriculture, landfills, and fossil fuel processing; and nitrous

oxide (6.2%) released primarily from nitrogen-based fertilizers. Currently 162 million tons of global-warming GHG pollution are released into the atmosphere every day. Ice core data shows levels of carbon dioxide are higher now than any time in the last 800,000 years.

The Solution

Transitioning away from fossil fuels, embracing renewable energy sources and adopting sustainable farming practices will dramatically reduce carbon emissions and air pollution. Restoring forests, grasslands and wetlands and creating green spaces will greatly increase the Earth's ability to capture and absorb excess carbon dioxide so it doesn't accumulate in the atmosphere, a process called carbon sequestration.

People can reduce their carbon emissions by being mindful in their daily activities. If something is good for the individual, it's probably good for the planet. For example, walking or riding a bicycle is a healthier activity than driving a car. A plant-based diet is more nutritious than one rich in meats. Hanging laundry to dry in the sun and turning the thermostat up a little in summer and down a little in winter are other climate-friendly practices.

When shopping, look for items locally grown or produced rather than those transported long distances. Products made of natural materials by artisans are preferable to those made of artificial materials in factories. If appliances need replacement, induction stoves, heat pumps and other highly efficient electric products (rather than those that require natural gas) are good choices. When it's time for a new car, consider electric. Government rebates should help make these more affordable.

Historical and Projected California Snowpack

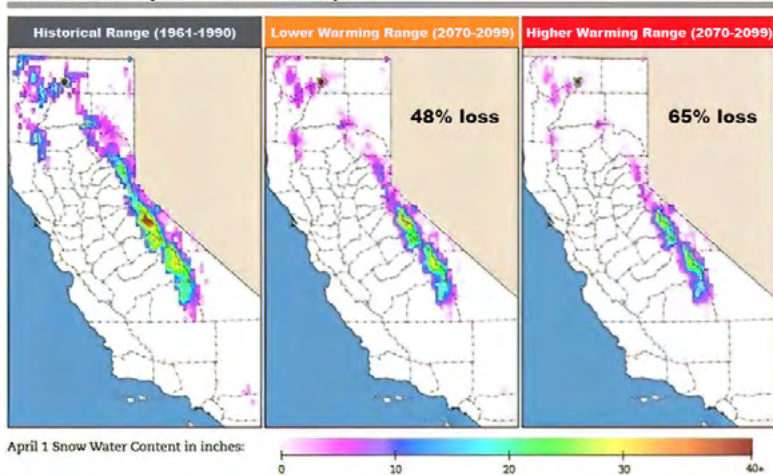


Figure 3. Loss of snowpack in the Sierra Nevada Mountains brought on by climate change will have major impacts on California's water supply in the next 70 years. Image from the California Department of Water Resources.



Figure 4. A small fire erupted in the Nature Study Area in 2019 during a period of extreme drought. Photo by Kristen Angelini.



The Hope

All is not lost. The hope lies both with individuals taking action and communities coming together to create climate action plans to transition to renewable energy sources, restore and protect nature to sequester carbon, and to protect the most vulnerable.

- It is hopeful that currently most Americans understand that climate change is real and recognize that it will negatively affect future generations.
- It is hopeful that 25 states, including California, are members of the United States Climate Alliance. Members of the Alliance are committed to taking real actions to achieve the Paris Agreement's goal of keeping temperature increases below 1.5 degrees Celsius by reducing greenhouse gas emissions to net zero by 2050.
- It is hopeful that the costs of renewable energy have plummeted. In 2020, 90% of new electricity generation installed worldwide was solar or wind power. These sources are cheaper, make sense, and don't pollute.

In addition, action to address climate change impacts must be equitable and just. Wealthier countries that have created the problem are not the ones who suffer the most. In our country, rural, urban and indigenous poor suffer the most from pollution and climate change consequences. Last year Congress passed two important pieces of legislation, the Inflation Reduction Act and the Bipartisan Infrastructure Act, which will make electrifying homes and transportation affordable even to the most disadvantaged with rebates of up to 100% for those who qualify.

Transitioning to renewables and restoring and preserving forests, wetlands and other natural spaces that can sequester carbon is a win-win situation. Not only will climate change be mitigated, but the air and water will be cleaner and our psyches will be uplifted by proximity to nature.

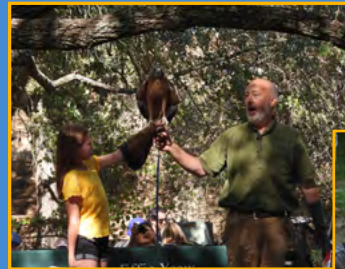
Kari Bauer is a longtime member of the American River Natural History Association and a community advocate for addressing climate change.

Save the Date: NatureFest 2023!

Date: Sunday, October 8
Time: 10am to 3pm
Where: Effie Yeaw Nature Center
Price: \$7 for General Admission/
\$3 for Kids 3-11/
Ages 2 and under Free

Our largest family event of the year, NatureFest promotes science and nature education and is an excellent opportunity to learn more about local organizations that support our community. Held in the Fall at Effie Yeaw Nature Center, this family-friendly event includes live animal presentations, hands-on activities, demonstrations, guided nature hikes, and more!

Check out the photos below from last year's NatureFest by Kimberly Steinmenn.



Tending the Oak Woodland During Climate Change

By Melanie Loo

In the 1950s an elementary school teacher named Effie Yeaw planted native oak seedlings around Deterding Woods, educated her students and others about nature in those woods, and advocated for the preservation of the 100 acres near the American River, which became the Nature Study Area (NSA). She continued the nurturing of a precious ecosystem cared for by the indigenous Nisenan people before her. Since the establishment of the Effie Yeaw Nature Center (EYNC) in 1976, many other EYNC staff and volunteers have taken up this cause.

For much of this time, attention was focused on buffering the habitat from the threats of urbanization and agricultural practices. Major efforts have included planting more of the native plants that once inhabited the area and removing introduced, invasive species that divert water and nutrients from the native inhabitants. A special concern has been the maintenance of the valley oaks (*Quercus lobata*), blue oaks (*Quercus douglasii*), and interior live oaks (*Quercus wislenzii*), which are endemic to California and form the scaffolding of the oak woodland in the Sacramento Valley. Reaching heights of up to 50-100 feet, these trees provide food, shelter, shade, soil conditioners, and other services for thousands of plant, animal, fungal, and microbial species in the ecosystem (Figure 1).

But what is the future of our oak woodland? Anyone who has walked the trails in the EYNC NSA is likely to have noticed the large number of dead and dying oaks in our preserve (Figure 2). Visitors ask, "Why are there so many dead trees? Is something unusual happening at EYNC?" We do



Figure 1. The oak woodlands provide food, shelter, and habitat for thousands of animal, plant, and microorganism species. Photo by Melanie Loo.

know that oak decline is occurring throughout California, that the standard culprit of urbanization cannot be blamed, and that most losses are likely linked to climate change.

Research and conservation groups around California have observed declining oak populations for more than two decades. For example, at the Sixth California Oak Symposium

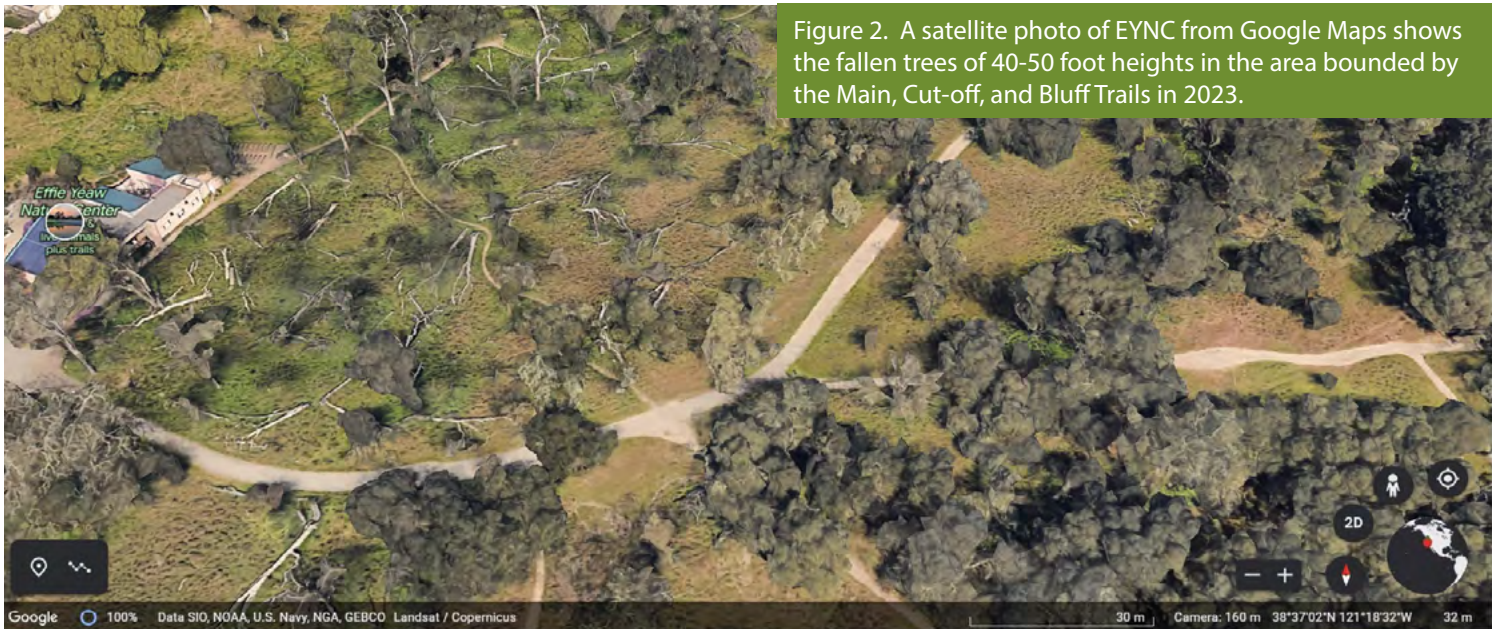


Figure 2. A satellite photo of EYNC from Google Maps shows the fallen trees of 40-50 foot heights in the area bounded by the Main, Cut-off, and Bluff Trails in 2023.



in 2006, foresters Tara Barrett and Karen Waddell remarked that three “statewide inventories of California’s oak woodlands found low levels of regeneration for several common oak species”. Their closer look at oaks of different size classes, measured from 2001-2005, showed that oak seedlings and saplings were failing to develop into larger trees in natural environments.

Other groups were reporting on the effects of drought on oak growth, which included slower growth, premature leaf loss, and heightened susceptibility to damage by insects and fungi. The increasing attention to climate change prompted scientists to make projections about how much of California would have temperature, precipitation, and geological conditions suitable for valley oak and blue oak growth in the future. Applying several climate models, researchers at UC Santa Cruz concluded that between 25-50% of suitable oak habitat in California would be lost by 2080.

At the EYNC, a number of efforts to plant new oaks were undertaken in the early 2000s to compensate for oak habitat lost to the expansion of the Nature Center parking lot and buildings. Mary Maret, Natural Resource Specialist for Sacramento County Parks, identified several separate tree planting projects carried out between 2004 and 2018. Acorns and seedlings of blue, valley, and interior live oaks were planted and caged (Figure 3) at five sites around the NSA and another area in the playfield across from the parking lot area. Various volunteer groups planted and cared for the oak seedlings following best practices based on information from the Sacramento Tree Foundation and local oak experts.

The EYNC Habitat Restoration Team (HRT) decided to investigate the fate of the plantings in the NSA (Figure 4.) In 2022 HRT members were able to find 23 of 60 oaks in an area planted in 2004 and irrigated by drip lines, 15 of 15 oaks in an area planted in 2015 and hand-watered with a hose, 2 of 50 oaks in an area planted in 2016 and hand-watered with jugs, 2 of 20 oaks in an area planted in 2018 and hand-watered with jugs. We have incomplete information on a fifth area in the NSA. Of the oak varieties planted, the blue oaks have the highest survival rates, but our sample is far too small and there are too many uncontrolled variables for us to make any conclusions about whether blue oaks are more likely to survive in the NSA.

We are measuring, tagging, and recording the locations of the surviving oaks, and may extend our survey of caged oaks to include those of unknown age caged by Jack Hiehle, a dedicated volunteer and retired wildlife ecologist. Jack built wire cages around naturally occurring oak seedlings



Figure 3. A caged blue oak planted in 2015 next to an old oak snag. Photo by Melanie Loo.



Figure 4. Habitat Restoration Team members Krystin Dozier, Ed Smith, and Melanie Loo measure a caged oak planted in the mid-2000s. Photo by Mary Lou Flint.

he found in the NSA from approximately 1985-2000. While we may find some young oaks to nurture with removal of competing vegetation, mulching, and caging to protect them from browsing, there will still be holes in the canopy from the loss of large oaks. Our valley, blue, and interior live oaks require decades to reach canopy height and at least a decade to begin producing acorns.

The loss of large oak trees and low survival rates for the planted oaks is not surprising considering climate change. Models of climate change predict there will be more severe weather events such as the atmospheric rivers and high winds that toppled many trees last winter. Moreover, California has experienced severe droughts, including one extending from 2012 to 2016. When there is much less than average rainfall, ecosystems rely on groundwater to survive. Though there may be spells of heavier than average precipitation interspersed with droughts, the state lacks effective measures to replenish the aquifers storing groundwater.

An Ancil Hoffman Park well log from the California Department of Water Resources shows that groundwater levels went from about 30 feet below ground in the 1960’s to about 40 feet below ground in the 1970’s to more than 60 feet below ground in the early 2000’s. In the last 20 years, Sacramento County has experienced 18 years of average temperatures well above the average temperature for the 20th century. Hence, trees in the NSA have been stressed by higher temperatures and decreased water availability. Such conditions decrease the trees’ ability to withstand other stresses such as insect and fungal attacks.



To the north of the Main Trailhead, a cross-section of one of the trees that fell last winter has been mounted and labeled (See Figure 5 below). On close inspection, its tree rings and irregularities provide evidence of the changing climate conditions it had weathered. Its most recent growth, right under the bark layer, exhibits narrowly spaced tree rings, indicative of slow growth. Toward the center of the trunk are more widely spaced rings, indicating more robust growth. That oak experienced many stresses in its 71 years of life and was likely toppled by a combination of factors. Other fallen trees in the NSA show similar patterns of growth over decades.

Current research aimed at preserving endemic oaks includes field studies to find trees that are resilient to climate change and laboratory studies to identify genes that might confer drought-tolerance. This research has been strengthened by greater communication among research groups and improved instrumentation now available. Still, new approaches to preserving native oak populations will take time to develop and implement.

In the meantime, some planners urge that we take stock of what we have, decide on what we want to have, and apportion our resources accordingly. The oak woodland at EYNC holds such beauty and so many ecological relationships for us to appreciate. We need to act urgently to preserve it, but not only by surveying, weeding, planting, and mulching. Tending the oak woodlands now includes educating ourselves about climate change and taking personal steps to diminish this threat to the woodlands and every other ecosystem.



Figure 5. Cross-section (or tree cookie) from an oak that fell last winter. Note that the rings get wider toward the center at left indicating more robust growth likely occurred in the 1950s. Photo by Melanie Loo.

Melanie Loo, Ph.D. is a retired Professor of Biological Sciences at CSU Sacramento. She volunteers at EYNC as a trail steward and member of the Habitat Restoration Team. For more information about how organisms interact in an oak woodland, see "Why We Protect Our Oak Woodland" in the [Fall, 2022 issue of The Acorn](#).



2023 Gala A Great Success!

The Spring Gala and Live Auction, Effie Yeaw Nature Center's biggest fundraising event, was held on June 11, 2023 and raised over \$110,000 for our educational programs. Over 200 guests attended, and staff and 56 volunteers helped assure that the program ran smoothly. Highlights included delicious food, spectacular art, music from the Rio Americano High School Jazz Band, and an entertaining and persuasive auctioneer. Photos by Kari Bauer.



Volunteer Profile: Krystin Dozier

By Mary Louise Flint



My grandfather used to say, “if you want to get a job done, get a busy man to do it”. My grandfather died long ago, but the saying still holds true--except in this case we are talking about a woman.

Krystin Dozier is a busy woman, and she gets the job done. She is inspirational, organized, and a true leader. Most people know her as the leader of Effie Yeaw Nature Center (EYNC)’s

Habitat Restoration Team (HRT), which she has grown to over 20 members over the last 4 or 5 years, but she has served in many roles at our Nature Center.

Attracted to the EYNC’s natural setting and abundance of wildlife, she began as a volunteer receptionist in 2014 and later became a docent. She also joined and served as a long-time member of the Media Committee, which produces *The Acorn*, and she has written many articles for this magazine over the years. She is a graduate of one of the first UC California Naturalist (CalNat) classes at EYNC, and her capstone project on monarch butterflies inspired the teams of people monitoring monarchs in the Nature Center gardens today. Krystin is passionate about pollinators and headed up the group that created the beautiful pollinator exhibit that was unveiled in our Museum in April.

Krystin grew up in Michigan, fled to UC Santa Barbara for her undergraduate degree, and then to CSU Chico for a degree in nursing. After spending time as a critical care nurse, Krystin accepted an administrative position at Sutter Hospital and her administrative talents were soon discovered! By the time she retired, she was in charge of coordinating the quality and safety systems for the entire Sutter system encompassing 27 hospitals across northern California.

All of her administrative talents have been applied in her volunteer efforts at EYNC. It is amazing what she can get done and how she inspires people to take on a challenge and join a new team. She says her technique is no secret. She first

tries to find out what people are interested in and what special skills they have and then figures out a way to incorporate each individual into a project. She focuses on getting people working together in smaller groups. She understands that an important aspect of volunteering is building relationships, sharing knowledge, and learning from each other. These relationships are a major reason people continue to volunteer, but Krystin’s constant positive feedback has a lot to do with it as well.

Krystin’s current major project is the Habitat Restoration Team (HRT). It had its beginnings with her CalNat capstone project monitoring monarch caterpillars on milkweed in the front gardens at EYNC. The project began in 2016 but after several years, very few caterpillars were being found, and it was clear that the population was in decline. In 2019, Krystin established a monarch habitat restoration project at EYNC with the idea of planting milkweeds and other pollinator plants in other areas of the Nature Study Area (NSA). Although the monarch populations have not come back, the project has attracted many volunteers and grown in scope with native plants established at two sites to encourage a variety of pollinators such as butterflies, native bees, and hummingbirds. Teams of two or three volunteers monitor and care for individual plants throughout the year; and monthly Saturday work days are held for weeding, mulching, and invasive plant removal. To keep activities coordinated, Krystin holds monthly Zoom calls for the entire team.

The HRT has begun surveying some of the young oaks in the NSA, and Krystin hopes that the team will become more involved in mapping the health of our trees and helping to determine what types of plantings may be appropriate in the future. The early emphasis of HRT was pollinator plants, but the program could expand to woodland and meadow areas in the future. She’d like to see the native plant sites used in education programs. Over time Krystin hopes that the HRT can become a true partner with the EYNC organization in restoration planning.

If you’d like to find out more about Krystin’s monarch conservation project, check out the [Fall 2020 *The Acorn*](#).

*Mary Louise Flint is an EYNC docent and editor of *The Acorn*.*



Lessons Learned: Toddlers on the Trail

By Michelle Fullner

My hands gripped the notched foam handle of our hand-me-down double stroller as I pushed it along Effie Yeaw Nature Center (EYNC)'s Main Trail, a band of sweat already forming on my forehead under the August morning sun. With each step, I could feel my binoculars swaying around my neck, seeming to pull me ever closer to the acorn woodpeckers I knew lived just ahead. I adjusted the shade to keep my daughters' faces out of the sun, peeking under it as I walked to make sure they still had an ample supply of snacks to keep them occupied for the next few minutes. They did. This was going to work out perfectly.

I had walked this trail many times before, but on this occasion—two years ago now—I had just finished reading about the complex (some would say scandalous) social lives of acorn woodpeckers, and I wanted to get a good look at the birds before setting my then 2- and 3-year-old toddlers loose on the trails.

Just ahead, I spotted a dead tree covered in small holes (a telltale sign that my quarry was nearby) and scanned for movement. Seeing a blur of red, black, and white feathers, I brought my binoculars up to my eyes. Just as I was bringing the bird into focus, I heard an impatient, "Stop it!" coming from the stroller in front of me.

Maybe if I ignored this, I thought, the children would resolve the problem on their own. It was worth a shot, especially since the woodpecker had approached one of the holes now. Was that something in its beak? Wasn't August too early for the acorns to be ripe?

"STOP IT! Those are MINE!"

I jerked my binoculars down and craned my neck to see under the shade and into the stroller. My two-year-old had a death grip on her sister's Goldfish crackers. Her own fishies lay sunk into the dust around the stroller in a chaotic semi-circle. Quickly, I scooped up the few that had landed in the seat and handed them to my little one. My hope was to buy enough time to snatch the unfortunate swimmers from the dirt at my feet and find a new snack for the would-be thief before the fighting erupted again.

Predictably, this tactic didn't hold her off for long, and before I knew it, I was untangling what seemed like too many limbs and shoes and teeth for just two children. I managed, eventually, to unbuckle my eldest and remove her from the fray. When I finally looked up again, there wasn't a single bird in sight.

It's difficult, in moments like these, to believe the myriad articles describing nature as nothing short of a panacea for the woes of modern living and child-rearing. Time in nature, they claim, will make your children healthier, ameliorate their ADHD, soothe their anxiety, ramp up their curiosity and creativity, and make them better problem-solvers.

Sweating, covered in dust, and standing between what appeared to be two feral cats hellbent on mutual destruction, I couldn't help but think that my children would have avoided having problems to solve in the first place had I just stayed home, plopped them onto opposite ends of the couch, and turned on *Octonauts*.



Enjoying the hollow log at the EYNC playscape.



In hindsight, there's so much I wish I could go back and tell that younger version of myself, starting with a few tips for taking the little ones into nature, especially to a place like EYNC, which is well-suited for kids (even the small ones!). As I am not in possession of a time machine, however, I will settle for sharing these tips with others bringing children on a trip to the Nature Center.

- **First, let children be on their own agenda** for a while before asking them to be on yours. For us, this usually means a stop at the EYNC playscape and allowing them to run as far down the trail as they'd like before they hop in the stroller and get a snack. (Just don't forget to stop by the restroom and fill everyone's water bottle before you get too far!)
- **Give kids a chance to lead!** The Nature Study Area is large enough for plenty of discovery and small enough to find your way back to the Nature Center and parking lot pretty quickly. If you trust your own ability to find your way back, let the kids decide which paths to take. Bigger kids may enjoy the challenge of figuring out how to get back with minimal hints, too! Visitors can get a free map at the reception desk.



There's nothing as refreshing as putting your toes in the water after a long hike down the Main Trail.

- **Check out some programs.** NatureFest in the Fall is our particular favorite, but EYNC often has something fun going on especially on weekends! Review the monthly [calendar](#).
- There are always interesting critters (both living and preserved with taxidermy) to see in the **EYNC Museum**. Going inside is a great respite from the heat when everyone's ready for a break.
- Perhaps most importantly, **model curiosity and awe for your children**. Let yourself wonder out loud about what the ground squirrels eat, whether turkeys can fly, what kind of flower that blue one is, and why that deer's antlers look fuzzy. You don't have to know the answers to show kids the value of asking questions. Before you leave, make sure to look up at least once into the branches of an oak tree and feel overwhelmed by its beauty and complexity. If you feel a sense of awe, tell the kids and invite them to look up with you.

I wish I could have told myself all of this two years ago. I don't remember how we managed it, but we somehow made our way down to the river that day, peeled off our socks, and dipped our feet into the cool water. The river rocks, it turned out, were the perfect tables for our peanut butter and jelly sandwiches.

I didn't know it at the time, but a few months later, we would be back to see the salmon spawning in this very spot, and on that day as we made our way down the trail, we would look up and see the woodpeckers' granary tree full to bursting with ripe acorns.

Michelle Fullner is an educator, California Naturalist, amateur poet, and host of the [Golden State Naturalist](#) podcast. She lives in Sacramento with her husband, two woodland sprite daughters, golden-doodle, geriatric cat, and more houseplants than she can take proper care of. Find her podcast, [Golden State Naturalist](#), at [goldenstatenaturalist.com](#). All photos were taken by the author. To read more about the social lives of acorn woodpeckers see the [Summer 2021 issue of The Acorn](#).



Mom and the kids along the trail.



By EYNC Naturalist
Sara Tabatabai

Ask a Naturalist: Do Coyotes Bark?



Coyote photo by Guy Galante

They do!

Coyotes' scientific name, *Canis latrans*, means "barking dog" and references the many vocalizations this canine uses to communicate. While a wolf's howl is usually a simple low and long howl, the coyote howl is higher pitched and often made up of a combination of shorter howls, yips, yaps and, yes, barks.

Coyotes are extremely social animals and their language is amazingly complex. Five basic types of coyote sounds—barks, howls, yips, yaps, and gruffs—may be strung together to send different messages in a kind of coyote language. Each coyote has a distinctive voice that can be recognized by family members.

Barks might be combined with howls to frighten off a domestic dog or other perceived threat. Longer howls might be used to take a roll call with other coyotes in the area answering back. Yips and yaps are shorter vocalizations that can be interspersed with howls for a friendly conversation. The addition of barks often means there may be a threat in an area. A female or younger coyotes sometimes yip along with an alpha male as a chorus or group "yip-howl". Or family members may use yip-howling to keep in touch as pups disperse into surrounding areas.

Gruffs or huffs are a signal to people or other predators to stay away. A mother coyote will also use gruffs to warn her pups of danger and to tell them to get back in the den.

You may have heard coyotes howling and yipping in response to sirens. The reason they do this is unclear, but it is possible that the high pitch and overlapping sounds of sirens sound like other coyotes to our local wild dog, and they are simply calling back.

Sara Tabatabai has been a Naturalist at Effie Yeaw Nature Center (EYNC) since 2017. She received a degree in Environmental Studies/Geography at UCLA and a MA in Environmental Conservation Education from New York University. She has a passion for the outdoors and is well known for her fondness for coyotes. At EYNC, she loves sharing nature with our diverse community and training new Naturalists. She's committed to protecting the environment and reminds everybody that even small actions can have a positive impact on local natural habitats.



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