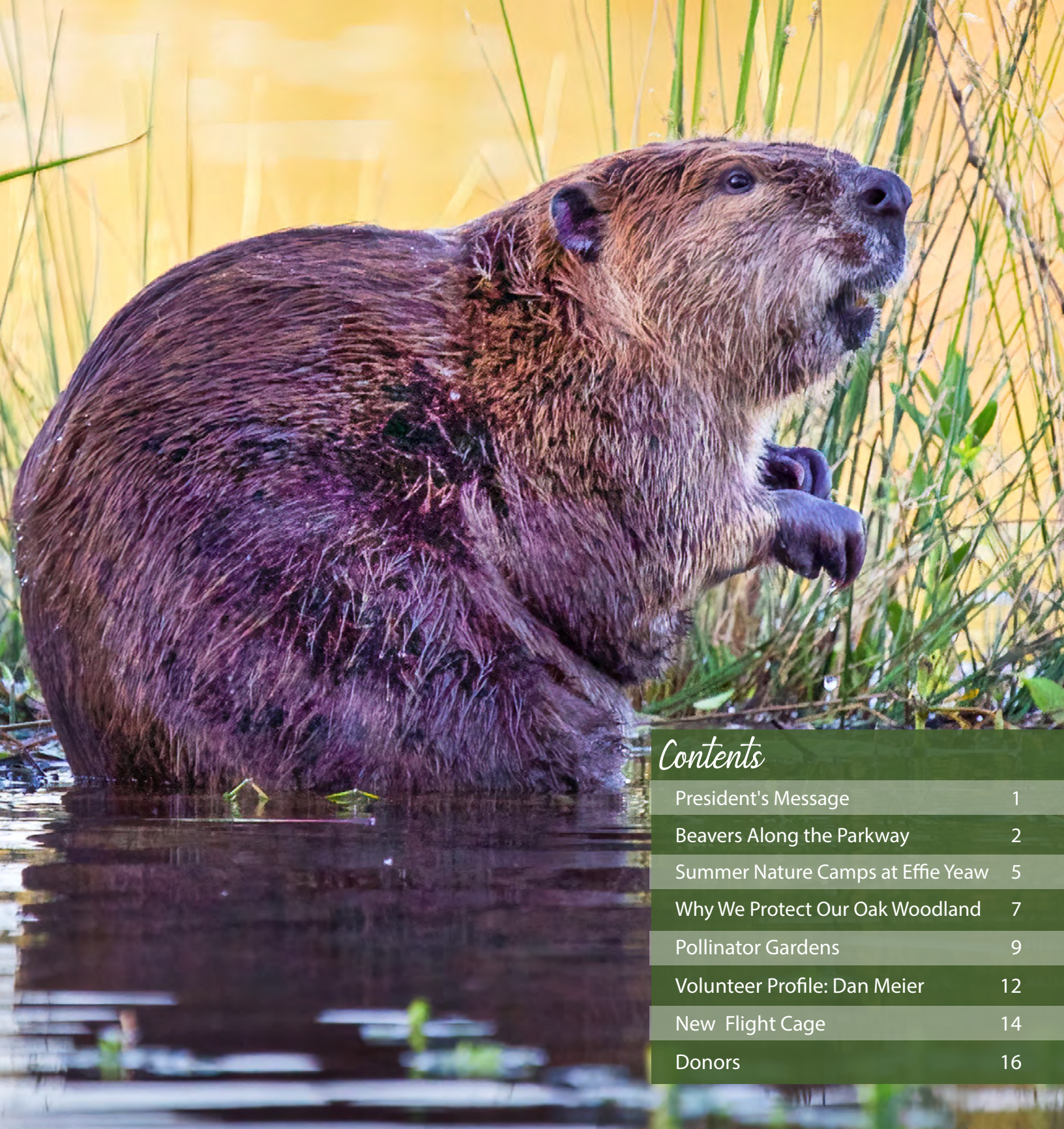


THE ACORN

American River Natural History Association Quarterly Magazine – Fall 2022



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President's Message, Fall 2022



Laurie Weir

The Effie Yeaw Nature Center is overseen by the Board of Directors of the American River Natural History Association. The Board consists of 14 capable and dedicated members. They are assisted by 13 Associate Board members, who support activities of the Board and the Nature Center. All are listed [on our website](#).

In addition to attending board meetings, each board member is actively engaged in a committee or task force. Board committees and task forces include: the Executive Com-

mittee, Finance Committee, Aviary Task Force, Nominations Committee, Fund Development Committee, Media Task Force, and Publications Task Force. Committees and task forces are guided by goals outlined in our 2021-2026 Strategic Plan.

We are particularly excited about the revitalization of our Finance Committee! This committee oversees the organization's financial management and administrative protocols in line with best practice standards to ensure the fiscal integrity and organizational stability of the Natural History Association and the Nature Center.

Our Publications Task Force has been very active as well, arranging for reprints of some of our best-selling titles. We have ten books currently in print; all are listed [on our website](#).

The Fund Development Committee's goal is to increase fundraising by five percent this year. This committee works with staff and is focused on key events such as the Annual Gala, as well as corporate, foundation, and individual giving. Let us know if you are aware of a person or organization that might wish to provide support.

The Aviary Task Force is hard at work developing plans for a new animal enclosure to be located behind the main Nature Center building. Our goal is to make significant progress towards bringing this project to "shovel ready" status. Stay tuned for updates.

Another key initiative of the Board is the update of the Association's Corporate By-Laws, which were written over 40 years ago. This effort includes updating the By-Laws to be consistent with current California law, as well as changes to reflect how the organization currently works. We hope to bring the updated By-Laws to the Annual Membership Meeting & Celebration in late September.

The Membership Meeting will be a time to celebrate the efforts of volunteers and update members on staff and Board efforts to improve the Nature Center. Please check our website and emails for details about this event. All members are invited!

Of course, there is more. These are just some highlights of the work that the Board is doing to support and oversee the Nature Center. Our meetings are open to the public. We meet eight times a year on the third Wednesday of the month. In the past, the Board has met in person at the Nature Center. However, the continued threat of Covid has required our meetings to remain on Zoom. If you are interested, please contact the Nature Center and they will provide you with the information needed to join a board meeting.

We look forward to seeing everyone at the Annual Membership Meeting & Celebration!

-Laurie Weir



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Cover: North American beaver.
Photo by David Dawson.

Beavers Along the American River Parkway

By Eric Ross

Out on the lower American River in early morning or late evening, you may be fortunate enough to glimpse beavers on or along the river. The experience can be thrilling when you suddenly realize that here, in a highly developed urban area, there are wild creatures of substantial size not confined to zoos.

Most people are unlikely to have such encounters because beavers are largely nocturnal. During the day, you may find beaver evidence along the Parkway in the form of gnawed or downed trees near water sources or small footprints on wet ground nearby.

Surprisingly, state and federal officials don't have accurate counts on beaver populations locally or statewide.

However, there is ample data from naturalists and observant citizens suggesting a thriving beaver population up and down the lower American River.

The North American beaver (*Castor canadensis*) is the largest rodent on this continent with a range stretching from northern Canada to the northern Mexican deserts, including most of California (Figure 1). Beavers excel at changing the flow of water through the environment, helping to maintain healthy landscapes with sufficient water levels and promote biologically diverse habitats for other animals and plants.

Beavers are widespread along rivers, shallow lakes, and in forest swamps throughout their range. Covered with



Figure 1. Beaver feeding in a local marsh. Photo by David Dawson



thick, rich-brown fur, they average about 3 to 4 feet in length and typically weigh between 40 and 80 pounds. In contrast, their footlong and 6-inch-wide tails are scaly, hairless, and paddle-shaped.

On land, beavers are often at risk. They are slow, clumsy, highly vulnerable, and, if attacked, not able to fight back. A large array of terrestrial predators (bear, bobcat, coyote, mountain lion, river otter, and wolf) treat them as prey.

In water, it's a different story. There they can be safe from their enemies. Agile and quick, their streamlined bodies are very efficient for swimming underwater. Oversized lungs and a body system evolved for conservation of oxygen allow beavers to remain below the surface up to 15 minutes. In that time frame, they can swim up to half a mile or hide motionless on the water bottom without needing to breathe. Their prowess in water is further assisted by large, fully-webbed hind feet, transparent eyelids, and musculature that shuts their nostrils and ear openings when they swim.

Logically, given their advantages in water, beavers create aquatic homes they can access through underwater entrances and which serve as safe places to eat, sleep, and raise their offspring. Such dwellings may be found in dugout burrows along river banks or in wood "lodges" plastered with mud, which project above the water line (Figure 2). In the Sacramento area, most beavers are bank dwellers and do not build dams.



Figure 2. A beaver lodge near the American River. Photo by Eric Ross.

Beavers are strict herbivores. The phrase "busy as a beaver" surely relates to the species' persistent need to gnaw wood with their front teeth. They have four long, curved incisors – two set in the broad, powerful lower jaw and two set in the upper jaw -- all orange in color. They must keep their incisors short or else they will outgrow their skulls.

Beavers thrive by cutting down deciduous trees (willow, aspen, cottonwood) and eating the inner bark for nourishment. Research has shown beavers can chew through a six-inch trunk in five minutes (Figure 3). They will also consume other plants including grasses, leaves, and roots. They use their dexterous, smaller-clawed front paws to eat (Figure 4).

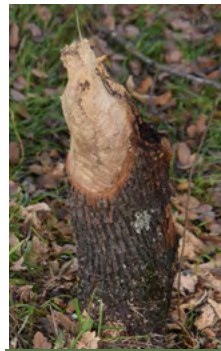


Figure 3. A freshly gnawed tree. Photo by Eric Ross.



Figure 4. Beaver chewing a branch along the American River. Photo by David Dawson.

Beavers live in colonies of a pair mated for life, their first-year offspring (kits), along with yearlings and juveniles. At birth, footlong, one-pound kits are fully furred with open eyes and teeth ready to use. In these close-knit families, yearlings and juveniles assist in the feeding, grooming, and guarding of kits. Juveniles, reaching age 2 or 3, leave and establish their own colonies. Beavers live up to a dozen years in the wild; the mating pair has only one litter of kits a year.

Historically, scientists indicate between 60 and 400 million beavers lived on the North American continent prior to European colonization. After colonization, beavers quickly began being killed on the East Coast and then across to the West Coast for their pelts. By the late 1700's, extensive beaver hunting and trading for pelts with tribes along the Pacific coast by Russians, Americans, and Europeans in sailing ships further decimated the species. The pelts were popular throughout the world for making warm clothing and stylish hats.



During the nineteenth century, attempts to protect beavers were ignored in California. With a continuing demand for beaver pelts, one commentator has referred to this period as the “California Fur Rush”. By the twentieth century’s start, there were an estimated 1,000 beavers left in California.

In 1911, the state passed law to protect the few beavers left from extinction. When their numbers rose, new laws gave landowners the right to kill beavers that damaged their property. Beaver populations diminished drastically to the low thousands and killing was again banned. Yet, by the early 1940s, the right to kill beavers by permit was restored to landowners and remains today.

Throughout the twentieth century, California’s increasing population and its needs powered the rise of commercial agriculture and urbanization, converting wetlands into subdivisions and more extensive farms. The development of a highly engineered network of dams, reservoirs, aqueducts, water treatment plants, and pipes to deliver water to businesses and families was viewed as welcome progress. The Central Valley became a place where the beaver’s contributions to the environment were often overlooked and forgotten.

While legally supporting landowner’s rights to kill or live-trap nuisance beavers in farm areas to prevent crop damage, the California Department of Fish and Game, later Fish and Wildlife (DFG/DFW) and other advocates continued to see the benefit of beaver’s water engineering to maintain wetlands, save water, improve soil, conserve wildlife, and retard wildfires (Figure 5).

Currently, California beavers find themselves in a world of somewhat contradictory policies even within state government. DFW fish and water people talk up beavers’

benefits while agribusiness, landowners, and municipalities concerned about beaver-caused flooding and disruption, often opt for lethal control with support from DFW laws and regulations.

In urban areas, beavers sometimes succeed in local streams because of citizen advocacy (ex. Marin County, Martinez and Fairfield). Mostly, though, the highly built-out or industrially farmed landscape makes beaver hydro-engineering impossible in and around the Sacramento Valley with support from state law and local zoning.

Today, increasing numbers of state, federal, and tribal scientists throughout the state with their colleagues in business and environmental organizations consider beavers as useful tools to help prevent global warming, protect healthy water quality, promote surface water storage, and enhance ground water recharge, especially during drought conditions.

In the last few years, pilot projects begun with support from DFW, the U.S Fish and Wildlife Service, Sierra ranchers, Northern Maidu leaders and others are showing how beavers, with human cooperation, can revitalize water abundance, fish and wildlife habitat, carbon sequestration, and fire resiliency. Clearly, beavers can have positive impacts on ecosystems throughout our state if provided legal, financial, and political support--not bad for this critically important species, which was on the verge of extinction in California not that long ago!

Eric Ross is a Docent at Effie Yeaw and a Certified California Naturalist. Special thanks to David Dawson who provided several of the spectacular photos including the one on the cover. He has been photographing wildlife along the American River Parkway, usually from his kayak, since 2014.



Figure 5. Beavers’ water engineering skills provide benefits for California wetlands. Photo by David Dawson.



Summer Nature Camps at Effie Yeaw

By Catie Equi

Once June rolls around and school is out, hundreds of children look forward to attending summer camp at the Under the Oaks Nature Camps at Effie Yeaw Nature Center (EYNC). According to Lead Naturalist Brena Seck, when Effie Yeaw first began the camps more than 20 years ago, they were known as “Fun Days”. The organization eventually decided to change the program’s name to “Nature Camps” to emphasize that the camps were more than just fun, they were educational too. They take advantage of EYNC’s 100 acres of nature preserve and riverside setting, its exhibit hall and museum, and resident Animal Ambassadors. The programs teach children important team-building skills while simultaneously informing them all about the natural world in a fun and engaging fashion. Over the years Brena, who also works as a Nature Camp leader, has played a vital role in fostering an atmosphere of active learning by introducing new activities such as new arts and crafts projects, nature-focused games, and even gold panning!

The nature camps are hosted four times a year, once in each season; summer, spring, fall, and winter. However, during COVID, numbers dropped as the camps were moved to a virtual/hybrid setting. Last year, the children were able to attend the camp in-person but only for a period of two hours. This year marks the first year that EYNC offered full-length camp days. Kids between the ages of 5 and 15 were able to select from a range of camp themes specially designed for their age group. Pre-camp, morning, afternoon, and full-day camp days were offered to accommodate different family needs.

One of the popular summer camp themes offered to the 8-through-11-year-olds is Outdoor Adventures, which takes place from 9 a.m. to 12 p.m. most days over the span of two weeks. For kids taking part in this camp, each day offers a new and educational yet fascinating experience. I attended two days of this camp during its second week and got to share the children’s excitement and enthusiasm.

On my first day, the camp’s theme was arts and crafts. But there was a lot more than that going on. First, there was a visit from one of the EYNC’s amazing Animal Ambassadors, a toad named Kaiya. The group then took a hike to the river where they were given the opportunity to draw a picture or write a story or poem inspired by the nature that they saw around them. Afterwards, they



Nature Camp Leader, Brena Seck, instructs campers on how to create different tie-dye patterns.



Two children in the Outdoor Adventures Nature Camp take a close look at one of EYNC’s animal ambassadors, Kaiya the toad.



walked back to the Nature Center where they tie-dyed their very own bandanas and finished the day by making abalone shell necklaces. Before they left each afternoon, the kids were given a trivia question to research at home and could receive a prize the next morning at camp if they found the correct answer.

On my second day, the kids took part in a river cleanup that ended in a competition for oldest, grossest, and most unusual piece of trash collected; the winner in each category received a prize. After making their way back to the Nature Center, the children learned all about the different pollutants that affect the city, such as pesticides, fertilizer, animal waste, and plastic bags. Using a model of a city, they were then able to see how these pollutants accumulate over time and how they affect the environment. Afterwards, they discussed several ways to combat pollution and learned how they could help keep our city and its environment clean and healthy.

EYNC's camp programs offer a fantastic opportunity for kids to immerse themselves in nature in a way that is not only science-based but fun as well. Throughout the camp, kids learn important team-building skills while also becoming stewards of the environment, making friends and memories along the way.

More information and opportunities to sign up for future camps can be found on the EYNC website at SacNatureCenter.net under the tab labeled "Education".

Catie Equi is a junior in high school at Rio Americano who has a passion for nature and conservation and has grown up around the Effie Yeaw Nature Center. She now serves as a teen volunteer at the EYNC helping to produce The Acorn. All photos were taken by the author.



Children were able to get creative and use a variety of vibrant colors to tie-dye their very own bandanas.



Three kids walk side by side trash bags, gloves, and a trash grabber in hand to embark on their river cleanup activity.



A camper fills their trash bag with a mysterious piece of garbage from the river. This particular piece of trash won the contest for "most unusual item collected".



Why We Protect Our Oak Woodland

By Mary Louise Flint

Effie Yeaw Nature Center (EYNC) is surrounded by a nature preserve consisting of 100 acres of oak woodland, also known as our Nature Study Area (NSA).

Oak woodlands include the most diverse habitats among the natural plant communities in California and host more animal and plant species than any other. Estimates from the University of California suggest that over 300 terrestrial vertebrate, 5000 insect, and 2000 plant species inhabit California's oak woodlands. Hundreds of aquatic species are dependent on oak woodland ecosystems as well.

Why such diversity? One could start with the acorn, the oak's highly nutritious fruit, which is a key food item for an incredible variety of animals ranging from acorn woodpeckers, scrub jays, squirrels, deer, turkeys, rabbits, foxes, raccoons, and opossums to weevil grubs. Well beyond acorn season, oak leaves, branches, and trunks provide sustenance to caterpillars, beetle larvae, deer, rabbits, sapsuckers, various fungi, and even mistletoe. Over a hundred species of cynipid wasps create galls on oak twigs, leaves, flowers, and stems to support development of their immature stages. Roots support other organisms such as beetle larvae, nematodes, and fungi including species that sprout fruiting bodies (mushrooms or conks) near the base of the tree after rain. Each of these species is host or prey to numerous other organisms higher up the food chain. If you were to draw a food web emanating from a single oak tree, it would be extremely complex and surely take up several pages.

Food is not the only resource the oak tree provides. The oak tree, dead or alive, shelters a wide range of animals and plants. Holes, hollowed-out cavities, nooks and crannies in living trees or snags, and in and under fallen logs provide sites for nesting, foraging, roosting, sunning, hunting, and hiding. Trees provide structure for vines such as grapes or poison oak to climb high into the canopy as well as a surface for growth of lichens (algal-fungal symbionts) and moss. Oaks produce more leaf litter than most trees, increasing organic matter and nutritional resources to create fertility islands for nearby plants. Mycorrhizae and other soil fungi associated with oaks form a massive underground web facilitating nutrient exchange and support for plants and other soil organisms throughout the area.



The oak woodland at Effie Yeaw's Nature Study Area. Photo by M.L. Flint.



The acorn woodpecker is just one of many animal species common to oak woodlands. Photo by Katherine Roberts.



This "Angel of Death" (*Amanita ocreata*) mushroom is the fruiting body of one of the many fungi that grow in association with oaks, breaking down dead plant material, forming underground mycorrhizal networks, and distributing nutrients throughout the oak ecosystem. Beware: This mushroom is highly poisonous! Photo by M.L. Flint.



But an oak woodland is far more than its oak trees. What differentiates an oak woodland from other types of California habitats such as redwood or conifer forests is the great diversity of plants that the ecosystem supports. Although oaks are the keystone species, in some cases only 10 to 20% of the land in an oak woodland may be covered by oak trees. Oak woodlands are patchy. They often have significant areas of grasses, wildflowers, shrubs, or other trees within their borders, which greatly increases the variety of supported organisms. Oak woodlands, such as the one at EYNC, often include riparian areas where streams or rivers create habitat for aquatic organisms. The woodland serves as a watershed essential to the maintenance of the riparian habitat by holding water and soil, reducing runoff, and providing a source of food and shelter for the riparian ecosystem.

Our oak woodlands are declining. Oak woodlands were once the dominant landscape in California's central valleys, but much of it has been replaced with agriculture or urban development. The oak woodlands along the American River Parkway such as our NSA are some of the few surviving protected areas of original oak habitat in Sacramento County. At Effie Yeaw, many of the large and majestic valley oaks have died or are in poor health. The smaller interior live oak trees are becoming more dominant, but even these are suffering. Many years of drought and warmer temperatures have taken their toll. And as the oaks decline, all the other species in the ecosystem also suffer.

Over the last 30 years there have been several efforts to plant or nurture new oak trees at EYNC. EYNC volunteer Jack Hiehle began putting cages around young oaks to protect them from herbivores such as deer and rabbits in the late 1980s. In 2004, 60 oaks were planted adjacent

to the parking lot and San Lorenzo Road as a mitigation for the new classroom building at EYNC. In 2015, 35 blue oaks and 30 valley oaks were planted in the areas just below the administrative building. In 2018, a team from the Rotary Club planted 20 valley oaks near the junction of the Main and Meadow trails. Each of these projects involved huge effort by volunteers, not only with planting but also watering the oaks, often by hand with milk jugs for several years. Unfortunately, limited time and resources have prevented consistent surveys to determine how many of these trees survived.

The EYNC Habitat Restoration Team, led by volunteer Krystin Dozier, has just begun a project to survey oak trees and recommend steps to rehabilitate our oak woodland. The focus will likely be on interior live oaks and blue oaks because valley oaks are being so hard hit by our persistent drought. The Team is considering a strategy of caging and protecting natural acorn sprouts rather than planting seedling trees brought in from somewhere else. Water is critical to the survival of young trees, and watering with milk jugs is not a viable strategy. Fortunately, pipes flowing with grey water for fire protection were installed in the NSA many years ago, and it may be possible to tap into them to irrigate the trees.

If a restoration effort gets underway, it will require a lot of work from volunteers. Keep a lookout for volunteer opportunities with the Habitat Restoration Team.

Mary Louise Flint, Ph.D., is a docent at EYNC and Extension Entomologist Emerita at UC Davis. Read more about oak woodlands in the book Secrets of the Oak Woodlands by Kate Marionchild.

Table 1. Some key species in the Valley Oak Woodland*

Woody Plants	Birds	Mammals and Reptiles
Valley oak	Acorn woodpecker	Black tailed deer
Interior live oak	Bewick's wren	California ground squirrel
Blue oak	Bushtit	Coyote
Black walnut	California quail	Western gray squirrel
Blue elderberry	Oak titmouse	
California blackberry	Red-shouldered hawk	California kingsnake
California buckeye	Towhee (spotted or California)	Gopher snake
California coffeeberry	Western scrub jay	Western rattlesnake
California sycamore		Western fence lizard
California wild grape		
Poison oak		
Toyon		

*These are only a very few of the most common species found in Sacramento area oak woodlands.



Pollinator Gardens

By Melanie Loo

With its absence of pesticides, variety of native plants, and proximity to water, the Effie Yeaw Nature Center (EYNC) is a haven for pollinators. Pollinators are small animals— including bees, wasps, flies, beetles, butterflies, moths, hummingbirds, and bats—that transfer pollen from the anthers (male part of the flower) to the stigma (female part) of the same flower or to another flower of the same species, stimulating fertilization and reproduction. The relationship is mutually beneficial as the pollinators are rewarded with nourishing nectar and/or pollen as they move from flower to flower.

Pollinators are fascinating attractions in the landscape and valuable links in food chains. As you walk the Nature Study Area trails, you will see pollinator activity on resident plants such as pipevine swallowtail butterflies flitting through patches of vetch and yerba santa; European honey bees buzzing around thistles, blackberries, and other flowers; and soil-nesting bees hovering around low-growing flowers at the edge of the path (Figures 1 and 2).

However, pollinators are increasingly threatened by climate change, pesticide use, and loss of habitat to agriculture, urbanization, and invasive organisms. At Effie Yeaw, a Habitat Restoration Team (HRT) has undertaken several projects over the last three years to bolster pollinator populations. These projects have involved planting and establishing irrigation systems for hundreds of native plants to provide additional food and habitat for pollinators and all the organisms with which they interact.

It was the recent decline of the monarch butterfly population that spurred EYNC volunteer Krystin Dozier to propose a monarch habitat restoration project in 2019 as an offshoot of her California Naturalist capstone project. (See the [Fall 2020 issue of *The Acorn*](#) for more details.) Despite healthy stands of showy milkweed near the EYNC buildings, few or no monarch butterflies were visiting.

Krystin found a natural stand of showy milkweed off the Main Trail and hoped to stimulate monarch activity by introducing more pollinator-supportive plants at that site. While monarch caterpillars feed specifically on milkweed leaves, the adult butterflies drink the nectar of several plants and the whole ecosystem is bolstered by diverse interactions among plants and animals. Seeds planted in 2019 did not survive the drought. But pre-grown seedlings planted in 2020 and provided with drip

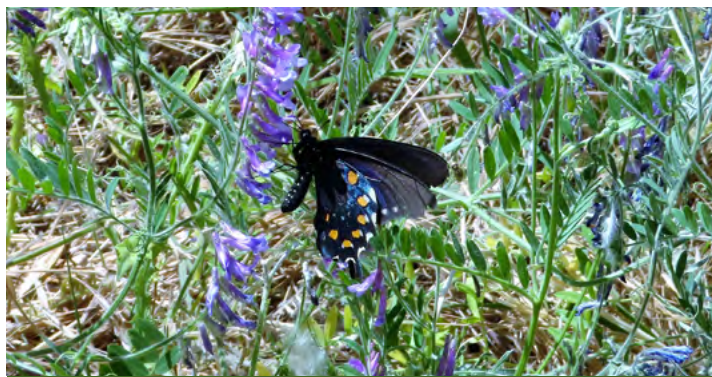


Figure 1. Pipevine swallowtail butterfly on vetch.



Figure 2. European honeybee and tumbling flower beetle on showy milkweed.

irrigation have survived well and were joined in 2021 by additional plantings at the intersection of the Main, Meadow, and Pond Trails and at the site previously occupied by the playscape.

Plants supporting pollinators have co-evolved with the pollinators and rely on their transfer of pollen for fertilization and seed production. Thus, it is no wonder that they have flowers with colors, shapes, and fragrances that attract pollinators. In return for help with reproduction, the plant hosts provide energy-rich nectar and protein-rich pollen grains, and, in some cases, foliage consumed by larvae, and shelter. The plant embryos resulting from fertilization are surrounded by protective and nutritive layers (fruit) that can be used as food and shelter by the rest of the ecosystem. An estimated 75-80% of our crop species rely on pollinators for their reproduction. Moreover, pollinators in all their developmental stages provide food for larger animals throughout the food web.



The process of adding pollinator host plants required months of work by HRT members and other volunteers; planting was scheduled to peak in fall. Fall is an ideal time to plant seedlings, since it is not too hot, but still warm enough for plants to establish root systems before the winter cold. One of the first tasks was surveying sites to find ones with appropriate soil drainage, exposure to sun, and proximity to a water source. Suitable areas were then mapped, noting sunny and shady areas within the plot that would be favored by various plants.

Another early and critical step was plant selection. As part of the American River Parkway, the Nature Center's grounds are subject to regulated planting. Only native plants historically found in the area can be planted because they have demonstrated compatibility with physical conditions and wildlife in the area. Among those, a mix of plants was chosen that were known to provide food and shelter to the pollinators commonly found in the area throughout the year. Ideally, the plants would provide blooms at different times of the year from February through November.

The huge task of plant selection and sourcing was undertaken by HRT members familiar with native plants and in consultation with information from organizations such as the California Native Plant Society, the Xerces Society, and the UC Davis Arboretum. About 20 different species of California native plants were selected and procured from local nurseries. Multiple seedlings of most plants were obtained so that clusters of one type of flower would be available to pollinators. That way pollinators would not have to expend too much energy locating food. Examples of plants used in the new pollinator gardens are shown in Table 1.

In early fall, planting sites were cleared of weeds, mulch was procured, a location for each plant was marked with a labeled flag, and irrigation was installed. To irrigate efficiently, hundreds of feet of ¾ inch feeder line was routed throughout each site and ¼ inch lines were run from that to each plant's location. The ¼ inch lines were connected to irrigation rings with imbedded emitters, to provide measured amounts of water to the root balls of each seedling with minimal loss to evaporation (Figure 3). The whole system was connected to an automatic timer.

On planting days, HRT members led volunteers from the Carmichael Rotary Club and the community to plant and mulch. About 48 plants and seeded areas were installed off-trail in 2020. In 2021 volunteers installed about 144 plants in view of the Main, Meadow, and Pond Trails and about 90 plants in the area vacated by the old playscape in the EYNC village. Seedlings at the first two sites were protected in wire cages from animal traffic and browsing, while those near the village were left uncaged. Because the plantings near the village are considered a



Figure 3. Irrigation ring installed around seedlings.

Table 1. Some California Native Plants Selected for New Pollinator Plantings at EYNC

Plant Name	Scientific Name	Bloom Time	Especially Attractive to
Dutchman's Pipe Vine	<i>Aristolochia macrophylla</i>	winter/spring	pipevine swallowtail butterfly for egg laying
Coyote Brush	<i>Baccharis pilularis</i>	winter/spring	butterflies, bees
Foothill Penstemon	<i>Penstemon heterophyllus</i>	spring/summer	hummingbirds, bees, butterflies, moths
Coyote Mint	<i>Monardella villosa</i>	spring/summer	butterflies, moths, bees
Yarrow	<i>Achillea millefolium</i>	spring/summer	butterflies, bees, beetles
Goldenrod	<i>Solidago velutina</i>	summer/fall	butterflies and moths, bees
California Fuchsia	<i>Epilobium canum</i>	summer/fall	hummingbirds, bees



demonstration garden, they have been supplemented with trellises for vines and bee boxes for native bees that usually nest in hollow twigs (Figure 4). Unmulched areas are also available for native bees that burrow in soil and various methods of providing puddles of mineral-laden water for butterflies to drink will be installed.

Monitoring and adjustment of all sites for successful blooming, adequate irrigation, and weed removal will continue. We are pleased to report that as of spring 2022, many of the added pollinator host plants contributed blooms that were appreciated by pollinators (Figures 5 and 6).



Figure 4. A bee house for native bees who normally nest in hollow twigs.



Figure 5. Sweat bee on gum plant bloom.



Figure 6. Beetles and a lygus bug visiting yarrow bloom.

Melanie Loo, Ph.D., is a retired Professor of Biological Sciences at CSU Sacramento. She volunteers at the EYNC as a docent, trail steward, and member of the Habitat Restoration Team. All photos were taken by the author.



Volunteer Profile: Dan Meier

By Krystin Dozier

Dan Meier has been an active member of the Effie Yeaw Nature Center (EYNC) Habitat Restoration Team (HRT) for over three years and has become an invaluable resource on native plants. His expertise has been the foundation for selecting the species the team has planted in the Nature Study Area (NSA). For the monarch pollinator patch plantings, Dan first had to identify nectar plants that attracted monarchs; then determine when each plant bloomed so that the HRT could be sure that nectar would be available for the monarchs during their full spring to fall breeding season; and finally, confirm which of those plants were allowed within the restricted American River Parkway approved plant list.

Dan also intimately knows the native plant nurseries in the area and was able to identify sources for the needed plants and make arrangements to ensure that plants would be available for our planned November planting and picked-up and delivered to the NSA in a timely manner. He also determined where to best plant each species within the chosen sites to provide a natural landscape. Dan has led these efforts for the HRT planting for the past three years. He became nicknamed “Dan, the native plant man” by our team, not only for his extensive knowledge, but also for his dedication to making sure that the team’s planning, implementation, and monitoring efforts would achieve desired goals.

When expansion of the village pollinator garden was envisioned in the summer of 2021, it was Dan who was called upon to help with the planning and plant selection. He joined the project team and again planned, selected, sourced, and oversaw the planting of the new garden space in the village. This spring and summer, these plants are growing strong, showing their first blooms, and helping to fulfill our mission of education with name placards placed near each plant.

Dan is a member of the California Native Plant Society (CNPS) and a volunteer at Elderberry Farms native plant nursery where he has learned from founder and mentor Chris Lewis. He serves on the American River Parkway Advisory Council (ARPAC) and participated in the Lower American River Conservancy (LARC) Taskforce. Through these experiences he has become familiar with many other restoration projects within the Parkway and applied the successes and failures of those projects to inform our planning.



Dan Meier

Dan has lived in the Sacramento area for over 40 years and has always been drawn to the American River as a place to recreate and experience nature. His educational background is in biology and he worked professionally as an environmental compliance specialist and nature resources project manager. He states that he has learned the most about flora and fauna by frequenting the American River Parkway mostly through kayaking, hiking, and taking pictures. He became a native plant enthusiast with a particular interest in species found within the American River Parkway. He enjoys native plant gardening with a focus on attracting pollinators, such as native bees and butterflies.

He enjoys visiting EYNC’s network of trails, which provides a reliable place to see wildlife. He believes EYNC’s unique educational experience for visitors and school children and its native plant gardens are among the best in the region. He states “the plant identification signs in the native gardens provide visitors with a nice overview of perennial plants in the Parkway. The Parkway is extremely important and unique for our region because it provides a contiguous stretch of natural habitat that supports diverse and complex riparian woodland, grassland, and aquatic ecosystems.”



The HRT has attracted volunteers with a wide array of interests, and many have specific knowledge and experience involving irrigation, native plants, mapping, and nature education that are useful in implementing habitat restoration projects. The team members all learn from each other and enjoy the comradery of fellow nature enthusiasts. Dan brings his knowledge of native plants and nurseries to select, source, and obtain all the plants used for these projects. The HRT is thankful for Dan's experience, expertise, and contributions, which have been critical to its successful restoration efforts. Dan's vision for the future is the integration of the Habitat Restoration Team efforts and projects with EYNC's resource management plan to allow for structured, incremental restoration projects and long-term naturalization of native plants throughout the Nature Study Area.

Krystin Dozier is a California Naturalist volunteer and docent at EYNC and chair of the Habitat Restoration Committee.



Dan (with facemask), Amanda Farmsworth and Chris Jakle check growth of new plantings at EYNC in May 2022.

Come to NatureFest on
Sunday, October 9.
 This family friendly event includes live animal presentations, kids activities, guided nature hikes and more.
sacnaturecenter.net/events/naturefest/

Seen on the Trail at Effie Yeaw.

Katherine Roberts spotted this ash-throated flycatcher snacking on elderberries.



New Flight Cage – Collaboration Gets it Done

By Joey Johnson

The raptors that live at the Effie Yeaw Nature Center (EYNC) are some of the most important members of our education team, serving as ambassadors both at the Nature Center and out in the community. Keeping them healthy, both physically and mentally, is of utmost importance. All of our birds are considered “flightless” for various reasons, but that does not mean they don’t like to stretch their wings a bit. And, like most living things, they need a little sunshine to brighten their lives. Until recently, getting out in the open air to stretch and see the world has meant coming out on the arm of a trained naturalist or volunteer.

Some time ago, Kent Anderson, EYNC Executive Director, began imagining a temporary structure that would allow our birds to get outside and move about without being tethered to an arm. He envisioned what is called a flight cage that can offer room for short flights and access to sunlight and fresh air, yet keep the birds safe. Although a larger, permanent aviary at EYNC is being planned, it may be some time before such a structure can be completed, so a temporary flight cage would greatly improve conditions for our raptors in the short term.

In August of 2021, Pam Goldman, the teacher of the Principles of Engineering class at Folsom High School, contacted Kent looking for some capstone projects that her students could do for her class. This seemed like a perfect path for EYNC to obtain a flight cage; educate high school students about the needs of injured, non-releasable wildlife such as our ambassador animals; and increase our community outreach and collaboration. Kent visited the class and presented some ideas for projects, one of which was the flight cage. In his presentation, he explained the purpose of the structure and how it would enhance the lives of the birds. The students then picked projects they wanted to pursue, developed plans, and presented their projects in a more formal manner.

On May 3, 2022, a large bus pulled up to EYNC with the entire engineering class, Ms. Goldman, and other adult support. Not far behind, a truck pulling a trailer filled with materials came down the access road to the work site. Materials and tools were unloaded, and the construction began. This group of young people were there to work. They had already developed specific plans and specifications for the construction, so they knew what to do. They completed the basic cage structure in one day.



The Folsom High School Principles of Engineering class arrives in a bus.



Students begin work on the flight cage structure.



The cage frame and screens take shape.



I had an opportunity to speak with Ms. Goldman briefly that day. She shared that finding projects like this one, which give students a chance to take their learning into real world situations, is challenging. She said projects that benefit animals are ideal because the needs are clearer, which makes the projects easier to complete.

In addition to the flight cage, the class built a portable enclosure for turtles so they can be outside. Students also produced a similar enclosure for snakes, an informational/interactive education display, outdoor game boards (tree cookies) and a game guide to go with the Playscape, and mobile bird perches and a stand for the enclosures. I also observed a crew tidying up the amphitheater.

Once the main components of the structure were complete, more hardware cloth was added to the floor to prevent other animals from getting in. Perches, branches, and other natural elements have been added to mimic a natural environment.

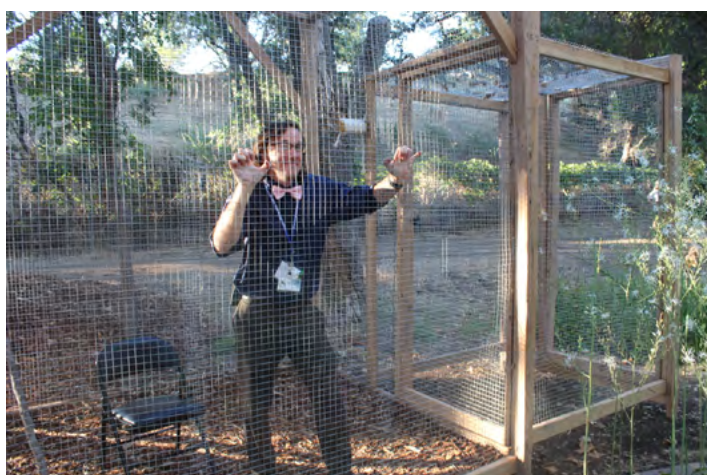
On June 29, a group from the Nielsen Global Impact Day came to do additional work on the cage under the leadership of Rene Covey, one of EYNC's Animal Care Specialists. They added some hardware cloth and screen cloth to the flight cage. The hardware cloth was added to the entryway and the screen cloth was installed on the sides. The function of the screening is to reduce how much the birds can see the outside environment around them, which will help keep them calm.

This flight cage is a temporary structure that can be dismantled at any time and moved as needed. Birds will be brought out to enjoy the space by trained naturalists or volunteers who will remain in the area to ensure that the birds are safe. The structure was completed and in use by our ambassador birds in August 2022. It would not have become a reality without the hard work of our community partners.

Joey Johnson is Past President of ARNHA, a photographer, and a nature lover. All photos except the last one were taken by the author.



Volunteers from the Nielsen Global Impact Day add more hardware cloth to the structure.



EYNC Executive Director Kent Anderson previews the flight cage.



Orion, EYNC's Swainson's hawk, perches in the flight cage. Photo by Sam Cohen-Suelter.



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