



Tide Rising

Fall 2022 Volume IV, Issue 1



Publisher & Editor: [San Francisco Bay Wildlife Society \(SFBWS\)](#).
SFBWS is a not-for-profit Friends Group for the San Francisco Bay NWR Complex,
working along with many Refuge volunteers to keep our public lands sustainable for you and wildlife.

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Partnerships & Learning about California Refuges

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Partnerships

- *South Bay Salt Pond Restoration Project*: Long term partnerships forging new collaborations.

Fall Birding Migration Paths through National Wildlife Refuges

- Take a trip with two passionate birders through the Northern California National Wildlife Refuges.
- Learn about Refuges in Washington and East Coast.
- Find out where to learn more about birds in the Bay area: on the Refuge and in local hotspots.

Science Reports from the Field

- Drought affects *Marin Islands NWR* and studying habitat loss at *Antioch Dunes NWR* impacting key flower species.

Summer Camp 2022: back in person again!

Read some updates from CA Audubon, SFBBO, and the upcoming Dark Sky Symposium. Enjoy the San Francisco Bay Wildlife Society **Fall** Newsletter! Share your ideas for future articles! What interests you? [Write us.](#)

San Francisco Bay Wildlife Society

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Masthead: Earth Day Graphic (Olivia Poulos)

35th Anniversary San Francisco Bay Wildlife Society

Event: Birding for Beginners

Saturday, October 22nd, 2022 from 9:00am-11:00am
Don Edwards SF Bay NWR, 1751 Grand Blvd, Alviso, CA 95002
Join us for Birding 101 at the Refuge!

Looking to get outdoors in a new way? Searching for a fun and rewarding pastime? We hope you join us for a little Birding for Beginners with Ceal Craig, Ph.D., a 20-year volunteer for the U.S. Fish & Wildlife Service.

We are excited to host a presentation, followed by a small birding stroll along the New Chicago Marsh Trail at the Alviso Unit of the *Don Edwards San Francisco Bay National Wildlife Refuge*. The trail is ADA Accessible and suitable for anyone with mobility limitations. This event is geared toward all ages but will be most enjoyable for those ages eight and up.

[Register here](#)



South Bay Salt Pond Restoration

An Established Partnership Forges New Collaborations

by Ariel Ambruster, Public Outreach Coordinator, South Bay Salt Pond Restoration Project

From the beginning, the **South Bay Salt Pond Restoration Project** was all about partnership. In 2003, when Senator Dianne Feinstein helped seal a \$100 million deal to acquire thousands of acres of industrial salt ponds from Cargill, Inc., the State of California, the federal government, and a handful of foundations – Packard, Hewlett, Goldman and Moore – jointly provided the money to make the land transfer happen.

Then, how to pay for and manage the next 50 years of restoration work?

The answer was to form a collaborative. Through the South Bay Salt Pond Restoration Project, USFWS managers work with the State Coastal Conservancy, the California Department of Fish and Wildlife, and other partner agencies to collaboratively manage the effort. Funding and support came from many places,

including government grants, foundations, donors, and most recently, local property owners through Measure AA. We've accomplished a lot at Don Edwards San Francisco Bay NWR and the State's Eden Landing Ecological Reserve:

- 3,040 acres opened to the Bay to begin growth of salt marsh
- 710 acres of ponds enhanced for shorebirds and waterbirds
- 7 miles of new public trails, with viewing platforms, interpretive signs, and a kayak launch.

Lately, we've been busy with **Phase 2 construction**: importing dirt to create habitat slopes for wildlife to escape tides; additional Island Ponds breaches; and installing infrastructure at Ravenswood.



Pipes go in at Ravenswood in Menlo Park
(Ivan Parr)



Save The Bay plants Ravenswood habitat slopes
(Ivan Parr)

Partners have played key roles in all of this: Save The Bay has planted native vegetation; the San Francisco Bay Bird Observatory has monitored wildlife and led volunteer events to improve habitat for threatened and endangered birds; Menlo Park and others have helped us access sites. Conversely, we have partnered, helping ease flooding in Menlo Park and Redwood City through a new fix that will hold excess stormwater in two Ravenswood ponds; and collaborating with Valley Water to connect two creeks to an Alviso restoring marsh area.

We now seek to collaborate more deeply with local communities. Building on successful work with Alviso community members, we are reaching out to communities near Eden Landing to inform recreation amenities and are supporting USFWS efforts to build relationships with the Belle Haven and East Palo Alto communities near Ravenswood, and with area Tribes.

We look forward to the growth and continuity of our partnerships and collaborations. Any thoughts on how we could collaborate with you? Let us know via our [website](#) or [Facebook](#)!



Fall Birding Migration Journey

Northern California: Bird Migration across National Wildlife Refuges

by Derek Carr, US Fish & Wildlife Service, and Ceal Craig, USFWS Volunteer

Imagine flying south with the birds. Visit their stops along the flyway. Get to know the marshes, meadows, and lakes that are their stepping stones along the pathways of their fall migration. For those of us without wings, flights of fantasy and an autumnal car trip may have to suffice. But we can still make the trip and be a part of this annual ritual, the journey south.

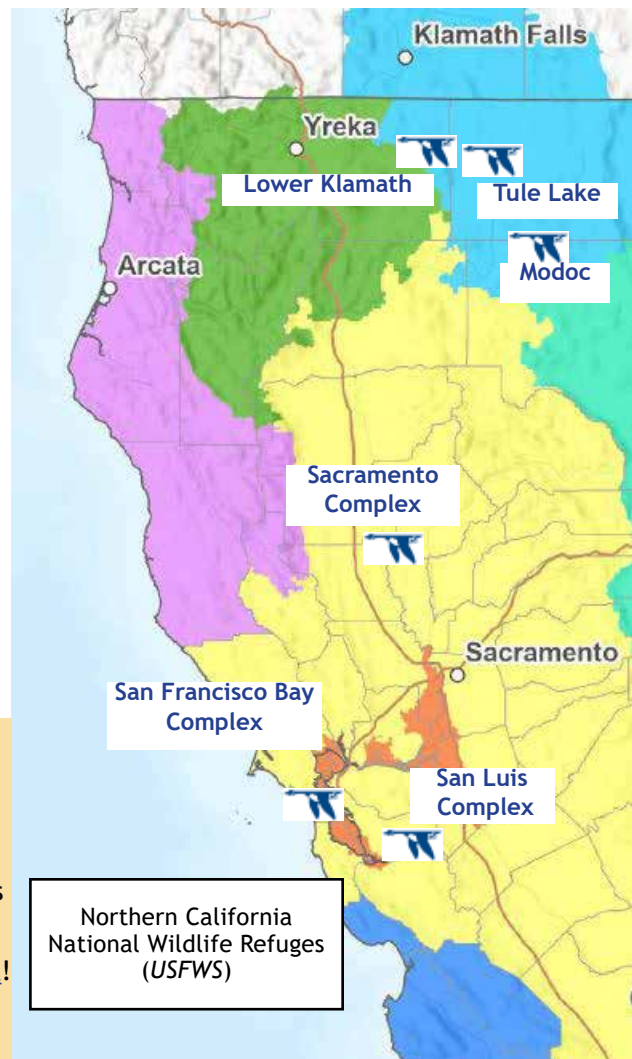
All along the Pacific Flyway, National Wildlife Refuges stretch from the Arctic Refuge in Alaska, through Washington and Oregon, and all the way down the Central Valley of California. Many of these refuges were established specifically to provide stop-over habitat for migrating birds. Wildlife refuges aren't the only places that migrating birds stop along their journey, but they are a great place to start when searching for birds since their habitats are managed with these winged travelers in mind.

The first wildlife refuges were established in the United States in the early 20th century, by President Theodore Roosevelt. Roosevelt was a hunter and associated with others who were members of the Boone and Crockett club, an organization that promoted responsible hunting in the late 19th century. Members of this group, which included many influential leaders of the day, saw the importance of responsible wildlife management to ensure that there would be enough game to hunt in the future. Hunting groups like this one had a strong influence on the early development of the National Wildlife Refuge System. Since the first refuges were established, the system has grown to more than 550 sites all across the United States. Many of these refuges allow wildlife-dependent recreation including bird watching, photography, hunting, and fishing. National Wildlife Refuges are managed by the U.S. Fish and Wildlife Service.

The wildlife refuges, through the U.S. Fish and Wildlife Service, are funded by Congress. Each year, tax dollars are allocated for the management of habitat and public use facilities. But it's a big job and it takes a whole community to do effective wildlife

management. That's why the Service works with partners and community groups. Friend groups are the most important example of this kind of partnership. Friends are not-for-profit organizations dedicated to supporting the work of wildlife refuges through fundraising, volunteer recruitment, and educational programming. Some of the wildlife refuges along the trip south, through the Pacific Flyway, have Friends groups. These are good people to know!

We are both birders and we both love to visit the birding hot spots along the Pacific Flyway. Ceal Craig volunteers for the San Francisco Bay Wildlife Society, the Friends group for *San Francisco Bay National Wildlife Refuge Complex*. D.C. is a park ranger and a regional planner for the U.S. Fish and Wildlife Service's regional office, in Sacramento. We love birding together and we hope that you'll join us on a virtual tour of the fall migration!



Ceal at Humboldt NWR



DC Birding Snowmass CO

National Audubon Society launches: **Audubon Explorer**

Take a tour of bird migrations virtually.

[Incredible app from real data!](#)

[MORE INFO](#)

Fall Birding Migration Journey: Northern California

Modoc National Wildlife Refuge

Land acquisition for the Modoc Refuge, was authorized by the Migratory Bird Conservation Commission on April 8, 1959. The refuge was formed in 1960 with 7,021 acres, located in Modoc County, southeast of the town of Alturas, in extreme northeastern California. A three-mile auto tour route is a great place to see wildlife year-round. There is a walking trail at the end of the route where you can stretch your legs and walk through a wetland habitat. The best fall birding is in September and October, but be sure to come back in February—while snow is still on the ground—for the return of the sandhill cranes. The Modoc Refuge also has a brand new visitor center with exhibits, a birdwatching corner, and knowledgeable staff who can help you find the best wildlife viewing nearby.



Bald Eagle, Modoc NWR, July 2016
(Mary McGuire)

Lower Klamath & Tule Lake NWRs

Lower Klamath was authorized by President Theodore Roosevelt in 1908, and was the first waterfowl refuge. This 50,092-acre refuge is one of six refuges in the Klamath Basin complex. About 80 percent of the Pacific flyway's migrating waterfowl move through the Klamath Basin on both spring and fall migrations, and about half of those use the refuge. Its neighbor, Tule Lake NWR, was established by President Calvin Coolidge in 1928. Its 39,116 acres also support waterfowl and provide critical habitat during these migrations. The auto routes through these two refuges provide the avid birder with much to see in all seasons. In particular, the winter season offers views of Mt. Shasta in snow and wintering bald eagles. The tour route at Tule Lake is a bumpy dirt road, but well worth a slow meander. In spring, sightings of baby Clark's and Western Grebes are common on this route. Sharing this special place with my niece in winter and friend in June, along with many other visits, have made this a worthwhile, though distant, trip from the Bay Area..



Lower Klamath NWR, View of Mt. Shasta, January 2018
(Ceal Craig)



Tundra Swans, Greater White-front Geese,
Tule Lake NWR, January 2018
(Ceal Craig)

Fall Birding Migration Journey: Sacramento Area

Sacramento Area

Now with 10,819 acres, [Sacramento NWR](#) was established in 1937 with funds from the Emergency Conservation Fund Act of 1933 “to provide refuge and breeding habitat for migratory birds and other wildlife, provide habitat and manage for endangered, threatened, or sensitive species, and alleviate crop depredation.” The refuge auto tour route has viewing platforms, photography blinds, and walking trails. Its Visitor Center is undergoing a major reconstruction and is planned to reopen in Spring of 2023.

[Colusa NWR](#), a short drive from Sacramento Refuge, was founded in 1945 to support migrating birds and other wildlife and to reduce damage to nearby farmland from waterfowl. With over 5,350 acres, its auto tour route provides an intimate look at visiting and resident wildlife from a vehicle. The black-crowned night heron rookery is usually filled with these enigmatic birds. Spotting an American bittern, buffleheads, or deer can be a delightful surprise.

The Sacramento NWR Complex has other areas of interest with five National Wildlife Refuges (Sacramento, Delevan, Colusa, Sutter and Sacramento River NWRs) and three Wildlife Management Areas (Willow Creek-Lurline, Butte Sink and Steve Thompson North Central Valley WMAs).

These incredible places are just a few hours’ drive from the Bay area, depending on where you start from.

Ceal writes: “I’ve visited this Complex in every season over the past decades. One of my greatest joys was taking my niece there on our annual January birding trip. We hit fog: the images I have in my mind of us in our coats, scarves, and hats, windows open, driving on the Sacramento NWR and Colusa NWR autoroutes, are wrapped in gossamer wisps of fog. Light for photos was challenging, though we saw so many waterfowl wintering there. She was impressed with the cacophony of the snow and greater white-front geese (and likely other waterfowl). Summer visits bring pheasants and meadowlarks. Colusa provides a more intimate view of the marshes and is my favorite in winter. Sacramento visits usually bring me a new species or plumage of a familiar species, something special for the trip. Plan a day or two at this Complex if you have not been there.”

D.C. suggests: One unit of the Steve Thompson North Central Valley WMA that birders should know about is [Llano Seco](#). Established in 1991, the WMA is unique in that it is made up mostly of private wetlands in conservation easements. One piece of property on the WMA, Llano Seco, does have about 1700 acres of public land and a viewing platform. Part of the last intact Mexican land grant in California, Llano Seco includes riparian floodplains, uplands, and wetland basins. The viewing platform is also the start of a one-mile trail that leads to another observation area with a picnic table. This is a great place to see waterfowl in the fall and winter, just 15 minutes southwest of Chico.



Green-winged Teal, Sacramento NWR, Jan-2020, (Ceal Craig)



Northern Pintails, Colusa NWR, Feb-2016, (Ceal Craig)



Sand-hilled Crane, Stone Lake NWR, Oct-2012 (USFWS)

[Coleman National Fish Hatchery](#)

On the drive to Coleman Hatchery, DC was thinking, “I thought we were going birding,” but this fish hatchery is a worthwhile stop along our tour if you are looking for migrating songbirds. The Coleman Hatchery was established in 1942 in response to declines in salmon populations caused by the Shasta Dam, on the Sacramento River. The hatchery is situated along Battle Creek, three miles east of the Sacramento River. In addition to the hatchery facilities, there is a two-mile trail along the river through riparian forest that’s great for song birds. There are also ponds on the property that are frequented by shore birds and waterfowl.

[Stone Lakes NWR](#)

Formed in 1992, and authorized to include 17,640 acres, currently 6,550 acres are managed by the refuge. It is a buffer to urban encroachment into the important Delta, and is one of two urban refuges in our birding tour, located within 10 miles of Sacramento. The refuge has trails and guided walks, along with hunting and education programs.

[Friends of Stone Lakes](#) formed in 1995, “to support the Refuge and its staff in its resource management efforts, and to encourage the public’s use and enjoyment of the Refuge’s outstanding lands and facilities”. “Dedicated to the conservation, protection, enhancement and promotion of the Stone Lakes National Wildlife Refuge through its appropriate management and outreach efforts and the provision of appropriate resource-based outdoor educational and recreational opportunities for visiting public.”

Fall Birding Migration Journey: Bay Area and Los Banos

San Francisco Bay NWR Complex

Formed by law in 1972, 50 years ago, the San Francisco Bay NWR (named [Don Edwards San Francisco Bay NWR](#), in 1995) was the first urban refuge. It grew out of citizen action working with Congressman Don Edwards. With over 30,000 acres, this oasis is situated in the south San Francisco Bay, embraced by Redwood City on the west and Fremont on the east, down to San Jose in the south. It is home to big projects for wildlife, too! Bair Island Restoration (completed a few years ago), the Salt Pond Restoration Project begun in 2004 was the largest tidal wetland restoration project of over 15,000 acres, and now the Shoreline Levee project begun this past year where levees are being raised to protect critical infrastructures along highway 237 and the people that live in those communities. Birding here is easy; park your car and walk along the trail. No auto tour routes in this one, though! We have talked so much about this Complex's refuges in prior Tide Rising editions: check those out!

Two Friends groups support this complex. The [San Francisco Bay Wildlife Society](#) was formed in 1987, and is one of the earliest not-for-profit groups formed to support National Wildlife Refuges, SFBWS has supported its refuges for 35 years. We "seek to nurture in the public a sense of understanding, appreciation, and stewardship of the San Francisco Bay National Wildlife Refuges, their natural and cultural history, and to conserve, preserve, and restore bay lands as essential wildlife habitat." We support Don Edwards San Francisco Bay NWR, Salinas River NWR, Farallon Islands NWR, and Ellicott Slough NWR.

[Friends of San Pablo Bay](#), formed in 2003 to support San Pablo Bay, Marin Islands and Antioch Dunes National Wildlife Refuges works to "restore, enhance, protect and preserve the wildlife and its environment while providing educational opportunities, increasing public awareness, involvement, appreciation and enjoyment of the Refuges."

San Luis NWR Complex

This Complex has several refuges in it as well. First, the San Joaquin NWR is just outside of Modesto, with trails and secluded places to view waterfowl and wintering shorebirds too. It is a little more challenging to find, but well worth the visit. With almost 27,000 acres, established in 1967, San Luis NWR obtained its first parcel of land purchased with Duck Stamp funds. San Luis NWR maintains habitat for a tule elk herd as well as several auto tour routes. With a LEED-certified visitor center completed in 2011, including some recently refreshed exhibits, a visit to this refuge (and to Merced) takes only a day. DC and Ceal took a trip last November and explored the Sousa Trail out to the viewing platform. "DC pointed out so many birds I often overlook, making this pilgrimage very special for me (Ceal)". Sharing birding with friends is one of the best experiences when following the migration highway.

Merced NWR (1951, over 10,000 acres) is about 30 minutes drive east of San Luis NWR. Ceal shared that she visits a minimum of once a year, and tries for two or three ("just need a birding companion to share the drive"). "My niece had her first experience birding here with me about eight years ago when she was 10 or so. She took a cell phone video to share with her friends and parents her wonder at hearing the intense sounds of the wintering waterfowl. That hooked her on birding with me. Her mom went with me a year ago in the middle of an unexpected wind and dust storm as waterfowl began to arrive. Again strange lighting, with birds fighting to take flight, seeing the ibis in this grainy view added a touch of impressionism to the photos we took." On one trip, DC was birding with a friend, and I was also with a friend, not knowing we were both going there until we saw each other at the start of the autoroute. Such a special place. Merced NWR also has a newish Cottonwood Trail on the north side of the highway entrance; walking to the viewing platform there is a bit of a walk. We did part of it on that November trip, with DC pointing out a great horned owl!



American avocet, a shorebird seen in every Refuge profiled here

Don Edwards SFB NWR
May-2018, (Ambarish Goswami)



Snow geese at rest, Merced NWR
Jan-2019, (Ceal Craig)



Long-billed Dowitcher, Merced NWR
Jan-2021, (Ceal Craig)



Wilson's Snipe, Merced NWR
Jan-2019, (Ceal Craig)

Out-of-state National Wildlife Refuges

Washington State: Spokane Area Refuge

by Lorna Kropp, Friends of Turnbull National Wildlife Refuge



Turnbull NWR Visitor Center
(USFWS)



Quiet northern landscape, Turnbull NWR after fresh snowfall
(Ceal Craig)

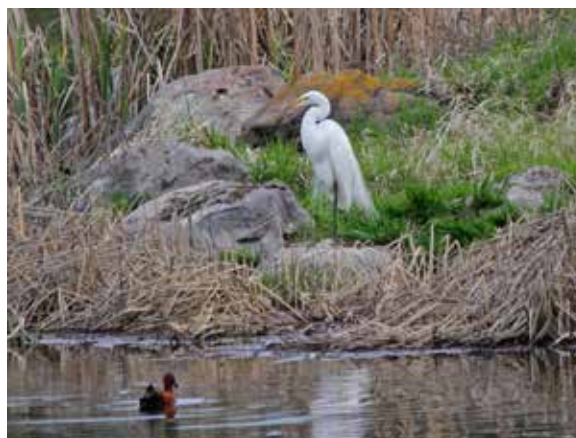
With over 20,000 acres in eastern Washington, *Turnbull NWR*, has a unique origin – Channeled Scablands formed by the scouring of ice-age floods—creating a mix of four habitats: ponderosa pine forest, wetlands, sloughs and potholes, meadow steppe, and riparian areas. The area has high quality wildlife habitat in the transition zone between the dry, sagebrush grasslands of the Columbia River basin and the timbered Selkirk and Bitterroot Mountain Ranges to the north and east.

Visitors can drive or bicycle the 5.5-mile auto tour route where waterfowl and other wildlife can be observed, or walk the shorter hiking trails, including accessible trails around several of the wetlands, to see various ducks, trumpeter swans, river otters and birds found in riparian areas.

Carlene Hardt, a local wildlife photographer, makes regular journeys to the Refuge. In September 2021, she spotted a Great Horned Owl! In May 2022, a Great White Egret visited the Refuge.



Great Horned Owl
(Carlene Hardt)



Great Egret
(Carlene Hardt)

The [Friends of Turnbull](#) was formed in 1997 to “advocate for and support the mandate of the refuge to protect and enhance wildlife and their habitats through education, research, habitat preservation and restoration and compatible public uses”. They have been involved with supporting the Refuge Environmental Education program available to 8,000 school children from the greater Spokane area each year, providing activities for the public, and are proposing a new project to create a demonstration pollinator garden near the complex headquarters.

Editor’s Note: Visiting in winter in December 2018 after training up on Amtrak, driving over fresh snow, eerily silent after a snowfall, animal tracks had quickly dotted the snow-covered roads and landscape. It was a privilege for me (Ceal) to see this place with tour guides Lorna Kropp (Friends of Turnbull NWR) and a retired Refuge Manager.

Out-of-state National Wildlife Refuges

Delaware and Virginia Refuges

by Larry Rosenblum, USFWS Volunteer

In [Prime Hook NWR](#) on the shore of Delaware Bay, we were lucky to catch a glimpse of a great blue heron performing its courtship ritual. Plus, an osprey in its nest. I am pretty sure the structure is human-made or at least placed by humans.



Great Blue Heron in a courtship dance
(Larry Rosenblum)



Osprey nest
(Larry Rosenblum)

In [Elizabeth Hartwell Mason Neck NWR](#), a peninsula on the Potomac River in Virginia, I caught a red-winged blackbird and an interesting mushroom on a decaying log.



Mushrooms on a decaying log
(Larry Rosenblum)

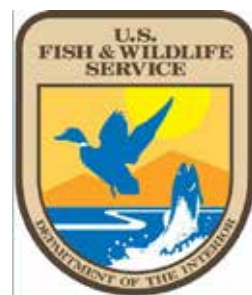


Red-winged Blackbird
(Larry Rosenblum)

Learn more about National Wildlife Refuges
in the United States.

Look up a location, region you are visiting,
or a Refuge by name.

[National Wildlife Refuge System](#)



Population Viability Analysis for Endangered Plants

by Taylor Pantiga, Directorate Fellow, U.S. Fish and Wildlife Service

The *Antioch Dunes National Wildlife Refuge* is a unique riverine dune ecosystem along the San Joaquin River in Antioch, CA. This habitat used to cover approximately 6,800-8,400 acres of land (Stanford et al., 2011). Now, there are only 67 acres remaining across two divided habitats: 41 acres in the western unit of the refuge and 26 acres in the eastern unit (Service, 2002; Service, 2019). This decline is partially due to human activities such as sand mining and the spread of non-native plants. This has left less habitat available for the two endangered plant species found at the refuge: the Antioch Dunes evening-primrose and the Contra Costa wallflower.

The Antioch Dunes evening-primrose (below) is usually a short-lived perennial plant, though it can occasionally live up to 5-7 years. It is a subspecies of the birdcage evening primrose. The Contra Costa wallflower (below) is a variety of Western wallflower. It is considered a biennial plant, though the plant may live longer in some situations. In its first year, it is not reproductive and in its second year, it flowers and produces seeds. Most plants die after the second year. At the Antioch Dunes NWR, it tends to grow on north-facing slopes and areas with some shade.



Antioch Dunes evening-primrose
(*S. Euing*)



Antioch Dunes evening-primrose (*S. Euing*)



Contra Costa wallflower
(U.S. Fish and Wildlife Service)

These two plants are both found almost exclusively on the refuge and its neighboring properties. To help these plants recover, the U.S. Fish and Wildlife Service identified recovery targets. The recovery targets are goals for population sizes for each plant that are needed for the species to be downlisted from endangered to threatened or to be no longer in danger of going extinct.

The current recovery targets for the Antioch Dunes evening-primrose and Contra Costa wallflower are based on very general information and are not specific to the target

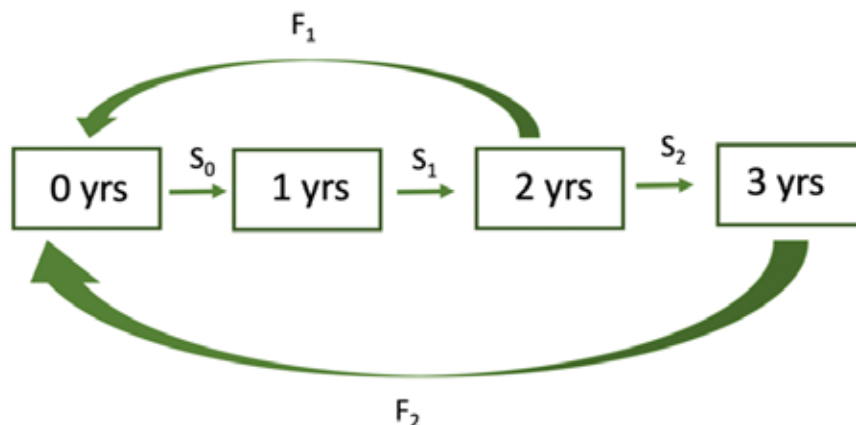
species. These recovery goals are based on three factors: a standardized most viable population size for plants (Traill et al., 2007), existing recovery criteria for other rare plant taxa, and flowering count data from the ADNWR populations during a relatively “good” year (Service, 2019). These factors represent a more general picture than what may be accurate for these two species. One tool that can be used to help determine more accurate recovery targets is population viability analysis (PVA).

**Antioch Dunes NWR is now larger!
It is official USFWS closed on the 12-acre PG&E property near Antioch.
Antioch Dunes NWR is now 67 acres - an increase of 22%!**

Population Viability Analysis for Endangered Plants *(continued)*

PVA is a tool used to simulate populations over time and make predictions about their size and extinction risks. To do this, PVAs use mathematical models to make predictions. Usually, the researcher starts with a conceptual model of the species life cycle (below), then they assign values for survivorship and birth rates. Next, computer simulations

are performed. In these simulations, different components of the model can easily be adjusted as new information becomes available. Adjustments for environmental variation or different restoration practices can be included as well.



Conceptual age-structured life cycle model for the Contra Costa wallflower. The arrows marked with 'S' indicate survivorship and the arrows marked with 'F' indicate birth rates. Because the Contra Costa wallflower does not develop flowers in its first year, there is no F-value for the 1-year-olds.

(Author)

The goal of this project was to develop a framework for conducting PVAs that can be used to help refine recovery targets that are tailored to the Antioch Dunes evening-primrose and Contra Costa wallflower. We did this by using standard mathematical approaches and simulations to explore whether the recovery criteria currently used for these two endangered plant species are supported by the numerical simulations performed during the PVA analyses.

We plan to use the results from this project to design field studies that will take place at the *Antioch Dunes NWR*. These studies will help us track plants of each species as they age so we can develop more accurate survivorship and birth rates for the populations. Then, the data gained from the field studies can be used to help improve the model. Field studies can also help us identify areas to add complexity to the model. This can include factors like environmental variation or seed banks, which were not included in our

initial model. The data from the field studies and models can help create more accurate recovery targets for these plant species. Additionally, because the model framework can be modified, we hope that it can be applied to other endangered plants as well and aid in their recovery.

References

- Service. (2002).
- Service. (2019).
- Stanford et al., 2011
- Traill et al., 2007



Healthy stand of Contra Costa wallflower, May-2021
Note the mix of flowering and vegetative plants
(on a North-facing dune slope)
(Stu Weiss)

Rising 85 feet above water, the Refuge supports the largest heron and egret rookery in the San Francisco Bay Area

Megadrought Causes Mass Tree Die Off at East Marin Island

by Meg Marriott, Wildlife Biologist, USFWS

In early 2021, Refuge staff began to notice a sudden and rapid die off of the non-native Monterey pine (*Pinus radiata*) trees on the East Marin Island, *Marin Islands National Wildlife Refuge*. By the end of summer 2021, most trees in the stand (~80) were either dead or dying. Falling limbs from these trees caused Refuge staff to hire an arborist to assess the level of hazard posed by the trees, as well as to take a look at the trees themselves.

Monterey pines, typically live between 60-120 years, depending on the precipitation regime of the area in which they are growing. The Marin Island pines, planted around the 1930s by the Crowley family, were nearing the end of their natural lifespan to begin with. However, the megadrought that is currently afflicting California accelerated the natural pattern of die off, according to Zach Vought, arborist with Urban Forestry Associates. “Monterey pine is characterized for poor drought tolerance and is among the most vulnerable tree species in California as the dry climate persists”. Drought stressed and weakened trees created favorable conditions for native and non-native bark beetles to infest the Island pines and hasten their decline.

Without the canopy cover that the pines provided in the coastal grassland and coastal sage scrub habitats of the Island, the understory vegetation will be exposed to full sun and more wind. Although this is the historic condition of these habitats on the Island, 100 plus years of human disturbance has caused major colonization of non-native and invasive plant species on the Island. These non-natives have already decreased abundance and displaced native plant species on the Island, and the new conditions caused by an open canopy may exacerbate the spread of non-native plants.

The Refuge Complex Botanist, and Refuge Biologist are working to develop a Vegetation Monitoring Protocol for a survey that will track changes in plant species richness and abundance. Changes that occur due to the tree die off will be assessed, and this information will help to inform management actions that ensure continued existence of native species richness and abundance on the Island.



Dead and Dying Monterey Pine
(Zach Vought)



Dead Pines as seen from the Bay
(Zach Vought)



SFBWS Staff Changes

Maddie Cline is the new SFBWS Interpretive Associate for the Watershed Watchers Program at the Environmental Education Center in Alviso. She earned her bachelor's in biology at the University of Oregon and has an interest in all things ecology. Now, Maddie is excited to be back in Santa Clara county, where she was born and raised. In her spare time, she enjoys rock climbing, caring for her many houseplants, or showing pictures of her dog Bee to anyone who will tolerate it. Welcome Maddie!



Hybrid Marsh-In Summer Camp 2022

by Olivia Poulos, Watershed Watchers Coordinator, SFBWS

This year marks the 50th Anniversary of the creation of the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge). And now, for the 43rd year, the Environmental Education Center (EEC) has welcomed another group of Bay Area youth to the Refuge for a week of free summer camp. The Summer Camp Team was thrilled to adopt a hybrid format this year, building off the success of our last two years of virtual summer camp. With the health and safety of our campers, their families, and our staff and volunteers at the forefront, this year's camp week included virtual, self-guided, and in-person portions to adapt to current conditions and comfort levels.

The Summer Camp Team, made up of SFBWS and USFWS staff and volunteers, continued to be creative and adaptable to bring a fun, educational, engaging, and accessible week of camp for our local communities. However, as the majority of our campers have now returned to in-person school and their lives have slowly returned to normal, we were met with a new challenge: How do we make the virtual portion

of camp new and exciting? And most importantly, how do we create a space across virtual platforms and in-person engagements that is safe, accessible, and meaningful to our camp participants? With this task on our minds, we set out to host an innovative camp model for young students from all over the Bay Area.

Much like last year, our campers arrived from three different Bay Area counties, with campers from the neighborhood of Alviso and many from Fremont, adjacent to the Refuge headquarters in Newark. We believe the virtual options expanded our geographic reach and increased participation from our diverse communities surrounding the Refuge. While many other camps around the Bay Area were offered in-person this year, we were happy to serve 28 campers with a safe and flexible schedule. Campers participated in two virtual days, two self-guided days, and one in-person day to wrap it up. In addition, we received around 80% new campers this year. Still, we were happy to see the return of some familiar faces who attended our previous in-person camp in 2019.



Summer Campers learning
in the classroom and in nature
(Poulos)



Hybrid Marsh-In Summer Camp 2022 *(continued)*

Habitat Heroes Program celebrated its 15th year, run by Tia Glagolev, the Environmental Education Specialist for the SFBNWRC. We were joined by 14 Habitat Heroes, nine of whom were returning and five making up the new class. Habitat Heroes are youth volunteers entering grades 7-12 who engage closely with the campers in small groups as they assist the team in running the activities. Many were former campers themselves, and the relationships they built with the campers over the week enforced the unique, personal aspect that their participation brings to camp.

This “ladder of engagement” model is at the heart of much of our outreach and environmental education, with the purpose of continuing to foster those relationships over time to create a new generation of environmental stewards. Many of our former Habitat Heroes have entered into career paths in conservation, demonstrating the power of intentionally creating stepping stones for our communities to participate in this work with us. As a part of our new hybrid model, Habitat Heroes not only led the breakout room activities via Zoom, but they also led their own camper groups on our in-person day. Many expressed their excitement about finally returning to the Refuge for camp, reminding them of their formative experience when they were campers.



Tia Glagolev spreading her smile and sense of humor with Habitat Heroes, building generations of wildlife stewards
(Poulos)

Outdoors Activities & Lab Kits for summer campers
(Poulos)

Campers also had an opportunity to “Meet a Biologist” with a special presentation from wildlife biologist Rachel Tertes. Rachel shared her path to becoming a biologist and communicated the skills that make a good scientist. Topics like being curious and making observations translated to self-guided activities and engaging videos that campers completed after the virtual portion. Campers were encouraged to show off these artistic projects during the virtual and in-person sessions and loved the built-in opportunity to share their creations.

Perhaps our biggest challenge and success this year was implementing an in-person camp day at the EEC at the end of the week. Our goal was to host a day that was foremost safe and fun for all participants. We strove to tie in themes from the virtual session and allowed campers to see how their activities came full circle. Activities included a habitat hike with bird watching, a painting activity that encouraged mindfulness in nature, and an Ohlone-themed Scavenger Hunt. Campers were taught about local endangered species

and their habitats, how we can protect those habitats through pollution prevention, and how they can continue to engage with their local Refuge in the future. All activities tied into the Eco-Quation and emphasized balancing care for ourselves and care for the environment. An outpouring of support from staff and volunteers allowed for a nearly 1 to 1 ratio of staff to campers. This support enabled us to provide individualized attention to the campers and a more personal experience that we hope they will cherish for a long time.

One exciting new aspect of this year’s camp week was the introduction of a new theme from Summer Camp Associate Zena Basma. Zena introduced “the Eco-Quation of Us,” a theme that guided the activities, campers, and staff on a journey of growth throughout the camp week. “Eco-Quation” advocates for campers to consider their mental health, connecting with each other, and being present in the moment, all while helping to “Save our Earth.” Zena focused on topics of mindfulness and gratitude, encouraging campers to reflect and connect with one another. Executing this over a Zoom meeting with campers entering grades 1-6 is no small task, and Zena created a space for campers to “better understand and care for ourselves and our ecosystem.” During one activity, Zena and Urban Refuge Ranger Giessel Aguilar guided the campers to share what they were grateful for. Answers ranged from their family and friends, to having a home, to expressing their thanks for the nature around them.



Ranger Giessel presented on the Ohlone people of the greater Bay Area and walked campers through the importance of acknowledging that the Refuge sits on unceded ancestral lands of many tribal communities. Campers received an insight into the Ohlone culture, and were prompted to connect those customs to their own cultural traditions through self-guided activities.

It was heart-warming to see how campers participated, how they absorbed the scientific information, how they came out of their shells to share their creativity and ideas, and most importantly, how they connected with each other and their neighborhood national wildlife refuge. So many campers were already clamoring for their chance to return as campers or Habitat Heroes. We hope that next year, even more campers, old and new, will join us for what will hopefully be another meaningful experience for our Refuge community.



Where to Learn Birding Locally

by Lisa Myers, Founder, *Let's Go Birding*



Lisa Myers (teaching a class in photo by Tony Woo) established her company, *Let's Go Birding* in 2004 and partnered with the *Los Gatos Birdwatcher* in 2008 to create monthly bird classes and birding tours. Then in 2015, on the store's 20th anniversary, Lisa became the new owner of the *Los*

Gatos Birdwatcher allowing founders, Freddy and John Howell to retire. Both Lisa & Freddy understood that for those new to birding, it can be intimidating. They

wanted to provide an atmosphere where everyone felt welcome. Pairing backyard bird feeding with birding adventures paved the way for *Let's Go Birding* to become the tour division of the *Los Gatos Birdwatcher*. Lisa adds, "I turned my hobby into my business. I created *Let's Go Birding* out of my passion for birds and the environment. My goal was to provide opportunities for the beginning/intermediate adult birder to go birding or take classes in a relaxed, informative, non-intimidating atmosphere. I believe the more people we can attract to learn about birds and connect with nature, the better chance the birds will be here for future generations".



Avocets & Coots
(Tony Woo)



Duck Tour
(Tony Woo)

And what a fabulous location to be able to introduce people to birding! The Bay Area has so many different habitats in close proximity to each other, and a variety of habitats means a greater variety of birds. Between the Santa Cruz Mountains, the Diablo Range, the valley floor and the salt waters of the San Francisco Bay, birding here is fantastic all year. Along with learning

about all the birds and these different locations, participants also learn about the many organizations dedicated to environmental awareness & education. While the pandemic did reduce the number of tours being offered we do offer several walks each month plus workshops, classes and special events. We look forward to birding with you one day.



Great Blue Heron
(Tony Woo)



Great Egret
(Tony Woo)



American White Pelican
(Tony Woo)

Light at Night: A Glowing Hazard

The Santa Clara Valley Audubon Society, the Sierra Club Loma Prieta Chapter, and the Sierra Club Bay Alive Campaign invite you to our symposium on dark sky and bird-friendly building and lighting design.

The use of LED lighting technology is causing an unintended, yet pervasive and harmful effect: the over-lighting of our nights. Learn about the biological and physical effects of light at night and strategies that can guard our health and environment while providing safe and practical lighting solutions.

Speakers will include global experts on artificial light at night and light pollution, Drs. Travis Longcore and John Barentine. Dr. Christine Sheppard from the American Bird Conservancy will present on the impact of lighting on migratory birds and discuss solutions to reduce bird collisions. Mary Coolidge will share advocacy experience and outcomes in Portland, Oregon.

[MORE INFO HERE](#)

November 16 Dark Sky Symposium

Light at Night: A Glowing Hazard

November 16, 1:00-4:00 pm
Free, Zoom Online

[Register Today](#)

News from Historic Win: Equitable Outdoor Access is Now Law in California

Audubon California

From an email sent by Audubon California

“In a historic milestone, Governor Gavin Newsom signed the Equitable Outdoor Access Act (AB30) into law, which helps to ensure that all Californians have equitable opportunities to safe and affordable access to nature.”

Mike Lynes, Director of Public Policy for Audubon California asserted “The Governor’s signature of AB 30 is a step forward in righting these historic wrongs by prioritizing equity in state policy decisions to achieve access to the outdoors for all.” Thanking all the volunteers and organizations that helped make this happen.

[MORE INFO HERE](#)

Bay Area Bird Photo Bid Day, October 1, 2022

San Francisco Bay Bird Observatory

Volunteers identified 202 unique bird species, with over 1,131 photos submitted. It was a lively day beginning at sunup for many birding photographers. And ending after sunset.

Reviewing photographs, posting info about birds and progress throughout the day was a lot of fun.

Check out their event Facebook page and view some truly amazing photographs. Action shots, unusual lighting, birds eating, and more. The Best of Show top three are well worth a peak.

[MORE INFO HERE](#)

8 ways to feel less anxious about things beyond your control

From [Washington Post](#) (Sept. 13, 2022), by Lesley Alderman, LCSW. Below is one of these:

“Take action. Worrying doesn’t help one’s mental health, but taking action does. Look around your community. ...When people engage in local issues, they have a renewed sense of optimism.”

SAN FRANCISCO BAY WILDLIFE SOCIETY: DONOR RECOGNITION

We gratefully acknowledge the following donors who have made gifts to the San Francisco Bay Wildlife Society from July 1 through September 30, 2022.

Senior/Student (\$20)

Laura Jamieson Family
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THANK YOU!
Our Refuges
appreciate your
support

Help Us Protect Your San Francisco Bay Wetlands!

Mail your donation to: San Francisco Bay Wildlife Society,
P.O. Box 234, Newark, CA 94560.

You may also become a member at <https://sfbayws.org/>

For a gift membership, call 510-792-0222 ext. 72004.

[LINK here](#)

San Francisco Bay Wildlife Society is a not-for-profit 501(c)(3) organization, a Friends group for the San Francisco Bay National Wildlife Refuge Complex.

YES! I want to support San Francisco Bay Wildlife Society and its programs.

My membership will help the *San Francisco Bay National Wildlife Refuge Complex* and its south Bay and Outer Bay Refuges

(Don Edwards, Salinas River, Ellicott Slough, and the Farallon Islands)

Enclosed is my contribution of:

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Thank you for your support!

For more than 30 years, the San Francisco Bay Wildlife Society has:

- Introduced the refuge to tens of thousands of students of all ages
- Helped fund the Bair Island restoration and Management Plan, restoration work at Antioch Dunes NWR, and uplands restoration at the Environmental Education Center (EEC)
- Provided Saturday staff in EEC through long-term partnership with the Santa Clara Valley Urban Runoff Pollution Prevention Program
- Provided funding for a new boardwalk at the New Chicago Marsh Trail at the EEC.
- Funded a new greenhouse
- Provided funds for a native plant nursery
- And much more....

Help continue this tradition by becoming a Supporting Member of the Society.

Benefits include:

- Tax deduction to the extent permitted by law
- Free book - Exploring Our Baylands
- 15% discount at SFBWS Nature Stores
- The joy of helping protect this important environment
- Free subscription to *Tide Rising* newsletter

<https://sfbayws.org/>

