



Tide Rising

Spring 2021

Volume II, Issue 3



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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Endangered & Threatened Species

In this issue:

- Learn what our Friends group can do to advocate for the **endangered and threatened species** on our Refuge Complex. Find ideas and read an interview with CORFA President: *Coalition of Refuge Friends & Advocates*.
- See how the Veterans Affairs (VA) Alameda Point staff and volunteers pivoted during the pandemic supporting the least tern, an endangered species on our Refuge. Not quite business as usual.
- Discover whether a new species has been found on the Antioch Dunes NWR? Learn more about the evening primrose, *Clade X*.
- **Volunteers** in FY2020: they are the lifeblood of the Refuge Complex. Last year and a pandemic didn't stop our USFWS volunteers.
- Take a look at the photographs galore this issue!

Enjoy the San Francisco Bay Wildlife Society **SPRING** Newsletter!

San Francisco Bay Wildlife Society

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Photographers: Ambarish Goswami, Ceal Craig, Cindy Roessler, Joanne Ong, Louis Terrazas, Say Zhee Lim, S. Euing, USFWS, USGS.

Masthead: Marsh at sunset (Renee Fitzsimons)

Coalition of Refuge Friends & Advocates is a community of Friends organizations working to ensure all Friends have the knowledge, tools, skills, and support to be effective nonprofits working to conserve wildlife, their habitat, and the cultural and historical resources association with National Wildlife Refuges and National Fish Hatchery System. (CORFA Website)

[Read more on page 6](#)

ADVOCACY recommendations for our members and readers from Joan Patterson, CORFA President

Speak up for your Refuge. Be willing to share with anybody and don't be afraid to talk to elected officials about these places. Why does the Refuge mean so much to you? If you don't speak up, they won't know. Water quality, bigger budgets, specific activities: they won't know unless you talk to them. Florence's work, (post the LINK through either NPR or something). Why it was important to her. She was scared to do it but thought it was important. The more she did it, the easier it became. This resonated with Joan. Same journey. How can you not speak up for it?!

Advocate for your Refuge! Sharing your love and stories about what our Friends group does for our Refuges. We need to find advocates; people willing to talk a walk with our elected officials. Outreach to community about programs at the Refuge. Go to community meetings and talk about the Refuges. Share your stories and passion with others. (Bring your kids: cute factor!). Thank them.

Build relationships. Ongoing relationship building. Look for opportunities to build relationships; it is an ongoing and evolving process of opportunity.

Veterans Affairs Alameda Point (Federally Protected Wildlife Area)

Since 2002, USFWS has managed this Federal property for the benefit of wildlife

ENDANGERED & THREATENED SPECIES: Business as Usual during a pandemic?

by Susan Euing, Wildlife Biologist Antioch Dunes NWR and VA Alameda Point, U.S. Fish and Wildlife Service

Well, maybe for some...While we humans have been sequestered indoors for over a year now during the COVID-19 pandemic, the rest of wildlife was carrying on, business as usual.

At our San Francisco Bay Refuges, our endangered and threatened species were continuing on with their daily lives as usual, too. Salt marsh harvest mice continued to nibble pickle weed. Santa Cruz long-toed salamanders continued to migrate on rainy evenings. Ridgway's rails continued to move among the reeds undetected. Stellar sea lions continued to haul out on the Farallon Islands' rocky shores. Antioch Dunes evening primroses continued to flourish across the new sand dunes, and the California least terns returned as usual to their favorite nesting site in northern California, at VA Alameda Point.



Adult Least Tern (*S. Euing*)

Biologists are outdoor people who love to be surrounded by our Refuge lands and all their wild flora and fauna. We monitor (survey) and protect endangered and threatened species and their habitats, and implement management actions to improve their livelihoods.

Annual surveys of endangered and threatened species are important. Data collected during these surveys inform us about population estimates, reproductive health, disease, distribution, and abundance, etc., and this information helps us make better management decisions.

The largest California least tern nesting colony in northern California is located at the former Naval Air Station, Alameda, now called VA Alameda Point. Volunteers and I had prepared the colony up through March 8, 2020. We

were 3 weeks away from completing all the prep work in the colony when the State and counties shut down due to COVID-19. All Department of Interior personnel, including USFWS, were assigned to teleworking from home until further notice.

Fortunately for our least terns, the Dept. of Agriculture's Wildlife Services continued to work in the field and were able to complete the prep work for the least tern colony. They redistributed all the protective chick shelters and oyster shells back into the colony before the terns arrived. Throughout the season, Wildlife Services also monitored the colony for predator activity, as they normally do each year. They also witnessed the first least tern arrival on April 22.

Peak season for conducting most of our biological surveys is spring through late summer. By April, biologists all over California were chomping at the bit to get outside to monitor and protect the species that are so important to all of us, but, of course, COVID pulled the rug out from under all of us in 2020.

Fortunately, in late spring, our Region presented us with an opportunity to carry on some of our highest priority work. For any proposed field work, we could submit specific requests spelling out every detail of the work (surveys, maintenance, invasive plant removal, and the like), including the need and importance of the work proposed, the methods in which the work would be carried out, personnel involved and measures to be taken to keep people safe during the pandemic (personal protective equipment, one person per vehicle, safe distancing...). The Region reviewed every request, then decided which work proposals would be approved. Employee safety was always at the top of the list.

Newly Hatched Least Tern (*S. Euing*)



Veterans Affairs Alameda Point (Federally Protected Wildlife Area)

Since 2002, USFWS has managed this Federal property for the benefit of wildlife

ENDANGERED & THREATENED SPECIES: Business as Usual during a pandemic?(Page 2)

In the meantime, refuge staff were allowed to visit their field stations a few times a month to check on buildings and do any minor maintenance such as starting up vehicles and generators to keep batteries charged. Of course, I would also check the colony for any signs of returning least terns and nesting. To my delight, I happened to be present when the first egg was laid and the first chick hatched, giving me a timeline for the start of the nesting season.

In June 2020, the Region approved our proposal to conduct the least tern surveys with a limited scope. Normally, beginning in May, we'd have 3-4 people doing the inside-colony surveys twice a week, and 1-2 people doing outside-colony surveys four days per week. In 2020, we were allowed 2 people to survey inside the colony two days a week. Meredith Elliott from Point Blue and I did all the surveys, starting mid-season on June 16 through August.

Since we began our surveys in the middle of the breeding season, we discovered so many nests and chicks on our first day that we could not finish surveying the entire 9.7-acre nesting site after 7 long hours. There already were 99 chicks of all ages and 3 predated eggs on the ground. In order to discern how many nests, they represented, we applied same average clutch size (1.9 eggs/nest) as those nests we marked from June 16 to season's end.



Week-old Least Tern chick (*S. Euing*)

We had to work out many challenges to become more efficient and ensure accuracy while conducting the survey with only two people. Recording data into our database and double checking for accuracy were also challenging because we had to do this from our separate homes. We created Google sheets for the data that we could share between Point Blue, USFWS and an intern. We were quite proud of ourselves that we made it all work.

It "terned" out that the endangered California least terns had a pretty good year at VA Alameda Point in 2020, reproductively speaking. The numbers of eggs, nests, fledglings, and breeding pairs all increased from 2019. In these days of COVID-19, I feel most fortunate to have been witness to nature conducting business as usual and doing so well

Soon to be flying least tern pre-fledgling (*S. Euing*)



Volunteers at VA Alameda Point

Volunteers from Friends of Alameda Wildlife Refuge and the public helped us prepare the California Least Tern colony for the 2020 breeding season for 6 months (out of 8 months of the non-breeding season). From October to March, volunteers removed invasive plants, picked up chick shelters and removed old plastic fencing off the existing chain-link fence. Volunteers conducted monthly presence and abundance surveys of birds observed at VA Alameda Point before the closures

Antioch Dunes National Wildlife Refuge [\(More Info\)](#)

Established in 1980 to protect three endangered species: the Lange's metalmark butterfly (*Apodemia mormo langei*), the Contra Costa wallflower (*Erysimum capitatum angustatum*), and the Antioch Dunes evening primrose (*Oenothera deltooides howellii*). It's the only National Wildlife Refuge (NWR) in the country established to protect endangered plants and insects. Due to the sensitivity of the habitats and these endangered species, the Refuge is not open to unsupervised use by the public.

ENDANGERED & THREATENED SPECIES: Introducing ... Clade X?

OR....United States Geological Survey Releases Distribution, Abundance, and Genomic Diversity Report for the Endangered Antioch Dunes evening primrose

by Louis Terrazas, Acting Refuge Manager, United States Fish & Wildlife Service

It was supposed to be a rather mundane abundance and distribution survey for the endangered Antioch Dunes evening primrose, with genetic analyses to determine the species diversity, but it turned out to be much more. Biologist and geneticists were about to unearth a hidden secret buried in the Antioch sandsheet.

In the Spring of 2019 a group of US Geological Survey (USGS) Biologists set out to map the distribution and determine the abundance of the Antioch Dunes evening primrose (*Oenothera deltooides howellii*) on and off of the Antioch Dunes National Wildlife Refuge located along the San Joaquin River near Antioch, California. They were teamed up with a group of USGS geneticists, who were to collect genetic material in order to determine the species genetic diversity within the total population and on the Refuge.

The USGS was awarded this task by the United States Fish and Wildlife Service San Francisco (SF) Bay-Delta Fish and Wildlife Office. The SF Bay-Delta Office Biologists needed to establish and implement the recovery criteria for the endangered primrose so that they could work towards establishing stable and healthy populations and eventually delist the species. In order for the SF Bay -Delta Office to implement the species recovery criteria they needed to know exactly how many of the primrose plants were left in the wild and exactly where they were located. There was also some concern that the Antioch Dunes evening primrose may have low genetic variation, since most of the plants were thought to be located on the 55 acre Refuge.

So, after conducting their literature review and research of historic or documented locations the USGS biologists hit the field. They began their arduous task of locating, identifying and mapping the elusive primrose. Locating the adult Antioch Dunes evening primrose plants during peak bloom in mid-May is easy enough. The large flowers start as brilliant pink bulbs and have white petals with a bright yellow pistil and stamen when they open. But as the flowers wilt the petals turn pink again. These adult plants are usually very cryptic and dull. However, in the spring they stand out on the dunes or within other vegetation and demand your attention. However, the biologists started to notice something peculiar during their field surveys. As they examined and attempted to identify the primrose

at the nearby Dutch Slough, they began to have problems keying out some of the plants. They looked similar but a little different, and they began to ask questions. Was it the more common subspecies called the birdcage evening primrose (*Oenothera deltooides cognata*)? Or perhaps it was a hybrid? A rogue cross between the two subspecies of *Howellii* and *Cognata*? The Biologist had read comments about a potential hybrid in the area dating back over 50 years while conducting a literature review. But those comments were usually buried within other documents and almost seemed a minor afterthought.

This mystery prompted the biologist team to alter study plans and reach out to USFWS. Now the genetic analyses would not only include genetic material collected from the Antioch Dunes evening primrose (*Howellii*), but also material from the nearest common birdcage evening primrose (*Cognata*) and this strange primrose that they called.... *Clade X*.

Increasing the genetic analyses would require a budget increase. The project was already an example of federal and state agency collaboration. The extra funds needed were facilitated by the non-profit organization, the Friends of San Pablo Bay National Wildlife Refuge. The Friends Group supports the San Pablo Bay, Marin Islands and Antioch Dunes National Wildlife Refuges. This is because all three Refuges are operated out of the San Pablo Bay NWR headquarters in Sonoma County.



Endangered Antioch Dunes evening primrose,
Oenothera deltooides howellii
(Louis Terrazas)

Antioch Dunes National Wildlife Refuge [\(More Info\)](#)

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ENDANGERED & THREATENED SPECIES: Introducing ... Clade X? (PAGE 2)

With additional funds attained for the extra genetic analyses, study continued. The Antioch Dunes evening primrose and the mysterious *Clade X* were located, counted, and mapped. Genetic materials from all three specimens were collected and sent in for analyses. After the sand dune dust had settled, the project was productive in more ways than originally planned. It documented much about *Howellii*: historical extent, quantification of the modern population, demography on and off the Refuge, and determined certain habitat characteristics that indicate population and demography. Observing the relationship between total plant cover and the number of *Howellii* plants, acreage necessary to reach a specific adult *Howellii* population was modeled. Success! But, after all the genetic analyses were completed, the team of USGS Biologist and Geneticists found that they may have revealed a hidden new subspecies.

Clade X may be a cryptic species: Where two distinctive species were concealed under one name. An unclassified species of primrose hidden in plain sight. This has generated excitement across a wide range of people – California Native Plant Society, University, state managers, and USFWS; the USGS hosted a webinar where dozens of people attended to hear the results on the new species. The USGS has released their data to the public as an [open-file report](#).

Next, the USGS plans on conducting more rigorous morphological and phylogenetic analyses of the *Howellii* and *Clade X* plants, providing more easily distinguishable and identifiable keys to *Clade X* in the field.

Currently the Antioch Dunes NWR is closed due to the COVID-19 pandemic, but we hope to invite folks back to the Refuge in the near future, so that they may take the Docent led tours and see the Antioch Dunes evening primrose for themselves.



Clade X
(United States Geological Survey)

Want to support efforts like these in the North Bay Refuges?

Join the *Friends of San Pablo Bay National Wildlife Refuge* by becoming a [member](#). This Friends group supports three Refuges within the San Francisco Bay NWR Complex: [San Pablo Bay](#), Antioch Dunes, and Marin Islands.

People of Note

by Ceal Craig, Newsletter Editor

Joan Patterson, Coalition of Refuge Friends and Advocates President

In April, I had an opportunity to interview Joan Patterson. We met when Joan worked with the National Wildlife Refuge Association. In animated discussions at Friends-USFWS conferences and then over lunch one day in 2016 in Washington D.C., we shared our passions for wildlife, Refuges, and birds. Patterson's next advocacy project began with the founding of CORFA: the Coalition of Refuges Friends and Advocates, where she is the CORFA President: a tireless advocate for our Refuges and a helper of all Friends groups.

Tell us a little bit about your journey to CORFA.



Joan: In the early 1990s, we moved to Sherwood, OR and I was looking to get involved in the community. I joined the Friends of the Tualatin River NWR and discovered the Refuge wasn't open. I was looking for things to do like a tour: but it was not open! Shortly after joining the Friends, we started our family and that spurred my desire to make the outdoors part

of their lives. So, what started as a temporary thing, became a personal commitment to nurture an appreciation of nature and working with the Tualatin Refuge. I wanted my kids to get out on that Refuge before they left elementary school.

So, I advocated to get it open to the public. We needed to actively get involved with elected officials. It had been pitched as a community asset, but it was not open to them. NWR resources helped us go to Washington, D.C. and told me to bring the two kids along. (4 & 6 at that time), talking with our congress person and staff.

We made an impression. Back and forth between Oregon and DC to get them to understand our needs and we had to understand their needs too. Ended up with transportation money for trails, signs, and FWS budget for Visitor Center and administrative buildings. My daughter was nine months old and she was ten by the time funds were acquired. Wanted my daughter and her classmates to learn about how important these kinds of places were needed.

Ceal: Joan shared that two months before funding came through, they moved to northern VA for her husband's work. Her kids were able to bring their classmates to the Refuge before they moved. Did walks with kids; a special tour for them. Studying poop, the birds, the trails, all the possibilities once this place would be open. The community was fully involved as well. Inches thick binders of letters to show elected officials. No safe way to get buses and cars into the Refuge (right on the highway) so needed to get those transportation funds to make this happen. Made sure they followed through on everything the member of Congress has asked them to do. They all came through.

Drive into city of Sherwood, Home of the Tualatin River NWR. Visitation has taken off; great outdoor programs for kids. Opened to the public in 2006. Established in 1992. Pictures of her kids planting trees are in the Visitor's Center; they wrote up a journal showing plants, animals, and such on their quarterly visits, using math, science, writing skills. The congress members saw that book demonstrating the value of the Refuge towards their education.

Describe the challenges you see for Friends groups over the next five years

Joan: Funding will be one of the biggest challenges. The spending power of the annual USFWS budget has not increased since 2010. Reductions in staff, restoration work, law enforcement issues, managing the volunteers: all have diminished because of lack of funding. That will affect what Friends can do. The challenge will be what Friends can do. Can we be doing more with respect to education, service projects, doing some of the essential work as needed by the Service. Friends groups need to push ourselves to the next level, speaking up for the needs of our Refuges: local level talking to community groups; federal level to share the value of these places and what is needed to have them operate and function.

Goes back to what Friends groups originally were established for...These groups were a bridge between USFWS and communities. Speaking up for the Refuge: bringing our passion, local stories, sharing how young people get excited; how restoration affects the downstream areas. We are not paid for this; our passion shows through.

Given COVID and other challenges in past years, the Federal government has to fund so many other things. Some National Parks partners fund most of the environmental education on their parks, growing large budgets in their groups to provide that for their National Parks. Education programs: who will fund these in the future?

Friends group have to revisit what they are really there for to support Refuges: education may be a larger part of their portfolios than it might have been in their early years of Friends groups. All Friends groups need to periodically reevaluate what are the key things a Friends group can do for their Refuge? We are all different: constantly evolving.

FY 2020 Volunteer Program Report: Don Edwards San Francisco Bay National Wildlife Refuge

by Paul Mueller, Volunteer Coordinator, SFB National Wildlife Refuge Complex

VOLUNTEER SPOTLIGHT

Prior to the shutdown many volunteers regularly picked up trash along the trails during scheduled Stewardship Saturdays. Longtime volunteers Brian and Katrina Higgins hike, bike, and kayak in the refuge, while picking up bay trash. During the drier months they borrow the keys to the refuge truck every two weeks or so and pick up bags of trash they and others have bagged along the levee trails.

Over the years they have recorded picking up over 300 truckloads of trash. By March of 2020 they surpassed 3,000 volunteer lifetime hours each. They often supervise other volunteers and they report on the whereabouts of trash throughout around the bay so that the Volunteer Coordinator could deploy other volunteers.

Fiscal year 2020 volunteer hours at Don Edwards San Francisco Bay National Wildlife Refuge appeared to be on track to meet or exceed 2019 hours of 13,675 from 1,401 individuals. Instead, the pandemic arriving in force in late February upended further plans to host volunteers. Last spring would have been a busy time for planting and weeding projects, docent programs, education activities using volunteers, maintenance projects and wildlife surveys. As a result of the cancellations, the year ended up with only 10,045 hours from 758 volunteers. There was a total of 30 special events utilizing one-time volunteers, down from 55 the year before.

Before the volunteer program shut down, volunteers accomplished a lot though. The Coastal Cleanup in the fall of 2019 in Fremont had 249 volunteers contributing 871 hours over three and a half hours (2020 Coastal Cleanup had to be cancelled). What was noteworthy in 2019 edition of the popular cleanup was that many attendees saw the messages of the regional and state organizers, East Bay Parks and the California Coastal Commission, and decided to focus on marine “micro trash” along the nearby trails at the foot of the fishing pier.

Micro trash was a topical issue at the time getting attention in the media with reports of plastics being consumed by wildlife (even mosquitoes) in alarming amounts. So, the area taken over by specially motivated volunteers near the fishing pier received a real “scrubbing”. Volunteers removed small plastic shards, Styrofoam, bottle caps, cigarette butts, plastic strips, and much that had broken down loose and embedded in the sand and dirt. They also retrieved larger pieces of bay trash – enough to fill up a large dumpster that was supplied at no cost to the refuge by the City of Fremont. For the volunteers, it turned out to be a good opportunity to see first-hand the problem of how volumes of floating trash constantly get washed up and broken down by the high tides along the shores and trails facing the bay.



Microtrash
(Joanne Ong)



Volunteers finding microtrash
(Say Zhee Lim)



Finding caps, lines, shredded plastics, and smaller pieces
(Joanne Ong)



Volunteers collecting trash
(Joanne Ong)



Prior to the shutdown many volunteers regularly picked up trash along the trails during scheduled Stewardship Saturdays. Longtime volunteers Brian and Katrina Higgins hike, bike, and kayak in the refuge, while picking up bay trash. During the drier months they borrow the keys to the refuge truck every two weeks or so and pick up bags of trash they and others have bagged along the levee trails. Over the years they have recorded picking up over 300 truckloads of trash. By March of 2020 they surpassed 3,000 volunteer lifetime hours each. They often supervise other volunteers and they report on the whereabouts of trash throughout around the bay so that the Volunteer Coordinator could deploy other volunteers.

Before the pandemic hit, the Environmental Education Center in Alviso recorded 2,292 volunteer hours in FY2020 (22% of the total) in habitat restoration, maintenance, environmental education, and visitor service. Yet, the EEC hosted about half the numbers of volunteers recorded for the whole refuge – 355 out of a total of 758. As usual, the EEC volunteer engaged a high number of students to do stewardship projects while learning about science, the environment, and taking leadership.

While the pandemic stopped most volunteering, consider these notable exceptions. Docents could still give “virtual” programs aided with images, briefing slides, and movies over Zoom from their homes. Two of the programs that

occurred were several sessions of nature yoga and one about the abandoned townsite of Drawbridge on an island marsh that is sinking into the bay.

Another rare pandemic use of volunteers involved two RV volunteers. While the refuge gates in the Fremont and San Jose (Alviso) areas were closed to cars, the general public was even more anxious to get out during shelter in place orders and enjoy nature as allowed and continued to walk into the refuge. However, people did this in much greater numbers than before Covid-19. This led to some problems with excess trash left at the anchored cans in the parking lots, and an increase in vandalism and graffiti. There was also the specter of visitor safety issues, since there were no longer large number of staff and volunteers operating in the two areas to observe and help people in distress. Furthermore, there was a shortage of maintenance personnel and no resident Law Enforcement staff.

Scott Page and Joe Crandall staying in the RV sites for volunteers scrapped their plans to manage the Visitor Contact Stations and joined the FWS “strike teams” wearing the same protective gear as the employees. They cut down vegetation near the buildings greatly reducing the fire hazard during a very dry California summer. Scott and Joe drove a refuge truck removing bags from the overfull trash cans in Alviso and Fremont. They also monitored the deserted buildings of the refuge, searched along the roads for safety problems and called for help when warranted.

The most noteworthy program utilizing volunteers during the pandemic safely was the 40th Annual Summer Camp. Last August, Summer Camp was held on-line pulling in campers and volunteers from around the San Francisco Bay area, including one from Hawaii. The four-day event utilized five to six adults and 20 Habitat Heroes youth volunteers. The Habitat Heroes recorded 164 volunteer hours.

Thus, volunteers continued to make a difference at our Refuges, and we look forward to a bigger presence from them when we open more completely soon!



Removing invasive weeds during Coastal Cleanup
(Joanne Ong)

What People Accomplished at North Bay Refuges in FY2020

by Meg Marriott, Wildlife Biologist; Louis Terrazas, Acting Refuge Manager; Susan Euing, Wildlife Biologist; United States Fish & Wildlife Service

[NOTE: See VA Alameda Point Article pages for Volunteers efforts there!](#)

Volunteer hours in FY2020 on all three North Bay Refuges—Marin Islands NWR, Antioch Dunes NWR and San Pablo Bay NWR—were reduced due to Covid-19 Stay-in-Place orders and restrictions. No volunteers were allowed to work on any activities on any of these Refuges between mid-March and the end of September 2020. However, volunteers were able to accomplish a lot before mid-March 2020.

Antioch Dunes NWR

Prior to the shelter in place orders we were able to host students from Antioch Charter Academy II, Sutter Elementary School, Contra Costa Christian School, and Antioch High School EarthTeam volunteers. Students visited the Refuge and learned about endangered species and wildlife conservation, explored the refuge and the San Joaquin River, and helped to clear weeds away from endangered plants and host plants for the endangered Lange’s metalmark butterfly



Students from Antioch Charter Academy II School clear out weeds from a previous planting, identify, count and flag endangered plants in February of 2020 (USFWS)



Fourth grade students from Sutter Elementary pose for a picture at Antioch Dunes NWR after visiting and helping to remove invasive plants in January of 2020 (USFWS)

Volunteers Hugh Harvey and Michael Krieg helped staff collect native plant seeds. Volunteer intern Kaitlyn Romero assisted refuge staff with a buckwheat experiment at the Stamm Unit, where we cleared invasive plants, mixed seeds and sand, spread the seeds and raked them in for two specific plots.



Students from Antioch High School work for the EarthTeam at Antioch Dunes NWR removing invasive plants and dumping them into dumpsters in February of 2020 (USFWS)

San Pablo Bay NWR

Between October 2019 and mid-March 2020, the Refuge conducted a partnership program with Students and Teachers Restoring a Watershed (STRAW) in which students, teachers, chaperones, and other volunteers participated in nine workdays to plant native plants for wildlife habitat.

Since 2008, our annual partnership program with STRAW has provided the main source of Environmental Education on the San Pablo Bay NWR. In FY2020 students from Vallejo Charter, Lincoln elementary, Valley View Elementary, Loma Verde Elementary, Live Oak High School, Park School and Lawrence Jones Middle School planted 1,141 native plants which will directly benefit the Endangered Salt Marsh Harvest Mouse, California Ridgway’s Rail and other marsh dwelling wildlife.



Elementary students pose for a photo before “digging in” and planting native plants as part of the Refuge/STRAW native plant restoration program in 2020. (SFBWS)

Dear Members & Readers,

I am fortunate that I have been able to approach my life with intention and have a career in the conservation field. Through shared accomplishments with peers that are meaningful to me and to the world beyond us I delight in expressing that I have a sense of purpose. For 20 years I have been working for a public land management agency, the [Midpeninsula Regional Open Space District](#), as the Interpretation & Education Program Manager.

Midpen's mission is to acquire and preserve a regional greenbelt of open space land, protect and restore the environment, and provide ecologically sensitive public enjoyment and education. My staff and I engage open space visitors, students on field trips, and online learners and inquiring minds through the programming we create. Volunteer docents in three program areas are our partners in enriching the experiences of others.

One of our roles is to contribute to people's understanding of the threatened and endangered species that occur on Midpen preserves and the richness and complexity of our region's biodiversity. As a volunteer board member for San Francisco Bay Wildlife Society (SFBWS), I am also supporting

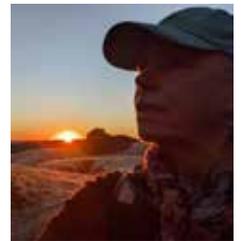
the equally meaningful work and mission of U.S. Fish and Wildlife Service and the SF Bay NWR Complex. I really like thinking about the alignment of both agency's efforts from the top of some Santa Cruz Mountain watersheds down to the Bay, and the plant and animal species that are being protected.

I hope this spring edition of our Tide Rising newsletter provides you with a new awareness of sensitive and protected species in the San Francisco Bay environs and the remarkable purpose and effort that goes into making protection possible.

Thank you for your support of SFBWS and of the many agencies and organizations that do great conservation science and public engagement work.

Here's to alignment, action, enjoyment and the best that this season of renewal brings!

Renee



California red-legged frog (Midpen)



San Francisco dusky-footed woodrat
(Cindy Roessler)



Kings Mountain manzanita (Midpen)

WE MISS YOU at the SFBWS Nature stores!

Currently our in-store sites at the Environmental Education Center in Alviso and Visitors Center in Fremont are closed. We have missed you! Our Online Nature Store was a bust! We moved too soon, without fully taking into account the amount of staff time it would take to process orders. Without easy access to the SFBWS offices in Fremont, this makes fulfilling and shipping more difficult than we anticipated.

Stay tuned for Online Nature Store: Take 2 in coming months. If you want to volunteer to help or have ideas on how to accomplish this activity, write [Mary!](#)

Photography Corner



Don Edwards SFB NWR Fall Foliage
(Ambarish Goswami)



Two Views of king tide's at Don Edwards SFB NWR
(Ambarish Goswami)



A study of contrasts: Tulips and Poppies from Filoli in the Spring
(Ceal Craig)



Don Edwards SFB NWR
(Ambarish Goswami)

San Francisco Bay National Wildlife Refuge Complex

Current Refuge Complex Status

Refuge Status as of April 15, 2021

Masks required on all Federal Property

Don Edwards San Francisco Bay (DESF) NWR: All public programs and volunteer events postponed.

- If you have a scheduled group program, contact staff person you made the reservation with to discuss options.
- Visitor Center in Fremont & Environmental Education Center in Alviso are currently closed. Check back for status changes. If you have questions or concerns regarding the EEC activities and events, please [contact us](#)
- The DESFB NWR Refuge trails remain open from sunrise to sunset. Stay healthy, and take care.

Other National Wildlife Refuges in the Complex:

- During the current public health emergency, whenever possible, outdoor recreation sites at Refuges will remain open to the public. For local conditions review information on Refuge websites (for links see [Explore From Home](#) page) and call ahead.
- If visiting a Refuge, please ensure public health and safety by following guidance from the CDC and state and local public health authorities. You can do this by maintaining social distancing, avoiding overcrowding, and using good hygiene practices.

Earth Day 2021

April 22 -- 51st Anniversary of Earth Day

How can you participate?

[San Francisco Bay Wildlife Society Virtual Earth Day Kit](#)

- Join us on April 24th and earn your Junior Wildlife Ranger badge!
- [April 9, BLOG post on Earth Day in April](#)

[Alameda County Clean Water Program Ideas for Earth Day](#)

- **Community activities:** Sign up on site above
- **Activities for kids:** Coloring with Fred & Izzy, Fred's Frog-tastic Activity Pack, and BEE at Home Activity Kit.
- **For adults:** Make your Own non-toxic pest control and a pocket guide for pest control.

[Coalition of Refuge Friends and Advocates](#)



[National Wildlife Refuge Association](#)

**Defends the integrity of the National Wildlife Refuge System
with advocacy, restoration and research.**

Find out about NWRA, mission, their methods, and the results of four decades of advocacy.

SAN FRANCISCO BAY WILDLIFE SOCIETY: DONOR RECOGNITION

We gratefully acknowledge the following donors who have made gifts to the San Francisco Bay Wildlife Society between January 1 to March 31, 2021.

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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 www.sfbayws.org.
For a gift membership, call 510-792-0222 ext. 364.

[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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| <input type="checkbox"/> \$20 Student/Senior <input type="checkbox"/> \$35 Individual <input type="checkbox"/> \$50 Family <input type="checkbox"/> \$75 Supporter <input type="checkbox"/> \$100 Participant <input type="checkbox"/> Check Enclosed | <input type="checkbox"/> \$200 Corporation <input type="checkbox"/> \$250 Sponsor <input type="checkbox"/> \$500 Sustainer <input type="checkbox"/> \$1,000 Leader <input type="checkbox"/> Credit card payment, use PayPal at www.sfbayws.org/donate |
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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

www.sfbayws.org



Thank you for your support!