Tide Rising

Spring 2022 Volume III, 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

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- Photographs of the Refuges

Enjoy and share your ideas for future edition articles! What interests you? Write us.

San Francisco Bay Wildlife Society

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Masthead: Earth Day Graphic (Olivia Poulos)

Miguel Marquez, USFWS, at Science Night from two years ago

"Earth Day Every Day"

People pledged what they would do to help writing on the Earth Flag (*Tia Glagolev*)

What will you do to Celebrate Earth Day 2023?

Ideas & Activities in next pages!

Minimizing Human Effects on Marsh Plants in a Wildlife Refuge

by Christopher L. Kitting, Ph.D., Professor, Biological Sciences CSU East Bay, Society of Wetland Scientists (life member), and Felicitas A. Jimenez, Ecology and Conservation Biology student, California State University, East Bay

In ecology and in Conservation Biology, Wildlife Habitat Loss is a major reason for Biodiversity Loss, a present, human-caused mass extinction that permanently loses natural resources and Earth's life support systems. Especially around Earth Day, as we try to remember our land's heritage with truly sustainable Native American cultures, we must recognize that humans instead have become the most abundant, and destructive, large animal species on Earth. Why not recognize that humans should be mere guests among historical species that were sustainable until human's overabundance and overconsumption of shared resources.

Unlike Parks, established for people, Wildlife Refuges are established primarily to protect and recover wildlife and their habitats, particularly endangered species that otherwise are doomed. Designating land as a Wildlife Refuge provided permanent habitat for endangered species needed for them to recover sustainable ecosystems. While enjoying nature, humans often overlook effects of recreational activities on wildlife. We can take many precautions to ensure communities of sustainably diverse, native species can thrive without human interference.

Various field experiments show that a major limitation for marsh plants is light availability. Figure 1 shows one of the original major walkways at the San Francisco Bay National Wildlife Refuge Complex, near Fremont Headquarters. Whereas high portions of the (narrow) walkway have negligible effects on marsh plant growth, lower walkway stretches (Figure 2) with deep shade, deplete marsh (and other) vegetation. Efforts to restore marsh plants and prevent further defoliation should be undertaken (and should become funded) now, especially as new walkways are planned around the San Francisco Bay National Wildlife Refuge Complex, and elsewhere.

Fig. 1. Recent image at average low tide, of this major boardwalk just south of Refuge offices in Newark, CA. *(©2022 C. Kitting)*

Fig. 2. Recent image from "Camera on a stick," under a long, low, shaded corner of that boardwalk. *(©2022 C. Kitting)*

Particularly as Logan et al. (2017) concluded, construction and persistence of most walkways limits light for marsh plants, stunts growth of marsh vegetation, and will cause a decrease in overall biodiversity due to decreased cover of plants. De Groot (2012) showed that marshlands in the United States provide up to $887,828 in ecosystem services per hectare (100x100 meters) per year, although that habitat frequently still is being lost to human activity and climate disruption. Suitable, partial shading may have some side benefits to some wildlife such as preventing excess salt, cooler temperatures, and reduced drying in warmer climates. However, shading becomes a problem when it is unnaturally deep shade, which interferes with marsh vegetation.

To decrease light interference from walkways, Logan et al. and others recommend a width to height ratio below a 0.7 ratio. Walkways with a W:H ratio of <0.7 have minimal biomass loss of marsh vegetation. If a walkway is necessary, it should be built accordingly to prevent defoliation of habitats below. Otherwise, major reduced light availability from walkways is a direct impact of human recreation access, for compensatory additional habitat restoration. Habitat loss from shading can be prevented by keeping walkways under a 0.7 W:H ratio. (Most of this walkway has an approximate W:H ratio of ~3.) Assuming translucent boardwalks are impractical, higher boardwalks also would be prepared for any sinking, or thickening vegetation, and sea levels rising (Figure 3). If higher boardwalks and required railings are too expensive, that extra public access needs to be assessed from a long-term ecological viewpoint. Which should be the priority?

Fig. 3. High tide 2022 at this north extension of the above boardwalk, with water under the boardwalk, illustrating thinner vegetation there (and anticipating these more typical water levels as sea levels rise). *(©2022 C. Kitting)*

Minimizing Human Effects on Marsh Plants in a Wildlife Refuge *(continued)*

Sustainable marshes provide shoreline stabilization, biological filtration of soil and water, and act as nursery habitats to support an ecologically diverse community. Marshes can act as a carbon sink to absorb and store carbon dioxide as durable organic matter. Tidal marshes can even minimize methane emissions (harmful as a very potent greenhouse gas), compared with non-tidal marshes or mudflats. Defoliation of marsh plants has numerous such ecological consequences. Local marshes are home to several endangered species such as salt marsh harvest mouse, *Reithrodontomys raviventris*, Ridgway's Rail, *Rallus obsoletus* (formerly called California Clapper Rail, *Rallus crepitans*), and California Black Rail, *Laterallus jamaicensis coturniculus*. These endangered or threatened animals rely on marsh plants for shelter throughout their entire life cycle. Therefore, declines in marsh vegetation can hinder recovery, result in these species fleeing, or worse. Because shorelines normally could sustain such beneficial plant life, recognizing where restoration is needed (without risking such existing habitats) is crucial in our ecological communities. Conservation and restoration are needed also to increase biodiversity, stabilize shorelines, and reduce atmospheric and aquatic carbon dioxide and methane.

Recent San Francisco Bay shoreline restoration major funding requires more public access (somewhere). But by law (and environmental professional policy), any damage to such wetlands must be compensated with additional restoration, five times the area damaged. (Five times the damaged area is required, since National Research Council showed that fewer than 1/5 of wetland restorations are successful.) Wetland damage includes even temporary damage to existing marshes during temporary new access, demolition of previous structures, new construction (such as typically low walkways), or from actual marsh restoration activities. Those laws and policy often do get overlooked, and are rarely enforced. Thus, we continue to lose wetlands and other resources as endangered animal populations using them dwindle too. Locally, we still patiently await replacement and maybe vegetation of a valuable, rare, below-ground photography blind, demolished almost a decade ago during "restoration" (with levee reinforcement) on the trail just south of Figure 1.

Nature has been harmed by excessive human activity for decades, and very few pristine environments remain on Earth. Restoring and maintaining native ecological communities is the best way we can build a sustainable future. Impacts we have on our planet do not have to be all bad. We are guests to nature. Therefore, especially at a wildlife refuge, benefits to wildlife, especially endangered species, must become more important here than recreation or extraneous funding. Properly reversing habitat loss (and other harm from humans, such as diverse pollution) can enable such vulnerable species to survive.

Taking steps to conserve and restore such habitats is an important way to restore biodiversity. Community-led conservation can save our beloved wildlife by discovering or recognizing limits on species and reversing such limits. Marshlands provide beneficial and valuable ecosystem services needed especially in our bay area. Protecting threatened species and their habitats safeguards unusual biodiversity and sustains historical ecosystems. The most sustainable ways of living can come from native cultures. Indigenous peoples valued having a balance between nature and human beings. There is no doubt that humans are overwhelming that prehistoric balance with nature, but maintaining local wildlife protected from human interference in our Refuge system is one way to restore balance locally. Competing influences presently have become funding for more public access, presently not particularly suitable in a wildlife refuge until its endangered species are recovering. Partnerships between a wildlife Refuge and an adjacent Park could solve such conundrums for now.

We would like to acknowledge the Muwekma Ohlone Tribe, an indigenous group whose land we gather on, and from whom we can learn a lot.

De Groot, R.S., L. Brander, S. van der Ploeg, F. Bernard, L.C. Braat, M. Christie, R. Costanza, N. Crossman, A. Ghermandi, L. Hein, S. Hussain, P. Kumar, A. McVittie, R. Portela, L. C. Rodriguez, P. ten Brink, P. van Beukering. (2012). Global estimates of the value of ecosystems and their services in monetary terms. *Ecosystem Services 1(*1): 50-61. http://dx.doi.org/10.1016/j.ecoser.2012.07.005

Logan, J. M., Voss, S., Davis, A., & Ford, K. H. (2018). An experimental evaluation of dock shading impacts on salt marsh vegetation in a New England Estuary. *Estuaries and Coasts 41*:1–34. http://www.jstor.org/stable/44858083

Felicitas A. Jimenez, student at California State University, East Bay, and new SFBWS member, studying Biological Science Concentrated in Ecology and Conservation Biology. Interested in research and applications in Conservation and Restoration Biology, Sustainable Agriculture, Climate Change, Invasive Species, and Bay Area Ecology

Christopher L. Kitting, Ph.D. Professor of Biological Sciences, California State University, East Bay, and charter member of Board of Directors of San Francisco Bay Wildlife Society, currently President. Multidisciplinary Restoration and Monitoring of Aquatic Environments, especially w/ plants and small animals in non-destructive sampling with imagery analyses, to improve refugia, food resources, bio-filters, climate adaptation, and ecosystem restoration, especially in shoreline habitat impacts and restoration.

San Francisco Bay Wildlife Society NEWS

by Olivia Poulos, SFBWS Watershed Watchers Coordinator

For this Earth Day, make your impact local.

The San Francisco Bay Wildlife Society has provided environmental education and interpretation activities to local communities and fostered a culture of stewardship in the Bay Area for 35 years.

Through our programs, we are helping to build a more equitable and sustainable future. Now more than ever, we need your help to continue our work for the benefit of the Bay Area for generations to come.

Visit https://sfbayws.org/donate to learn more about how you can make a difference in your community.

Earth Day Events

Refuge to the Rescue

4/20 (Wednesday)

6-8pm (virtual)

See flyers on next pages

BioBlitz, at EEC

4/23 (Saturday)

10am-2pm

SFBWS Staff Changes

Jivan Khakee has joined the SFBWS as a Restoration Associate. He is a graduate of the University of California - Santa Barbara with a Bachelor's of Science in Aquatic Biology. He moved to the Bay Area after graduating and will begin a Master's program this Fall at San Francisco State University, with a focus on Restoration Ecology. Born and raised in New York City, he has found a passion in urban ecological restoration and is excited to make an impact on restoration efforts in the South Bay.

Radhika Malaviya is the new Interpretive Associate for the Watershed Watchers program. She is a recent graduate from UC Santa Cruz with a B.A. in Environmental Studies. She is passionate about fostering connections between people and the land they live on through art, outdoor recreation, and getting involved with solving environmental issues.

Nature Store Books & Membership Gifts

Though our Nature Stores at the Environmental Education Center in Alviso and Visitors Center in Fremont remain closed, we are processing orders for three books, available at our website. You can buy books online here using your credit card. See a list of books on the next page!

We are offering a free one-year membership to SFBWS to anyone who orders a book. Please use this gift order form. Obtain your free membership by emailing Mary with the content on the form. You will need to provide your name, mailing address, email address for our quarterly newsletter and phone number (optional).

You can start your membership with a donation. Each year we will send you a letter with a progress update and ask if you would like to continue your membership. Members are entitled to a 15% discount at our Nature Stores, are invited to attend special events, and provide input and feedback for our not-for-profit Friends Group supporting the San Francisco Bay National Wildlife Refuge Complex. And, you can also volunteer!

Join us for...

Refuge to the Rescue

Scan the QR Code to register!

Wednesday, April 20th from 6:00PM–8:00PM

Online via Zoom

Did you know that the Refuge helps protect the Bay from potential horrible futures? That the Refuge provides food and shelter for millions of birds and several endangered species? That the Refuge continues to rescue us from some of our own negligence? Join docent Larry Rosenblum for this presentation about how fortunate we are to have the Refuge today, how it will continue to benefit us in the future, and how you can help protect it.

refugetotherescue2022.eventbrite.com

San Francisco Bay Wildlife Society

Santa Clara Valley *Urban Runoff* Pollution Prevention Program

Questions? Email watershedwatchers @sfbayws.org

Don Edwards San Francisco Bay National Wildlife Refuge

EARTH DAY BIOBLITZ

April 23rd, 2022 from 10:00am-2:00pm

Environmental Education Center
Don Edwards SF Bay National Wildlife Refuge
1751 Grand Blvd, San Jose, CA 95002

Join us for a fun, family BioBlitz event! We will be using the iNaturalist app to help our Refuge biologists collect citizen science data on the animal and plant species that call the Refuge home.

The event will be an open house, with time to explore, discover local species, learn about the history of Earth Day, start a nature journal, join a Ranger Talk, and much more!

donedwardsearthdayevent2022.eventbrite.com

Register Here

San Francisco Bay Wildlife Society

Santa Clara Valley *Urban Runoff* Pollution Prevention Program

NATIONAL WILDLIFE REFUGE SYSTEM

Don Edwards San Francisco Bay National Wildlife Refuge

DIA DE LA TIERRA

Acompañenos para celebrar el Día de la Tierra!

23 de Abril, 2022 de 10:00am a 2:00pm

Environmental Education Center
Don Edwards SF Bay National Wildlife Refuge
1751 Grand Blvd, San Jose, CA 95002

Acompañenos para celebrar un día divertido de familia y celebrar el Día de la Tierra. Este evento es gratis y es un lugar para explorar y aprender de la historia, ciencia, y animales de su refugio.

Escanea el código QR para Registrarte

donedwardsearthdayevent2022.eventbrite.com

iNaturalist

California Academy of Sciences · National Geographic

San Francisco Bay Wildlife Society

Santa Clara Valley Urban Runoff Pollution Prevention Program

U.S. Fish & Wildlife Service

NATIONAL WILDLIFE REFUGE SYSTEM

Nature Themed Gifts

Place orders: *https://sfbayws.org/nature-gifts-order-form*

Share your love of Nature and the Refuges

Sinking Underwater

Members: $16.38 including tax
Non-members: $19.66 including tax plus shipping (see order form)

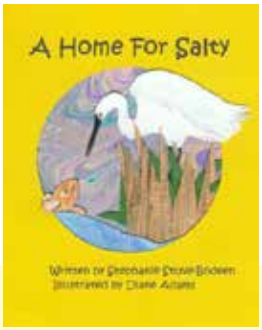
Drawbridge has a certain mystique, even though it "died" over 35 years ago. Because of its isolation on a marshy island, it remains unknown - even to people who live a few miles away.

This unusual community lacked streets, schools or stores and its buildings were constantly sank into swampy water. Residents had to walk three miles on railroad tracks to the nearest grocery. Their kids trudged to school on those same busy tracks. Still, residents loved its lifestyle.

Why were they forced to leave?
Why is the island off limits today?
The town remains alive in an unusual manner.

You will meet the hardy folks who lived there and learn their stories firsthand, thanks to unexpected events that took place after it became a ghost town. Photos and rare interviews with former inhabitants bring Drawbridge to life again, allowing readers to experience the town without slogging through its mud.

113 pages



A Home for Salty

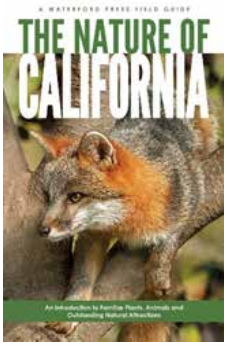
Members: $6.50 including tax
Non-members: $7.64 including tax
plus shipping (see order form)

Read about the adventures of a salt marsh harvest mouse, an endangered species that lives on the San Francisco Bay National Wildlife Refuge. 32 pages.

The Salt Marsh Harvest Mouse, also known as Salty, is found along the edges of San Francisco, San Pablo, and Suisan Bays and no where else in the world.

Salty is an endangered species, meaning that there aren't many Saltys around. Why is Salty endangered? Salty only lives in the Salt Marsh habitat. The marsh habitat has decreased over 80% within the past 100 years. With less space, it is difficult for Salty to find food, water, and shelter. Salty only lives for 9 months, which makes it more difficult to find a partner and make a family.

Due to living in a salty environment, Salty can swim and drink salt water. Salty is the only mouse species that can survive in salt water. Salty has a special salt gland that allows it to drink salt water. Salty is nocturnal which means that it is only awake at night. Salty is only about the size of your thumb, with a tail. Salty's main diet is pickleweed; it also makes its home out of pickleweed and uses pickleweed to hide from predators. Salty is a unique mammal that we can protect by keeping our marshes and watersheds free from pollution.



The Nature of California

Members: $15.73 including tax
Non-members: $18.51 including tax
plus shipping (see order form)

"This beautifully illustrated field guide highlights over 370 common and unique plants and animals and 85 of the state's outstanding natural attractions. It is an indispensable single reference for amateur naturalists, students and tourists alike." 176 pages.

Give a gift of SFBWS **membership** to friends and family.
Or donate to help SFBWS
See https://sfbayws.org/donate

Give a Donation – using a credit card through PayPal

Gift Membership – give a membership to a friend or family member

Amazon Smile - support San Francisco Bay Wildlife Society with your normal Amazon purchases at no cost to you by signing in at Smile.Amazon.com and assigning us as your chosen charity.

Become a Member at: https://sfbayws.org/join

Don Edwards San Francisco Bay NWR (more info)

Formed in 1972, these 30,000 acres are an oasis for millions of migratory birds & endangered species

Reclaiming the Land

Paul Mueller, Media Content Developer & Volunteer Coordinator, USFWS

The Don Edwards SF Bay NWR recently acquired a very important new neighbor, the Dumbarton Quarry Campground operated by East Bay Regional Parks of Alameda and Contra Costa counties. This campground, dedicated on August 28, 2021, has been at least 12 years in the making and many more years in the planning. The 15-million-dollar project was built mostly without taxpayer money by the former quarry owners, the DeSilva Company. It connects a popular East Bay Regional Park, Coyote Hills, with the Don Edwards SFB NWR via Thornton and Paseo Padre Avenues and the Bay View Trail. Considering the transformation that was needed to create the project, the new campground represents an astounding achievement of the former Quarry owners, the DeSilva Company, the City of Fremont, East Bay Regional Parks, and other government entities.

Parking Area
(Paul Mueller)

Picnic Area
(Paul Mueller)

Playground
(Paul Mueller)

Before the quarry operation started in the 1950s, a 350-foot-high hill was part of the Coyote Hills area. The hill was eventually removed and became a huge pit -- 1,400 feet wide and as low as 320 feet below sea level -- making it one of the deepest human-made places in the United States. The rock and gravel from the quarry were used in the construction of San Francisco and Oakland airports, bridges, roads, and other projects.

Leaving the old quarry as a scar in the land a short distance from the Refuge was never really an option. Generally, the state and federal government had laws in place to encourage the reclamation of mines and quarry projects. As a part of the continuation of a permit to operate past 1997, the City of Fremont, developed an agreement with the DeSilva Company to later convert the quarry to a lake park. The quarry ceased operations in 2007 and the company owners worked with its neighbors regarding the actual tack to take with the restoration. The lake creation idea had to be abandoned since there really wasn't enough water to fill up the quarry from Alameda Creek water as it was also needed for the steelhead trout runs.

The plan shifted to create a campground and fill in the huge quarry with dirt from construction projects, particularly from the building of an extension of the Bay Area Rapid Transit (BART) line from Fremont to Milpitas. Six million cubic yards of dirt was used to fill up much of the quarry. Currently, the first completed phase of the campground has approximately 65 sites with water and electric connections. Other facilities include showers, a laundry, a store, amphitheater, playground, picnic areas, fields that could be used for sport play, and day use parking for about 100 vehicles. Plans are in the works to add additional campsites, cabins, group camping areas, and a special events center. All of these steps should bring more people to the adjacent Refuge with easy connections to the Dumbarton Bridge, interstates 101 and 880, and the airports of San Francisco, Oakland, and San Jose just 18 to 25 miles away.


Trash left for pickup
(Lydia Woltier)

"Rogue" Volunteers: Making a Difference

By Paul Mueller, USFWS Volunteer Coordinator, San Francisco Bay NWR Complex

Technically, volunteering is not allowed unless supervised by the Fish and Wildlife Service or another partner (such as SFBWS). Why you ask? To prevent unsigned volunteers from going unknowingly into sensitive habitat areas is the primary reason.

During the pandemic hundreds or even thousands of hours were not tracked. The public figured that Refuges need help with trash accumulation along its popular trails. The maintenance crew that was allowed to come back to work during the pandemic reported bags of trash left along the trails and outside the garbage cans of the refuges. On the weekends closest to Earth Day 2021, unassigned people were collecting trash, and most were keeping to the trails.

During normal times such undocumented volunteering happens but can be controlled to some extent by the staff in the area. Staff have encouraged these volunteers to sign up as USFWS volunteers formally, but many do not want to volunteer formally, even with the perks given to USFWS volunteers. Some think that it is just the right thing to do without being compensated or given official thanks. A few clean up along the busier roads where it is generally not allowed to volunteer for safety concerns. Either way, their work does help keep the Refuges cleaner for the wildlife and plants that inhabit them. We appreciate people's enthusiasm to help the Refuges and hope they will join the USFWS volunteer group, so they can share their passion and inspire others.

Volunteer Recognition (FY21) at the Farallon Islands NWR

by Gerry McChesney, Refuge Manager, Farallon Islands NWR

Volunteer Michael Pierson joined Refuge Manager Gerry McChesney and Refuge Specialist Alyssa Clevenstine in May 2021 to treat and pull several target invasive plant species, including New Zealand spinach, cheeseweed, narrowleaf plantain, goosefoot, Ehrharta grass, and others. This was the first major invasive plant control effort since the start of the pandemic and many areas were highly overgrown. On the Refuge, five volunteers contributed 122 hours assisting with invasive plant control, maintenance, and telecommunications. Volunteer use was highly restricted because of continuing COVID-19 pandemic and conducted under strict safety protocols.

Two Refuge Complex volunteers, Scott Page and Joe Crandall, greatly assisted us with loading, unloading, and transport of cargo destined for the islands. One major project they assisted with was loading and unloading multiple generators transported by the California Army National Guard in one of their CH-47 Chinook helicopters. Expert plumber Andrew Carothers-Liske assisted with issues beyond partner island biologists and stewards capabilities. Telecommunications guru, Tim Pozar, continued assisting the Refuge keep staff and partners connected to the outside world by advising how to troubleshoot issues with our off-the-grid system.

We thank all of our volunteers for the hard work and dedication they've demonstrated. We couldn't do it without them.


Relying on volunteer technical expertise to help keep our off-the-grid telecommunications system working. Here, a volunteer inspects a wind-damaged radio antenna


Volunteer Michael Pierson treating invasive plants on the Farallon Islands NWR

(all photos by Gerry McChesney)


Andrew Carothers-Liske has been assisting the Farallon Islands NWR with expert plumbing needs for over 15 years


Volunteers Scott Page and Joe Crandall assisting with the Army National Guard-supported transport of generators

Photography Corner

Don Edwards SFB NWR in Spring
(*Ambarish Goswami*)

Volunteers on the Refuges

Story Walk Docent
(*Paul Mueller*)

Special Achievement Award
Steve Stolper
presented by SFBWS, Hope Presley
(*Jonathan Shore*)

Volunteer Team of the Year
Drue Freeman & Ibrahim Khatri
presented by SFBWS Hope Presley
(*Jonathan Shore*)

Please share your photos of our Refuges and other Refuges you visit!

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 Janiary 1 through March 31, 2022.

Senior/Student
Thomas Phillip Federico
Sara Garetz

Individual
Robert Culley
Shoko Furuya
Theresa McGovern
Stephen Wilkerson

Family
Lynne Fitzjarrell
James & Anne Kellenberger
Bruce C Kelly & Lynn Trostad
Stella Yang

Supporter
Edward Dowling
Laurence Stearns

Participant
Norman & Marcia G Houseworth
Robert Kirby Jr
Varon Smith
Mark A & Kathleen Soulard

Sponsor
Mary & Gene Bobik

THANK YOU!

Our Refuges appreciate your support

Show your commitment to the Earth
Join the *San Francisco Bay Wildlife Society*
Support Bay Area National Wildlife Refuges

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 S*an 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:

☐ $20 Student/Senior ☐ $35 Individual ☐ $50 Family ☐ $75 Supporter ☐ $100 Participant	☐ $200 Corporation ☐ $250 Sponsor ☐ $500 Sustainer ☐ $1,000 Leader
☐ Check Enclosed	☐ Credit card payment, use PayPal at www.sfbayws.org/donate

Name _____

Address_____

City _____State _____ Zip _____

Phone _____ Email _____

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

www.sfbayws.org