

Tideline



Antioch Dunes / Don Edwards / Ellicott Slough / Farallon Island / Marin Islands / Salinas River / San Pablo Bay

Return of the Fur Seals

By Jody Holzworth and Russ Bradley, Point Blue Conservation Science

The return of the northern fur seals is changing the Farallon Islands, says Russ Bradley, senior scientist with Point Blue Conservation Science.

“Imagine tens of thousands of fur seals on the islands again,” he says. “They are aggressive. This could have a historic impact.”

Bradley is referring to the 1,000 northern fur seals he and his staff documented this past fall on the islands, part of the Farallon National Wildlife Refuge 28 miles west of San Francisco. Northern fur seals are members of the “eared seal” family (Otariidae). They have a stocky body, small head, and a very short snout. Their flippers are the longest in the Otariidae family--their hind flippers can measure up to one-fourth of their total body length.

Russian and American fur traders wiped out the Farallones population more than 150 years ago to sell their luxurious pelts, which can be as thick as 300,000 hairs per square inch. Human occupation of Southeast Farallon Island began in the early 1800s when American fur traders began to hunt northern fur seals, California sea lions, and Steller sea lions for their pelts and elephant seals for their blubber. The total number of pelts collected was not well documented, but one ship from Boston logged 150,000 fur seals harvested between 1810 and 1812. In 1817 a permanent Russian base was established on the Farallones and

was administered by the Russian colony at Fort Ross. Heavy fur sealing operations were conducted by Russian sealers throughout the 1920s. By 1834 the fur seal population

Ryan Berger, Farallon program biologist for Point Blue says northern fur seals are unlike other seal species. “They are more like sea lions. They have external ears and a



*Northern fur seals breed only on West End Island, within the Farallon Wilderness.
Photo: Jim Tietz*

was so depleted that hunters were not even able to collect 60 pelts. By 1838 the fur traders had abandoned the island.

Imagining the jagged rocks that are the Farallon Islands before 1810 means seeing a landscape transformed during the summer breeding season into a writhing mass of northern fur seals, their guttural growls reverberating, their bodies intertwined and heaped upon each other.

very short snout, and they move upright on long flippers.”

Northern fur seals spend most their days at sea diving for fish, squid and krill or resting on the ocean’s surface on their backs, also called “jug handling” since they pull their flippers close to keep warm or wave them in the air to cool down. Adult fur seals

continued next page

spend more than 300 days per year (about 80 percent of their time) foraging at sea. In the open ocean, concentrations of fur seals may occur around major oceanographic features such as seamounts, canyons, valleys, and along the continental shelf break because of the availability of prey in those places.

During the summer breeding season, the seals converge into giant rookeries primarily on the Pribilof and Commander Islands in the Bering Sea and the Channel Islands near Santa Barbara. Approximately 70 percent of the current world population breeds on the Pribilof Islands (about 750,000 animals), but recent declines at the Pribilofs, where pup production has fallen by 50 percent over the past three decades have elevated concern for this species.

Adult males establish territories in late May to early June and aggressively guard and herd 40 or more females. Pregnant females arrive at the rookeries in June and give birth two days later. They nurse for about 10 days, then go to sea to feed for four or five days. After that, they feed for eight to 10 days and nurse for one to two days. A northern fur seal mother will find her pup by moving through the breeding colony and listening for the pup's distinctive voice. Pups are weaned after four months on this cycle, which is seen in all similar species.

The lifespan of fur seals is approximately 10 years for males and 27 years for females. Pups are born with a black pelt, which becomes dark brown with lighter coloration on the chest and belly. Adult males also have gray hair on the backs of their necks. Males are much larger than females, even at birth. Male pups weigh 12 pounds and grow to 385-605 pounds and seven feet in length. Female pups, however, only weigh 10 pounds and grow to 66-110 pounds and 4.5 feet in length.

It wasn't until 1996 that the first modern-day fur seal pup was born on the Farallon Islands, after a handful of adults returned in the previous decades. Since the first Farallon pup in 1996, the population has grown, almost doubling in the last two years alone. The 656 pups counted in an



Photo: Bryan White/USFWS

aerial survey in 2014 were up 64 percent from 2013! Animals from San Miguel Island resettled the Farallones, after re-establishing the first breeding colony south of Alaska in the Channel Islands in the 1950s.

"It's just incredible to see this kind of recovery," says Bradley, who has worked for Point Blue for 15 years and has spent over 1600 nights on the islands. "In 2002, I was excited to see two and then four fur seals. Now there's over a thousand out there."

The fur seals now inhabit part of the remote wilderness area of West End Island, where Point Blue staff have to zip-line over a small inlet and look at them from a rocky ridge—or use aerial surveys to complete accurate population counts. Point Blue has provided a day and night presence on the Farallon Islands since 1968 as part of a unique agreement with the U.S. Fish and Wildlife Service.

Bradley sees a possibility of the fur seals moving toward historic population levels in coming decades. This would bring more change to the islands, including displacing other species, like California sea lions and Cassin's auklets, a seabird of conservation concern.

"The fur seals are already pushing the California sea lions to other parts of the islands," Bradley says.

During breeding season, the males,

often three times the size of the females, stop eating and aggressively guard harems and their pups. If the Farallones population continues to increase at dramatic rates, they will expand their breeding colonies onto Southeast Farallon Island as well.

This means the resident population of well over 1500 California sea lions may need to find new habitat, along with about 150 elephant seals, whose numbers have decreased on the Farallones in the last decade with continued emigration to beach colonies like Point Reyes and storm events washing out the sandy haul-out sites they prefer. Most affected may be the Cassin's auklets, small nocturnal ground-nesting seabirds, and Western gulls which breed in large flat areas which fur seals historically occupied but have been absent from for over a century.

However, as Bradley points out, historic records show the islands originally were covered with northern fur seals and hundreds of thousands of common murre. After murre came close to expatriation in the 1900s due to demand for their eggs, they now number well over 250,000.

"Our whole purpose is to give the islands back to the wildlife," Berger says. "This is the best scenario of letting the natural process work."

The creation of the Farallon National Wildlife Refuge designating two-thirds of the island chain as federal wilderness that is not open to the public, can be credited for providing a safe haven for the northern fur seals' return. And this may become more important as scientists watch the seals' numbers plummet in the Bering Sea. The population there has decreased by as much as 50 percent in the last 40 years on some islands.

"Recolonization has occurred in a federal wilderness area," Bradley says. "And this is helping northern fur seal populations overall. We as scientists are here to watch, document and learn as this drama unfolds."

About Point Blue Conservation Science, a partner with U.S. Fish and Wildlife Service on the Farallon Islands

Point Blue Conservation Science, founded as Point Reyes Bird Observatory in 1965, has been conducting marine wildlife research, monitoring, and stewardship 365 days per year, 24 hours a day at the Farallon

National Wildlife Refuge since 1968.

The Farallon Islands have been appropriately called "California's Galapagos." Long important to marine wildlife, the significance of the Farallon Islands was recognized in 1909 when President Theodore Roosevelt established the Farallon National Wildlife Refuge. The Farallones are located 28 miles west of San Francisco and fall within San Francisco County and City limits.

Point Blue scientists study the Farallon ecosystem including the seabird colony, which is the largest seabird breeding colony in the continental U.S. More than 300,000 birds of 13 species breed there. The researchers also monitor and protect five species of pinnipeds on the Farallon Islands, an endemic invertebrate known as the camel cricket, and an endemic salamander. Finally, Point Blue ecologists are studying how climate affects the island ecosystem, noting changes in ocean temperatures, anomalous breeding conditions, record air tempera-

tures, and wildlife impacts of our changing climate, to name a few. For more information visit www.pointblue.org.

Jody Holzworth was a former science writer for Point Blue Conservation Science. She is now the Assistant Regional Director for External Affairs in Region 8 of the U.S. Fish and Wildlife Service. Jody has worked in conservation communications throughout the West for both Natural Resource Conservation Science (NRCS) and The Nature Conservancy. She also served as the NRCS Director of Communications in Washington, DC.

Russ Bradley is Point Blue Conservation Science's Program Manager for Farallon Island research. Research on Farallon National Wildlife Refuge includes long term studies of demography, population dynamics, and foraging ecology of marine predators (seabirds, marine mammals, white sharks), as well as studies of the islands' terrestrial ecosystem (landbirds, insects, salamanders, plants etc.).

San Francisco Bay National Wildlife Refuge Complex Welcomes Back Chris Barr as Deputy Project Leader

Growing up in Los Angeles, California as a youth living in an urban area, I would find my escape in the foothills of the Angeles National Forest where I found inspiration and a deep connection to nature. That connection led me on my path to a career in conservation and to the National Wildlife Refuge System.

It is such an honor to be joining the team at the San Francisco Bay National Wildlife Refuge Complex. This is my second tour of duty at the Refuge Complex; I was here from 1997-2000 as the Refuge Manager for Salinas River and Ellicott Slough National Wildlife Refuges with collateral law enforcement and maintenance supervisor responsibilities. The dedicated staff, amazing partnerships, and tidal restoration projects happening all across the greater San Francisco Bay landscape has drawn me back to the Bay Area.

My career with the Refuge System started with working on the California condor recovery program which instilled my belief that no challenge is too great when working together for a common vision. I

have also worked with partners helping to establish the Guadalupe-Nipomo Dunes NWR located in Guadalupe, California. It was there where I learned how important it is for our refuges to be part of the larger community and how the values of diverse, culturally rich backgrounds and experiences can create much more rewarding projects and programs.

The on-going work in the Bay Area by numerous community members and diverse partners is extremely exciting. These groups are helping to address the challenges of sea level rise, to create a resilient landscape that enrich our lives, and to ensure the next generation can find their inspiration and connections to nature along the bay.

For 23 years I have been managing national wildlife refuges. Most recently I had the pleasure of working at the Sacramento NWR Complex with another great team of refuge staff and community partners. We managed habitat for the millions of



wintering waterfowl that travel down the Pacific flyway each year, continued to restore riparian corridors along the Sacramento River, and provided wildlife recreational opportunities.

It is those experiences that have led me back to the Bay Area and I look forward to working with all of our community partners, visitors, and volunteers. I am excited to be here and thank you for your continued efforts. When I'm not working I enjoy kayaking, surfing, hiking, beachcombing, or just taking a leisurely stroll along a coastal trail. As I see children out enjoying the outdoors I take comfort in knowing we are inspiring the next generation of conservationists.

Sears Point Restoration Provides Flood Protection, Clean Air and Water, and Endangered Species Habitat

By Melisa Amato, Wildlife Refuge Specialist of San Pablo Bay National Wildlife Refuge

After more than 10 years of planning and raising nearly \$18 million, the Sears Point Wetland Restoration Project will be completed this fall. The Project will restore 960 acres of wetlands to the San Francisco Bay by reintroducing the tides and, as a result, restoring critical habitats for wildlife including two endangered species (salt marsh harvest mouse and Ridgway's rail). Other benefits of the project include protecting against sea level rise and improving water quality.

Public access is another goal of the Sears Point Project and up to 3.5 miles of new trails will be constructed, including a 2.5 mile segment of the San Francisco Bay Trail, interpretive signs and a parking lot. The new trail will connect with an adjacent section of Bay Trail, providing almost four miles of trail along the restored marsh with wonderful views of Mt. Tamalpais, Mt. Diablo and the San Francisco skyline.

The Sears Point Project is being implemented as a result of a partnership between Sonoma Land Trust, Ducks

Unlimited, and the U.S. Fish and Wildlife Service. Sonoma Land Trust currently owns the land and spearheaded the restoration project while Ducks Unlimited manages the project. Once the project is complete in October 2015, Sonoma Land Trust will convey the property to the U.S. Fish and Wildlife Service to expand the San Pablo Bay National Wildlife Refuge.

More than 85 percent of San Francisco Bay's historic tidal wetlands were lost beginning in the late 1800s when extensive diking and draining of historic tidal marshes took place. Land was "reclaimed" for farming oat hay and wheat and for grazing dairy cows to supply the city of San Francisco. On Sears Point Ranch, generations of the Dickson family grew hay and grain on this former marshland, keeping it out of the hands of developers. After decades of being farmed, the peaty soils decomposed and caused the land to sink (AKA subsidence). As a result, Sears Point is now approximately six feet below sea level. Therefore, components of the restoration project will support sedimentation of the wetland to build up elevation so that tidal marsh vegetation can grow.

Project Features include:

- Construct a habitat-friendly levee to protect the rail line and Highway 37 from storm water,
- Extend the San Francisco Bay Trail to provide miles of public access,
- Excavate channels to allow sediment-laden tidal flow through wetlands,
- Create 500 artificial islands (marsh mounds) to increase sedimentation and block wind erosion,
- Build comma-shaped ridges next to channels to provide high tide refugia for wildlife,
- Create water-trapping depressions to form salt panne microhabitat for specialized plants and insects, and
- Breach the levees to allow tidal flow from San Pablo Bay

This exciting project will provide an opportunity for Bay Area residents to watch the new marsh take shape and enjoy views across the bay to the San Francisco skyline. This site will be Sonoma County's premier access point to the Bay. We expect the trail to be open by the end of October.

Scout and Youth Group Programs

The Don Edwards San Francisco Bay National Wildlife Refuge offers free hands-on, programs for youths. During the programs participants learn about endangered species, migratory birds, wetland habitats, and the relationship between personal habits and their effects on the San Francisco Bay. These programs are designed to meet badge/patch requirements of Scout Groups, but anyone can participate. Because of the popularity of such programs, reservations are required. Children under the age of 16 must be accompanied by an adult. Badges are not provided.

Below are the names, dates, and descriptions of the programs. Programs at the Environmental Education Center are sponsored by the Santa Clara Valley Urban Runoff Pollution Prevention Program and the San Francisco Bay Wildlife Society.

Youth Group Programs at the Environmental Education Center in Alviso

The Environmental Education Center offers three types of youth programs which are listed below. Note: Ratio of 1 adult per 5 children maximum. Space is limited to 20 people, including siblings.

Animal Helpers

**Saturday, September 12
1:00 p.m. – 2:00 p.m.**

Girl Scout Ambassador Josephine Tsai is working to earn her Gold Award with you! Come explore the connection between humans and

animals. Find out how animals help keep people safe and how animals might help us in the future. RESERVATIONS REQUIRED. Go to <http://animalhelpers.eventbrite.com> Questions? Call Julie at 408-262-5513 ext.104 .

For the programs listed below, call Julie at 408-262-5513 ext. 104 to schedule a date and customize your visit.

*Webelos Adventure: Into the Wild

Anyone out there need to earn a Naturalist badge? We've got the program that's right for Webelos! Learn about birds, migration, flyways, food chains, human impact, and the importance of wetlands. Then take a walk and use our binoculars to spot birds in the wild.

Daisies Journeys

Journeys: 5 flowers, 4 stories, 3 cheers for animals (Sessions 1-6) Between earth and sky (Sessions 1-5)

Brownies Journeys and Badges

Journeys: WOW! Wonders of Water: Life can't exist without water, neither can rainbows! Water does so much for you. Can you return the favor? On this journey you will take action by discovering how to love water, save water, and share water. Badges: (from WOW badge activity set): Household Elf: make a natural cleaner, log on ways to save water, pick up litter, discover natural filters. Hiker: go over trail map, leave no trace, detective hike with birds.

Juniors Journeys and Badges

Journeys: Get Moving!: Are you prepared to use your energy to save the planet? On this Journey, you'll find out how to reduce your energy use, make buildings energy efficient, and create a plan to fix an energy problem in your community. Badges (from Get Moving badge activity set): Gardner: outdoor garden, native plant garden design, seasonal plants, seeds and soil, plant own native plant to take home. Badges (from aMUSE badge activity set): Animal Habitats: puppet show, explore 5 different habitats, make bird house, learn about endangered wetlands and animals, help clean up.

Cadette Journeys

Breath (Sessions 1 & 3)

Youth Group Programs at the Refuge Headquarters in Fremont

The Refuge Headquarters offer Webelos programs for up to 15 Webelos. To register, call 510-792-0222 ext. 363 or at <http://webelos.eventbrite.com>. Program is led by June Smith.

Webelos Adventure: Into the Wild

**Saturday, September 5
10:00 a.m. – 12:30 p.m.**

Attention Webelos! Earn your naturalist badge in just 2.5 hours. During this hike, learn about birds, flyways, food chains, and the importance of wetlands. Bring your binoculars, or borrow one of ours

THE
Creeks and Rivers
OF SILICON VALLEY



A YEARLONG ART QUEST OF DONALD NEFF

WWW.DONALDNEFF.COM

Meet the artist, learn about our watershed and go for hike.

Saturday, September 5

2:30 p.m. - 4:30 p.m.

Register at <https://donaldneffwatershedpaintings.eventbrite.com>

Come enjoy a selection
of paintings from the
Coyote Creek Watershed

Exhibit runs August 22
through Fall 2015

Viewing Hours:

Saturdays and Sundays

from 10 a.m. - 5 p.m.

Don Edwards San Francisco

Bay National Wildlife Refuge

Environmental Education Center

1751 Grand Blvd., Alviso, CA 95002

For more information, please call

408-262-5513 or email

genie_moore@fws.gov

Don Edwards San Francisco Bay National Wildlife Refuge

Coastal Cleanup Day

Dumbarton Fishing Pier Parking Lot,
Marshlands Rd, Fremont

Saturday, September 19, 2015

8:30 a.m. - 12:00 p.m.

We'll supply plastic gloves (or bring your own) and trash and recycling bags. You supply energy, sturdy shoes, sun protection, and clothes you don't mind getting dirty. Bring a reusable water bottle.

For more information, call 510-792-0222 ext. 361.

No reservations necessary.



Children under age 18 must have parental approval. Children under the age of 16 must be accompanied by an adult. To expedite the registration process, log on to http://www.fws.gov/refuge/don_edwards_san_francisco_bay to download the forms and bring to the registration table. Forms are also available at the registration table.



**National Wildlife Refuge Week October 10-17
Don Edwards San Francisco Bay National Wildlife Refuge**

October CRISP

Conservation • Recreation • Interpretation • Science • Protection

October 10-17, 2015

2 Marshlands Rd • Fremont, CA

Experience what national wildlife refuges offer during this National Wildlife Refuge Week event. As you stand next to biologists and educators, take part and learn how national wildlife refuges conserve and protect wildlife and habitat through science, interpretation, and recreation. See activity pages for descriptions and times.



October 10 - Fremont

- Mist Net Demonstration with live songbirds
- Mammal Trapping Demonstration
- Lizard Surveys
- Duck Tasting: Recreation and the Federal Duck Stamp
- Plankton Lab
- Live Bird Show with Sulphur Creek Nature Center
- Learn what it takes to become a Refuge Volunteer
- Colonial Waterbird Presentation/Bird Walk with San Francisco Bay Bird Observatory
- Twilight Marsh Walk

October 11 - Fremont

- History of the National Wildlife Refuge System Talk
- Family Bird Walk

October 17 - Alviso

- Shark Day - Environmental Education Center

For more information, go to our activity section on pages 11-12, or go to our website at http://www.fws.gov/refuge/don_edwards_san_francisco_bay

Participating partners: San Francisco Bay Bird Observatory, San Francisco Bay Wildlife Society, Sulphur Creek Nature Center, U.S. Department of Agriculture, U.S. Geological Survey

Top photo by Ashley Mertz/USFWS, all others by Alex Baranda

Shark Day

Saturday, October 17 12:00 p.m.— 3:00 p.m.

We're going to need a bigger refuge...

*Because the sharks
are coming!!*

**Join us for a
FREE event!**

Featuring:

- S.J. Sharkie
- Live leopard sharks
- Zander's Magic Show
- Nature walks
- Crafts
- And more!!

Where: Don Edwards

San Francisco Bay

National Wildlife Refuge

Environmental Education Center

Address: 1751 Grand Blvd, San Jose, CA 95002

For questions, call 408-262-5513 and for more information visit
http://www.fws.gov/refuge/don_edwards_san_francisco_bay

Shark Day is sponsored by:



Thank you San Francisco Bay Wildlife Society Donors!

We gratefully acknowledge the following donors who have made gifts to the San Francisco Bay Wildlife Society between January 1, 2015 and March 31, 2015. These gifts will be used for publishing Tideline, capital, environmental education, habitat restoration, and interpretive programs at the Don Edwards San Francisco Bay National Wildlife Refuge.

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Help Us Help the Refuge

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

You may also become a member at www.sfbws.com.

San Francisco Bay Wildlife Society is a not-for-profit 501(c)(3) organization which raises money and awareness for the San Francisco Bay National Wildlife Refuge Complex.

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

My dues include a subscription to *Tideline*. Enclosed is my contribution of:

- \$20 Student/Senior \$50 Family \$100 Participant \$200 Corporation \$500 Sustainer
 \$35 Individual \$75 Supporter \$250 Sponsor \$1,000 Leader

Check For credit card payment, please use PayPal at www.sfbws.com/donate.

Signature _____

Name _____

Address _____ City _____ State _____ Zip _____

Phone _____

Thank you for your support!

San Francisco Bay Wildlife Society Quarterly Message: We Need You!

Giving Back

Are you and your employer looking to give back to your communities and make it a better place to live? Then we have an opportunity for you! The San Francisco Bay Wildlife Society accepts corporate gifts from companies wishing to develop relationships with the local community. If you and your company, or even your friends and family's companies, are interested in volunteerism, environmental education, and habitat restoration for flood protection, cleaner air and cleaner water, send us the contact information for your company's community involvement and charitable giving division. It's a great way for employees to connect their companies with the organizations that they are passionate about. You can also stretch your dollars by having your employer match your contribution to the San Francisco Bay Wildlife Society by participating in the Society's matching gift program.

In addition, the San Francisco Bay Wildlife Society can arrange presentations for interested companies to learn more about the Don Edwards San Francisco Bay National Wildlife Refuge and its programs, invite companies out for a tour, or coordinate volunteer activities at the refuge as part of team building exercises. Please email mary.deschene@sfbws.com about your company's programs for community involvement and charitable giving.

Corporate giving has been successful in meeting the needs of local communities. The lack of transportation has been a major barrier for school children to attend the free field trips given by San Francisco

Bay Wildlife Society and refuge staff at the Don Edwards Refuge. The Yellow School Bus Transportation Fund has been supported by Facebook (thank you!) to bring students from low-income neighborhoods to the refuge. The City of San Jose recently renewed the Living Wetlands grant for three years and after hearing about the Yellow School Bus Fund, they provided additional funds to help bring Title 1 school children to the Environmental Education Center for Living Wetlands programs. Let's grow this critical fund!

Volunteer

As reported in the Summer *Tideline*, the San Francisco Bay Wildlife Society Nature Stores were to open before the end of June at both the Environment Education Center and the Fremont Visitor Center. Unfortunately, we did not have sufficient San Francisco Bay Wildlife Society volunteers to supplement the staff to consistently do this. You can help your refuge by volunteering to staff the Nature Stores! Net proceeds fund the *Tideline's* publication. We need your help! Email info@sfbws.com for details!

Other News

In June, Living Wetlands Program Coordinator Aja Yee and I attended a joint U.S. Fish and Wildlife Service & Friends group conference in Sacramento. We shared with other national wildlife refuges and Friends groups in the region details of the outreach programs we support. Meeting with other refuges and Friends groups was

a great way to network and support one another. We'd like to help spread the word about these other great refuges and some of the programs they offer.

San Luis National Wildlife Refuge:

Saturday nature walks beginning in the fall! Go to http://www.fws.gov/refuge/san_luis for details

Sacramento NWR Complex

Brush Up Day:

Saturday, September 12 from 8:30 a.m. - 1 p.m.

Join the Sacramento and Delevan National Wildlife Refuge staff to prepare the hunt areas for the upcoming hunt season. Meet at 8:30 a.m. at the Sacramento NWR check station and bring gloves, water, waders (if you have them), and be prepared to get dirty. Volunteers are essential for helping staff clean signs, clean pit blinds, put in guide stakes, and much more. Join volunteers for a barbecue lunch and receive information and maps for the upcoming hunt season. Please RSVP so we know how much food to prepare! Contact Garrett Spaan at 530-934-2801 or sacramentovalleyrefuges@fws.gov for more information or to RSVP.

Other ways to get involved or learn more? Check out www.sfbws.com and refugeassociation.org. And as always, we welcome your inputs. Send your thoughts to [Ceal\[dot\]Craig\[at\]SFBWS\[dot\]com](mailto:Ceal[Craig]@SFBWS[dot]com)

Cecilia (Ceal) D. Craig, PhD

President, SFBWS Board of Directors

Volunteer Opportunities: Fall 2015

Don Edwards San Francisco Bay National Wildlife Refuge Environmental Education Center (Alviso, California)

If you have an interest in wildlife and their conservation, enjoy working with people, and are enthusiastic and dependable, the Environmental Education Center's Volunteer Program is for you! As a volunteer, you'll receive on-the-job training from staff and other volunteers in the project area you choose. Project areas are: restoration projects, information desk on weekends, interpretive programs, school field trips, and citizen science/community service.

Upcoming Volunteer Orientations for Fall

Volunteer orientations will meet in the auditorium of the Environmental Education Center in Alviso, 11 a.m. to noon.
Saturday, September 12 / Tuesday, September 22 / Tuesday, October 6 / Sunday, October 25 / Saturday, November 21

Volunteer Requirements: attend a volunteer orientation; attend the scheduled trainings; meet the age requirements for the program. Volunteer applications provided at orientation.

Autumn Activity Schedule

Children under the age of 16 must be accompanied by an adult.

*Trails are generally level.
Surface and trail conditions vary.
Please call for accessibility information.

September

Saturday, September 5

*Nature Walk for Health

Visitor Center, Fremont
10:30 a.m. – 11:30 a.m.



Take a break from your busy schedule and refresh your spirit with nature at the refuge. Take a guided nature walk on the Tidelands Trail and hear what makes this National Wildlife Refuge unique. The 1.3-mile walk traverses through endangered species habitat and offers great views of south San Francisco Bay. Meet in front of the Visitor Center.

Creeks and Rivers:

Meet, Greet and Hike

Environmental Education Center, Alviso
2:30 p.m. – 4:30 p.m.

Meet Donald Neff, the artist behind the Creeks and Rivers art exhibit. View his artwork on display, learn about the Coyote Creek watershed, and go for a hike. Register at <https://donaldneffwatershedpaintings.eventbrite.com>.

Sunday, September 6

*Bird Migration Hike

Ravenswood Unit (north), Menlo Park
1:00 p.m. – 4:00 p.m.

Our wetlands are an important stop on the Pacific Flyway, a major bird migration route. Take an easy, four-mile hike with docent Laurel Stell to learn why the birds migrate, why they stop along the San Francisco Bay, and to spot the birds in action. Reservations required. Go to <http://birdhikede.eventbrite.com> *Driving Directions: From the East Bay: To access the eastern trailhead, cross the Dumbarton Bridge and exit at the Ravenswood Unit sign near the PG&E substation. Drive the frontage road east 0.3 miles to the trailhead. From the West (Menlo Park): drive Highway 84 toward the Dumbarton Bridge, exit at the Ravenswood Unit sign and drive east on the frontage road. Cross under the bridge and back west to the trailhead for a total of 0.6 miles.*

Saturday, September 12

*Marshlands of Dreams

Visitor Center, Fremont
10:00 a.m. – 11:00 a.m.

Join Paul Mueller on a 1-mile walk of the LaRiv-

iere Marsh Trail to find traces of the past. Prior to marsh restoration, learn how Californians utilized the area for farming, quarrying, salt production, and transportation.

*Hike the Mallard Slough Trail

Environmental Education Center, Alviso
10:00 a.m. – 12:30 p.m.

Look for birds, mammals, and animal tracks as we explore along the water's edge on this 3.7-mile nature walk. Bring binoculars and your favorite field guide to help enjoy the views. Have at least one liter of water, snacks, and appropriate clothing. This hike runs rain or shine. Led by Steve Stolper. RESERVATIONS REQUIRED. Go to <http://hikeeetrail.eventbrite.com>. Questions? Call Julie at 408-262-5513 ext.104.

Fossils and Flumes

Environmental Education Center, Alviso
11:00 a.m. – 12:30 p.m.

Fossils and Flumes help teach children about the South Bay Salt Pond Restoration Project. Park Ranger Jose Garcia brings fossils from Triassic wetlands he collected in eastern Montana to show the similarities to wetlands today. We'll learn what their function is in nature. Interactive flumes allow for a hands-on experience of how wetlands protect the surrounding area from flooding. REGISTRATION REQUIRED. Go to <http://fossilseec.eventbrite.com> or call 510-792-0222 ext. 141.

Animal Helpers

Environmental Education Center, Alviso
1:00 p.m. – 2:00 p.m.

Girl Scout Ambassador Josephine Tsai is working to earn her Gold Award with you! Come explore the connection between humans and animals. Find out how animals help keep people safe and how animals might help us in the future. RESERVATIONS REQUIRED. Go to <http://animalhelpers.eventbrite.com>. Questions? Call Julie at 408-262-5513 ext.104.

Sunday, September 13

History of the National Wildlife Refuge System

Visitor Center, Fremont
1:00 p.m. – 1:30 p.m.

Before heading out on your walk, learn about the National Wildlife Refuge System in this short talk by Art Garibaldi. Hear why and how the Refuge System was created, and what makes it different than a park.

Saturday, September 19

Coastal Cleanup –Fremont

Meet at the Dumbarton Fishing Pier, Fremont
8:30 a.m. – 12:00 p.m.

Join thousands of people around the world for International Coastal Cleanup Day. Bring a hat, sturdy shoes, water, sunscreen, and gloves and a refillable water bottle if you have them. Children under 18 must have parental approval. Speed up the registration process by downloading and completing the Volunteer Agreement Form at http://www.fws.gov/refuge/donedwards_san_francisco_bay and bring it to the event. For more information, call Paul Mueller at 510-792-0222 ext. 361.

Sunday, September 20

Nature Yoga

Visitor Center, Fremont
10:00 a.m. – 11:30 a.m.

Enjoy the benefits of Yoga outdoors with great views of the salt marsh. Through story and postures, learn what attracted people and wildlife to the Bay. There will be a short hike to the site on top of the hill from the Visitor Center. Bring a yoga mat. A limited number of mats are available to borrow. Wear comfortable clothing. Consult with your doctor before participating. All ages and abilities welcome. Reservations are required. Register at <http://donedwardsyoga.eventbrite.com> or call 510-792-0222 ext. 363. Led by Carmen Minch.

* Wetlands Walking Tour

Environmental Education Center, Alviso
10:30 a.m. – 12:00 p.m.

Our refuge consists of salt marshes, salt ponds, and tidal and non-tidal sloughs. How do humans and wildlife depend on our wetlands? Come enjoy a 0.5-mile walk through the wetlands, while we depict the life and death struggles of our marsh inhabitants. Open to all ages but best suited for ages 7 and up. Register at <http://eecwetlandstour-fall.eventbrite.com>.

Saturday, September 26

*Family Bird Walk

Visitor Center, Fremont
10:30 a.m. – 12:30 p.m.

Let family walks become a shared time of nature learning. We'll begin by helping kids create their personal bird watching field guides, and then head out onto the trails to find those birds. A limited number of binoculars are available to borrow. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Go to <https://donedwardsfamilybird.eventbrite.com> or call 510-792-0222 ext. 363.

7 Tools You Can Use to Find the Elusive Gray Fox

Visitor Center, Fremont
2:00 p.m. – 3:30 p.m.

Do you sometimes see paw prints in mud or scat (poop) on the trails and assume that a dog left it? It could be from something else. Come along with me and I will show you how to distinguish and identify the markings of a gray fox. Gain some insights into the fox's nature and their behavior during the walk. By the time we are through, you will have a set of "tools" you can use to identify the presence of foxes in any area that you are in. Bring a hat, binoculars, and good walking shoes. Led by Bill Leikam, the Fox Guy.

Twilight Marsh Walk

Visitor Center, Fremont
6:00 p.m. – 7:45 p.m.

Cap off the day by experiencing the salt marsh at twilight on an easy stroll along Tidelands (1.3 miles) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the refuge as night descends. Not suitable for young children. Go to <https://donedwardstwiight.eventbrite.com> or call 510-792-0222 ext 363. Led by Mary and Gene Bobik.

Sunday, September 27

Bay Bike Ride

**Meet at the Visitor Center, Fremont
10:30 a.m.**

Go on an 11-mile bike ride with docent Gregg Aronson along Marshlands Road and on the Shoreline Trail to observe birds and the occasional leopard shark! Pass through several habitat types along the way including salt marsh, salt pond, and the bay. The paved and dirt trails are almost flat and trail and hybrid bicycles highly recommended. Helmets are required. Recommended for more experienced bicyclists. Program cancels if it rains the day before and the day of due to mud. Register at <https://donedwardsbike.eventbrite.com> or call 510-792-0222 ext. 363 for reservations.

*** Tiny Drifters**

**Environmental Education Center, Alviso
1:30 p.m. – 2:30 p.m.**

There's plankton in our Bay! Learn about the different characteristics of plankton and how they have adapted to survive. We will become planktologists for a day, collect water samples and identify these incredible organisms under a microscope! All ages are welcome. Register at <https://eectinydrifters.eventbrite.com>.

October

Saturday, October 3

Take it Outside!

**Environmental Education Center, Alviso
9:00 a.m. - 5:00 p.m**

Take It Outside was created to encourage children and their families to spend more time outside. Explore the refuge's nature play area and let your imagination flow in the great outdoors. No registration necessary. Hope to see you there!

***Nature Walk for Health**

**Visitor Center, Fremont
10:30 a.m. – 11:30 a.m.**



Take a break from your busy schedule and refresh your spirit with nature at the refuge. Take a guided nature walk on the Tidelands Trail and hear what makes this National Wildlife Refuge unique. The 1.3-mile walk traverses through endangered species habitat and offers great views of south San Francisco Bay. Meet in front of the Visitor Center.

***Hike the Mallard Slough Trail**

**Environmental Education Center, Alviso
10:00 a.m. - 12:30 p.m.**

Look for birds, mammals, and animal tracks as we explore along the water's edge on this 3.7-mile nature walk. Bring binoculars and your favorite field guide to help enjoy the views. Have at least one liter of water, snacks, and appropriate clothing. This hike runs rain or shine. Led by Steve Stolper. RESERVATIONS REQUIRED. Go to <http://hikeectrail.eventbrite.com>. Questions? Call Julie at 408-262-5513 ext.104.

Geology Walk of the Don Edward Refuge

**Visitor Center, Fremont
1:00 p.m. – 2:00 p.m.**

Ever wonder what the dirt on the trail is made of, what the rocks are by the shore, and how wetlands are created? Join Jose Garcia at the refuge as he deconstructs the area around you and explains how geology influences the landscape. Discover how knowledge of geology helps rebuild wildlife habitat and provides flood protection for us all. Cameras welcome. Trail is 1.3 miles and family-friendly. Call 510-792-0222 ext. 141 for more information. Register at <http://geode2.eventbrite.com>.

Endangered Species Drawing

**Environmental Education Center, Alviso
1:30 p.m. – 3:00 p.m.**

Artist Jan Pitcher knows how important it is to make learning about endangered species fun! Come out and draw some of your favorite animals as we discover ways that we can help. RESERVATIONS REQUIRED. Go to <http://paintedec.eventbrite.com>. Questions? Call Julie at 408-262-5513 ext.104.

Night Owl Sky Party!

**Environmental Education Center, Alviso
7:30 p.m. – 9:00 p.m.**

Meet the stars of fall! Join our amateur astronomers as we learn about constellations. Make a star chart and then venture outside to view the night sky through a telescope. Afterwards, warm up with some hot chocolate. Bring your own binoculars or spotting scopes if you have them. Dress warmly as it gets cold in the evening. Fun for the whole family. RESERVATIONS REQUIRED. Go to <http://nightowleec.eventbrite.com>. Questions? Call Julie at 408-262-5513 ext. 104.

Sunday, October 4

Nature Yoga

**Visitor Center, Fremont
10:00 a.m. – 11:30 a.m.**

Enjoy the benefits of Yoga outdoors with great views of the salt marsh. Through story and postures, learn what attracted people and wildlife to the Bay. There will be a short hike to the site on top of the hill from the Visitor Center. Bring a yoga mat. A limited number of mats are available to borrow. Wear comfortable clothing. Consult with your doctor before participating. All ages and abilities welcome. Reservations are required. Register at <http://donedwardsyoga.eventbrite.com> or call 510-792-0222 ext. 363. Led by Carmen Minch.

National Wildlife Refuge Week October 10-17

Spend the day at the Don Edwards Refuge and participate in all things that make us a National Wildlife Refuge! Meet biologists, participate in survey techniques, take part in a fun, educational activity, and learn how the Federal Duck Stamp helps protect wetlands while tasting wild ducks provided by duck hunters. Be sure to stay for the live bird show presented by the Sulphur Creek Nature Center to learn about some of the amazing creatures the refuge provides habitat for. See the list of activities below. End the week-long celebration at Shark Day at the Environmental Education Center

Saturday, October 10

Mist Netting Demonstration

**Visitor Center, Fremont
7:00 a.m. – 8:45 a.m.**

Start your day early with Refuge Biologist Rachel Tertés and US Geological Survey Biologist Stacy Moskal as they demonstrate how mist nets are used to aid in banding birds. This is the prime time for birds to migrate. Why do we band birds and what valuable information can be gained from it? Learn the proper way to handle songbirds. Space is limited. Register at <http://donedwardsmistnet.eventbrite.com>.

Mammal Trapping

**Amphitheater near the Visitor Center, Fremont
9:00 a.m. – 9:45 a.m.**

What mammals roam the refuge at night while the rest of us are sleeping? Traps set by U.S. Department of Agriculture biologists may yield some interesting finds. Meet the biologists, discover the tools of the trade, and learn how trapping is used to help native and endangered species. If the traps were successful, you may see the animals caught up close.

Reptile Surveys

**Meet at Visitor Center, Fremont
10:00 a.m. – 10:45 a.m.**

Join Biologist Rachel Tertés on a hunt for reptiles as she lifts cover boards on the refuge. You never know what one may find!

Plankton Lab

**Visitor Center, Fremont
11:00 a.m. - 12:00 p.m.**

Tiny organisms are drifting in our bay and sloughs. Learn about the different characteristics of plankton and how they have adapted to survive. We will collect water samples and identify these incredible organisms under a microscope. All ages are welcome.

Duck, Duck, Goose!

Conservation through Recreation

**Visitor Center, Fremont
12:00 p.m. – 12:45 p.m.**

Did you know 6.5 million acres of wetlands have been acquired for protection by the National Wildlife Refuge system through the sale of Federal Duck Stamps? Federal Duck Stamps are required for duck hunters over the age of 16 to hunt ducks. Learn more as you taste some of the wild duck that hunters have provided. While supplies last.

Colonial Waterbird Survey

Presentation and Bird Walk with

San Francisco Bay Bird Observatory

**Meet at Dumbarton Fishing Pier in Fremont
1:00 p.m. – 1:45 p.m.**

San Francisco Bay Bird Observatory volunteers will discuss the on-going project that aids the refuge in some of its management decisions. Citizen scientists Peter and Michael Grunow will share data and insights about a nesting colony of double-crested cormorants they monitor as part of the San Francisco Bay Bird Observatory's Colonial Waterbird Program. We will also do some birdwatching while out on the Dumbarton Pier and bay shoreline. Register at <https://waterbirdtalk.eventbrite.com>.

Autumn Activity Schedule

Children under the age of 16 must be accompanied by an adult.

*Trails are generally level.
Surface and trail conditions vary.
Please call for accessibility information.

Live Bird Show by Sulphur Creek Nature Center

Pavilion near Visitor Center, Fremont
2:00 p.m. – 3:00 p.m.

Take this opportunity to see live birds up close. Learn the behavior and habits of birds in the wild by this fascinating presentation by Sulphur Creek Nature Center. Register at <https://livebirdshow.eventbrite.com>.

Become a Refuge Volunteer!

Visitor Center, Fremont
3:30 p.m. – 4:30 p.m.

If you are enjoying learning about what a National Wildlife Refuge is, consider becoming a refuge volunteer. In this volunteer orientation, you will learn the mission and goals of the San Francisco Bay National Wildlife Refuge Complex, its parent agency U.S. Fish and Wildlife Service, and volunteer positions currently open. Presented by Volunteer Coordinator Paul Mueller.

Twilight Marsh Walk

Visitor Center, Fremont
5:30 p.m. – 7:15 p.m.

Cap off the day by experiencing the salt marsh at twilight on an easy stroll along Tidelands (1.3 miles) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the refuge as night descends. Not suitable for young children. Go to <https://donedwardstwilight.eventbrite.com> or call 510-792-0222 ext 363. Led by Mary and Gene Bobik.

Sunday, October 11

History of the National Wildlife Refuge System

Visitor Center, Fremont
1:00 p.m. – 1:30 p.m.

Before heading out on your walk, learn about the National Wildlife Refuge System in this short talk by Art Garibaldi. Hear why and how the Refuge System was created, and what makes it different than a park.



*Family Bird Walk

Visitor Center, Fremont
2:00 p.m. – 4:00 p.m.

Let family walks become a shared time of nature learning. We'll begin by helping kids create their personal bird watching field guides, and then head out onto the trails to find those birds. A limited number of binoculars are available to borrow. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Go to <https://donedwardsfamilybird.eventbrite.com> or call 510-792-0222 ext. 363.

Saturday, October 17

Shark Day!

Environmental Education Center, Alviso
12:00 p.m. – 3:00 p.m.

Come experience one of the wonders of the ocean. It's Shark Day and we have lots of cool things in store including LIVE sharks and a special guest appearance from Sharkie of the San Jose Sharks! Face painting, arts and crafts, and a nature hike are included as well. Don't miss out! No reservations required. If you have questions, call 408-262-5513 ext. 102 or 104.

Sunday, October 18

*Bird Watching for Beginners

Visitor Center, Fremont
3:00 p.m. – 4:30 p.m.

In this beginner's program, we will go over the use of binoculars, how to use a bird guide, and identify the birds we see on the trail. Recommended for ages 10 and up. Dress for the weather and wear comfortable shoes. Led by Carmen Minch.

Saturday, October 24

Community Service

Visitor Center, Fremont
9:30 a.m. – 12:00 p.m.

If you are interested in improving the refuge for visitors and for wildlife alike, join us for a community service project. We will do either a trash cleanup or a planting/weeding project. Dress appropriately for the task and for the weather. We will have gloves to lend and will provide the tools. Bring your own water bottle. Meet in the parking lot at the Visitor Center. Driving an additional 2.5 miles may be required since the project may be at a different location. For more information, or to make reservations, call 510-792-0222 ext. 361.

Sunday, October 25

*Ohlone in the Marshes – Tule Boats

Environmental Education Center, Alviso
1:30 p.m. – 3:00 p.m.

How did the people who lived here 10,000 years ago travel from place to place in the water world that once was San Francisco Bay? By boat, of course. Join us on a short walk to view the raw materials used by the Ohlone in boat making and then, using natural materials, make small replicas of the boats to take home. Very appropriate for children 8 and up who are accompanied by an interested adult participant. Program led by Laura Mello and Aja Yee. Register at <https://ecohlonetuleboats.eventbrite.com>.

Saturday, October 31

*Marshlands of Dreams

Visitor Center, Fremont
10:00 a.m. – 11:00 a.m.

Join Paul Mueller on a 1-mile walk of the LaRiviere Marsh Trail to find traces of the past. Prior to marsh restoration, learn how Californians utilized the area for farming, quarrying, salt production, and transportation.

7 Tools You Can Use to Find the Elusive Gray Fox

Visitor Center, Fremont
2:00 p.m. – 3:30 p.m.

Do you sometimes see paw prints in mud or scat (poop) on the trails and assume that a dog left it? It could be from something else. Come along with me and I will show you how to distinguish and identify the markings of a gray fox. Gain some insights into the fox's nature and their behavior during the walk. By the time we are through, you will have a set of "tools" you can use to identify the presence of foxes in any area that you are in. Bring a hat, binoculars, and good walking shoes. Led by Bill Leikam, the Fox Guy.

November

Sunday, November 1

Returning the Tide at San Pablo Bay NWR

Cullinan Ranch Trail, San Pablo Bay NWR
9:00 a.m. – 10:00 a.m.

After 125 years, the Cullinan Ranch Unit of San Pablo Bay National Wildlife Refuge is now receiving tidal flow from the bay. After a short talk about what the refuge hopes to accomplish with the restoration, we will take a walk to view the changes. Led by Carmen Minch. Register at <http://www.returningtide.eventbrite.com>. *The trailhead can only be accessed from westbound State Route 37. Head westbound on SR 37. Just after passing Walnut Avenue at Mare Island, travel 3.3 miles to the Cullinan Ranch turn-off where a large wooden kiosk is located. If coming from the west, you must drive past the trailhead 3.3 miles. Exit at Walnut Ave, turn around and head west on SR 37.*

Saturday, November 7

*Nature Walk for Health

Visitor Center, Fremont
10:30 a.m. – 11:30 a.m.



Take a break from your busy schedule and refresh your spirit with nature at the refuge. Take a guided nature walk on the Tidelands Trail and hear what makes this National Wildlife Refuge unique. The 1.3-mile walk traverses through endangered species habitat and offers great views of south San Francisco Bay. Meet in front of the Visitor Center.

Sunday, November 8

Bay Invertebrates

Environmental Education Center, Alviso

1:00 p.m. – 2:00 p.m.

Over 50 percent of the invertebrates in the San Francisco Bay are non-native! How did they get here? How have these exotic, aquatic creatures impacted our ecosystem? Come learn about the spineless critters living in the San Francisco Bay through a fun and wet hands-on encounter with live invertebrates! Live animals are provided courtesy of the Marine Science Institute. Suitable for ages 6 and up. Register at <http://eecinvertebrates.eventbrite.com>.

History of the National Wildlife Refuge System

Visitor Center, Fremont

1:00 p.m. – 1:30 p.m.

Before heading out on your walk, learn about the national wildlife refuge system in this short talk by Art Garibaldi. Hear why and how the refuge system was created, and what makes it different than a park.

Saturday, November 14

*Marshlands of Dreams

Visitor Center, Fremont

11:00 a.m. – 12:00 p.m.

Join Paul Mueller on a 1-mile walk of the LaRiviere Marsh Trail to find traces of the past. Prior to marsh restoration, learn how Californians utilized the area for farming, quarrying, salt production, and transportation.

Docent Training

Environmental Education Center, Alviso

1:00 p.m. – 2:00 p.m.

Want to become a volunteer, or update your training? Come to a Salt Pond Restoration Docent Volunteer Training class where Park Ranger Joseph Garcia will teach you the volunteer process and what new changes are taking place within the wildlife refuge. Registration recommended. Call 510 792-0222 ext 141.

Sunday, November 15

*Ohlone in the Marshes – Fire

Environmental Education Center, Alviso

11:00 p.m. – 12:30 p.m.

Do you want to know more about the Native Americans that lived in the Bay Area before us? Come to the refuge to learn about some of the tools and games the Ohlone might have used. Play Ohlone games and take home your own customized staves. Refuge volunteer Roy Sasai will demonstrate how to make fire without using matches or a lighter! Best suited for ages 8 and up. Register at <https://eecohlonestaves.eventbrite.com>.



*Bird Watching for Beginners

Visitor Center, Fremont

3:00 p.m. – 4:30 p.m.

Thousands of birds winter on the Don Edwards Refuge every year. In this beginner's program, we will go over the use of binoculars, how to use a bird guide, and identify the birds we see on the trail. Recommended for ages 10 and up. Dress for the weather and wear comfortable shoes. Led by Carmen Minch.

Saturday, November 21

Community Service

Visitor Center, Fremont

9:30 a.m. – 12:00 p.m.

If you are interested in improving the refuge for visitors and for wildlife alike, join us for a community service project. We will do either a trash cleanup or a planting/weeding project. Dress appropriately for the task and for the weather. We will have gloves to lend and will provide the tools. Bring your own water bottle. Meet in the parking lot at the Visitor Center. Driving an additional 2.5 miles may be required since the project may be at a different location. For more information, or to make reservations, call 510-792-0222 ext. 361.

Crafts in the Outdoors: Beginning Leatherwork

Environmental Education Center, Alviso

10:00 a.m. - 12:00 p.m.

Doing crafts outdoors is a wonderful experience! Make and decorate (tool) a small name tag for your backpack or clothing made from vegetable tanned leather. Learn how Bay Area residents used the tanoak tree for food and for making leather. This family-friendly program lets you have fun crafting your own leather item. Bring water, snacks, and appropriate clothing. This program runs rain or shine. Led by Steve Stolper. RESERVATIONS REQUIRED. Go to <http://craftsouteec.eventbrite.com>. Questions? Call Julie at 408-262-5513 ext.104.

Pacific Flyway

SF2 Trail, East Palo Alto

11:00 a.m. - 12:30 p.m.

Our wetlands are an important stop on the Pacific Flyway, a major bird migration route. Stroll with docent Laurel Stell to learn why birds migrate, why they stop along the San Francisco Bay, and to spot the birds in action. Trail is easy and level. All ages and abilities welcome. Meet at the SF2 trail parking area on the west side of the Dumbarton Bridge. *Driving Directions: The trailhead is located in the west of the Dumbarton Bridge, on the south side of Highway 84. From the East Bay: Cross the Dumbarton Bridge and exit at the Ravenswood Unit sign near the PG&E substation. Drive the frontage road east and under the bridge and back west. Parking is to your right. From the West (Menlo Park): drive Highway 84 toward the Dumbarton Bridge, exit at the Ravenswood Unit sign and drive east on the frontage road. Parking is to your left.*

*Family Bird Walk

Visitor Center, Fremont

2:00 p.m. – 4:00 p.m.

Let family walks become a shared time of nature learning. We'll begin by helping kids create their personal bird watching field guides, and then head out onto the trails to find those birds. A limited number of binoculars are available to borrow. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Go to <https://donedwardsfamilybird.eventbrite.com> or call 510-792-0222 ext. 363.

Twilight Marsh Walk

Visitor Center, Fremont

4:00 p.m. – 5:45 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1.3 miles) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the refuge as night descends. Not suitable for young children. Go to <https://donedwardstwiight.eventbrite.com> or call 510-792-0222 ext. 363. Led by Mary and Gene Bobik.

Saturday, November 28

7 Tools You Can Use to Find the Elusive Gray Fox

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Do you sometimes see paw prints in mud or scat (poop) on the trails and assume that a dog left it? It could be from something else. Come along with me and I will show you how to distinguish and identify the markings of a gray fox. Gain some insights into the fox's nature and their behavior during the walk. By the time we are through, you will have a set of "tools" you can use to identify the presence of foxes in any area that you are in. Bring a hat, binoculars, and good walking shoes. Led by Bill Leikam, the Fox Guy.

New Visitor Center Hours!

Beginning September 1,
the Visitor Center in
Fremont will be open
Wednesdays-Sundays
10:00 a.m. – 5:00 p.m.



Field Trips to the Refuge

General Education Program Information

We offer FREE field trip programs at two sites at the Don Edwards San Francisco Bay National Wildlife Refuge. Wetland Round-Up field trip programs are offered at our Headquarters in Fremont, and Wetland Round-up, Living Wetlands, and Watershed Watchers are offered at the Environmental Education Center in Alviso. These programs actively involve teachers, adult volunteers, and students in investigating the diverse habitats and wildlife at the refuge. The hands-on, small-group activities are designed to teach basic ecological concepts and to introduce endangered species, migratory birds, and wetland habitats to the students. All programs have been correlated to the appropriate State of California Education Standards.

Educators and adult leaders conduct their own field trips after attending a Field Trip Workshop. The workshops allow you to design and conduct your own field trip. In addition, adult volunteers must be recruited to lead the activities at the different learning stations and to chaperone the rotation groups of students. We provide easy to follow “scripts” for each station, but both “leaders” and “chaperones” are strongly encouraged to attend a Field Trip Workshop. New teachers must attend a Field Trip Workshop. Location of activities and trail conditions may vary. Please call for accessibility information.

Field Trips at the Learning Center in Fremont

Wetland Round-Up Field Trips (K-6th grade) – WE WILL NOT BE OFFERING THE WETLAND ROUND-UP PROGRAM FALL 2015. Details about scheduling a spring 2016 field trip will be posted on our website on Monday, November 16, 2015 and in the winter issue of *Tideline*.

Contact the Environmental Education Staff at Fremont:
Office: 510-792-0222 ext. 475
Cell: 510-377-7269
Email: tia_glagolev@fws.gov

Field Trips at the Environmental Education Center in Alviso

Wetland Round-Up Field Trips (K - 6th grade) – Investigate the butterflies in the butterfly garden, taste pickleweed in the salt marsh, or discover the creatures that live in the slough and salt pond water on a Wetland Round-Up Field Trip. This field trip program is designed for up to 65 students. This fall, Wetland Round-Up is offered in mid-October, November, and early December, 2015.

MAIL-IN REGISTRATION

Mail-in registration for fall 2015 (October - December) will begin on Monday, August 17, 2015

- Registration forms will be available on-line at http://www.fws.gov/refuge/don_edwards_san_francisco_bay/educators/FT_Instructions.html.
- You will be able to choose from a list of available dates and indicate your 1st, 2nd and 3rd choices on the form. Please make sure ALL these dates are good ones as availability may be more limited this year.

PLEASE NOTE! Completed field trip registration forms should be mailed to our office in the following manner:

U.S. Fish and Wildlife Service
P.O. Box 411
Alviso, CA 95002
WRFT Registration/ EE attn: Genie

You can also email your electronic form to:
genie_moore@fws.gov

- All forms must be received by Thursday, September 3. All forms that we receive by this date will be opened on Friday, September 4, 2015.
- Every effort will be made to accommodate your requests. However, we may need to offer alternative dates if we cannot assign you your preferred dates.
- Selections will be made in a timely fashion. You will be notified by your preferred method as indicated on your form.
- We will continue to take requests after September 4, 2015 until all available dates for the fall season (October - December) have been filled.
- Details about **spring 2015** registration will be in the winter issue of *Tideline* and also posted on our website by Monday, November 16, 2015.

Wetland Round-Up Field Trip Workshops

New teachers that have not yet attended a field trip orientation must attend training. We highly recommend that returning teachers accompany parent leaders and chaperones to a workshop prior to your field trip. The workshops are offered from 4 p.m. – 6 p.m. on weekdays in the fall. **NEW:** We will offer one workshop for parents leaders and chaperones on a weekday at lunch time.

The workshop dates will be announced on-line with the field trip registration information (see above).

For more information call the Environmental Education Staff at Alviso:

Office: 408-262-5513 ext. 100
Email: genie_moore@fws.gov

Living Wetlands Program

Living Wetlands provides a first-hand learning environment for students and educators to explore the topics of watershed health, wetlands, and habitat preservation. Activities and presentations focus on the relationship between personal habits and their effects on their local wetlands. Living Wetlands is an environmental education program offered at no cost through the cooperative efforts of the City of San Jose, U.S. Fish and Wildlife Service, and the San Francisco Bay Wildlife Society.

Program Offerings for 5th – 12th grades:

Integrated Field Trip Program – This program incorporates multiple activities related to wetlands and watershed health. Participating classes will receive one pre-classroom presentation from Living Wetlands educators, a field trip to the Don Edwards Refuge, and one post-classroom presentation all including hands-on activities and demonstrations. For the Integrated Program, participating classes must be from the following cities: San Jose, Alviso, Milpitas, Santa Clara, Saratoga, Monte Sereno, Los Gatos, Campbell, and



Cupertino. There is a limitation to 60 students per field trip, and a 1:10 chaperone to student ratio is required.

New! Schools located in the Coyote Creek watershed or Los Gatos Creek watershed can add a creek cleanup component to their Integrated Field Trip program.

Classroom Presentations – One to two hour-long presentations include an in-depth look at the habitats of the south bay along with the pathways of indoor and outdoor water use. Students will have a better understanding of the role they play in the health of their watershed and what personal actions they can take to help. Please contact us for specific classroom presentation needs.

Educators are encouraged to contact us to discuss options for customizing field trips and classroom presentations. Reservations for the Living Wetlands program are on a first-come basis. For more information or to make a reservation, call Aja Yee, the Living Wetlands Program Coordinator at 408-262-5513 ext. 102 or email her at livingwetlands@sfbws.com.

Watershed Watchers Program

College and University Groups:

Self-guided and staff and volunteer-led field trips are available. General presentations and guided tours generally last 1.5 hours. Contact Julie Kahrnoff, Watershed Watchers Coordinator at julie.kahrnoff@sfbws.com. Or, you can contact Genie Moore, EEC Director at 408-262-5513 ext. 100 or at genie_moore@fws.gov.

Transportation Funds are Available for Title 1 Schools or equivalent.

Go to <http://go.usa.gov/3GJhm> for forms and instructions. You may also contact Genie Moore at 408-262-5513 ext. 100 or at genie_moore@fws.gov.

PLEASE NOTE: *You will need to reserve a field trip date first and then fill out a Bus Fund Form.* Please follow these steps and we will contact you as soon as possible.

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Editor: Carmen Minch

To receive *Tideline*, email carmen_leong-minch@fws.gov, or write to: *Tideline*, San Francisco Bay National Wildlife Refuge Complex, 1 Marshlands Rd, Fremont, CA 94555

San Francisco Bay National Wildlife Refuge Complex

Administered by the U.S. Fish and Wildlife Service, San Francisco Bay National Wildlife Refuge Complex exists to preserve wildlife habitat, protect threatened and endangered species, protect migratory birds, and provide opportunities for nature study. Seven refuges are managed from the headquarters in Fremont: Antioch Dunes NWR, Don Edwards San Francisco Bay NWR, Ellicott Slough NWR, Farallon NWR, Marin Islands NWR, Salinas River NWR, and San Pablo Bay NWR.

Project Leader: Anne Morkill
 Deputy Project Leader: Chris Barr
 Wildlife Refuge Specialist: Anna Fisher
 Don Edwards Warm Springs Unit Manager: Ivette Loreda
 Farallon Refuge Manager: Gerry McChesney
 Farallon Wildlife Refuge Specialist: Jonathon Shore
 North Bay Refuges Manager: Don Brubaker
 North Bay Wildlife Refuge Specialists: Melisa Amato and Louis Terrazas
 Monterey Bay Refuges Manager: Diane Kodama
 Public Affairs Officer: Doug Cordell
 Refuge Planner: Winnie Chan
 Chief of Visitor Services: Jennifer Heroux
 Park Ranger/Outdoor Recreation Planners: Joseph Garcia and Carmen Minch
 Environmental Education Specialists: Tia Glagolev and Genie Moore
 Volunteer Coordinator: Paul Mueller

Law Enforcement Officers: Jared Klein and Jesse Navarro
 Biologists: Joy Albertson, Christopher Caris, Susan Euing, Allison Fuller, Meg Marriott, Cheryl Strong, and Rachel Tertes
 Administrative Staff: Lucinda Ballard and Ellen Tong
 Maintenance Staff: Juan Flores, James Griffin, Calvin Sahara, Michael Springman, and Ed Van Til

San Francisco Bay Wildlife Society

A nonprofit 501(c)(3) cooperating association established in 1987 to promote public awareness and appreciation of San Francisco Bay and fund education and outreach programs at San Francisco Bay National Wildlife Refuge Complex.

Board of Directors

President: Ceal Craig
 Vice President: Terry Smith
 Treasurer: John Bradley
 Secretary: Cheryl Davis
 Directors: Christopher Kitting, Karen Natoli-Maxwell, Sue Ten Eyck and Varon Smith

Staff

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 Education Specialist: Aja Yee
 Program Administrator: Sue Ten Eyck
 Fund Development Consultant: Mary Deschene

Tideline is On-Line

Visit our web sites at
http://www.fws.gov/refuge/antioch_dunes
http://www.fws.gov/refuge/don_edwards_san_francisco_bay
http://www.fws.gov/refuge/ellicott_slough
<http://www.fws.gov/refuge/farallon>
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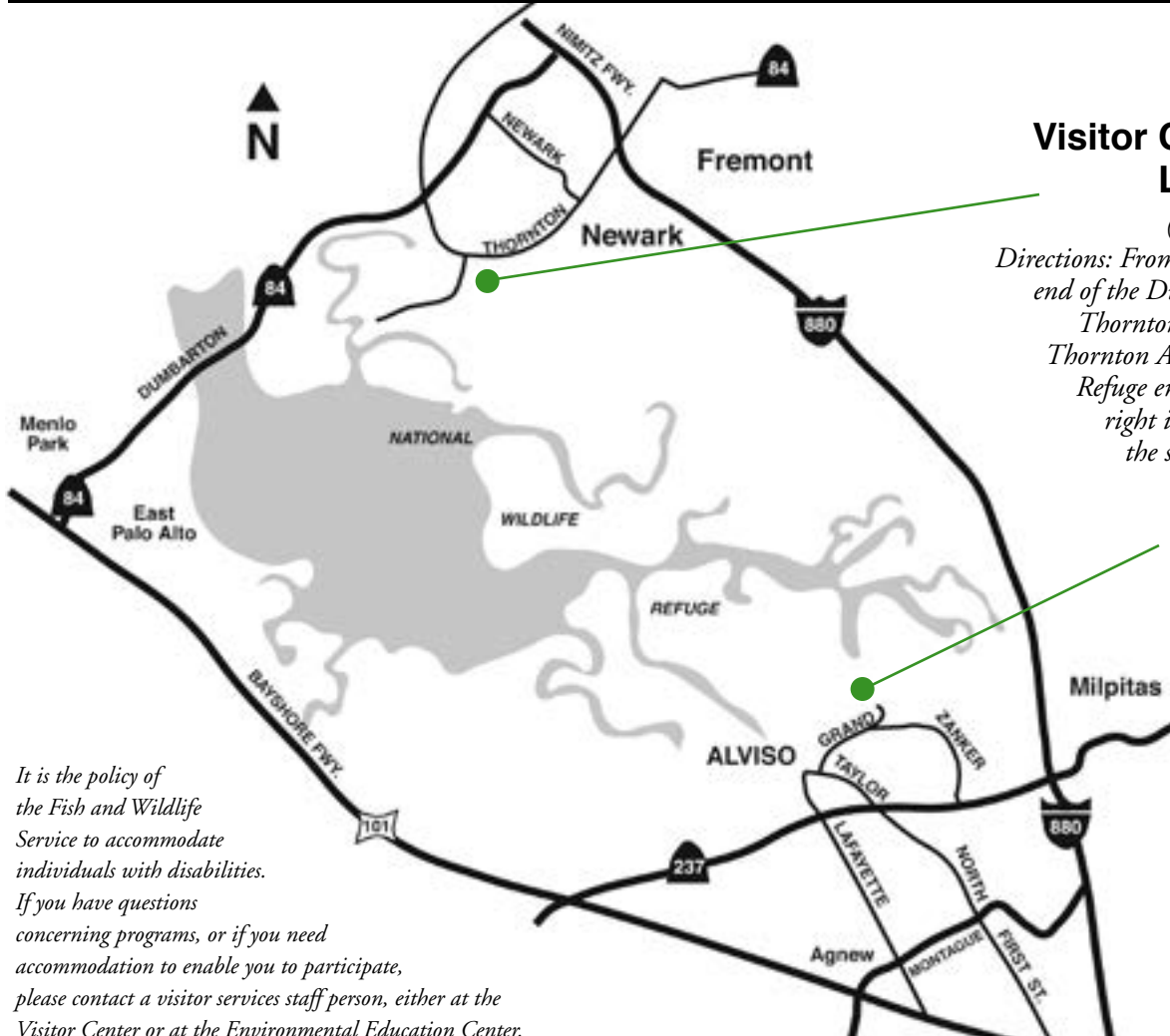
Tideline



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Antioch Dunes / Don Edwards / Ellicott Slough / Farallon Island / Marin Islands / Salinas River / San Pablo Bay



Visitor Center, Fremont Learning Center

(510) 792-0222 ext. 363
Directions: From Highway 84 (at the east end of the Dumbarton Bridge), exit at Thornton Avenue. Travel south on Thornton Avenue for 0.8 miles to the Refuge entrance on the right. Turn right into the Refuge and follow the signs to the Visitor Center.

Environmental Education Center, Alviso

(408) 262-5513
Directions: From I-880 or US-101, exit on CA-237 toward Mountain View/Alviso. Turn north onto Zanker Road. Continue on Zanker Road for 2.1 miles to the Environmental Education Center entrance road (a sharp turn at Grand Blvd.).

It is the policy of the Fish and Wildlife Service to accommodate individuals with disabilities. If you have questions concerning programs, or if you need accommodation to enable you to participate, please contact a visitor services staff person, either at the Visitor Center or at the Environmental Education Center.