

Tideline



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

The Buzz About Bees

By *Cindy Moreno*

The sound was almost deafening as one approached the ceanothus (wild lilac) located on the hill leading up to the San Francisco Bay National Wildlife Refuge Complex administrative offices. The collective hum of Yellow-faced bumble bees, too many to count, can be heard when just five feet from the tree. One can easily understand where the phrase “busy as a bee” came from by observing the buzzing activity around the blooms.

As young children, we were often taught that bees play an important role in creating new flowers. As we get older, we come to understand the ecological process of how bees intentionally or unintentionally collect pollen from the anther and transport it to the stigma of a flower, where fertilization begins. Cross-pollination occurs when the pollen is transported to another plant. The health of our environment and the human population depend on this process.

There are over 81 species of California native bees in the San Francisco Bay Area. Bees that are common to the San Francisco Bay Area are the Western Bumblebee, the Yellow-faced Bumblebee, California Carpenter Bee and the Green Metallic Bee. In North America there are about 1,500 varieties of native bees. Bees are great indicators of environmental health. They are extremely efficient at pollinating flowers and collecting pollen from a diverse number of plants, thereby increasing biodiversity and expanding the gene pool. Both males and females pollinate flowers. They do not travel far from their burrow so their pollination efforts do not usually help spread non-native

and invasive species. Carpenter and Mason bees are commonly used in greenhouses for pollinating tomatoes.

The most abundant bee in California happens to be the European honeybee, *Apis mellifera*, which is not native to the United States. Much attention has been focused on Colony Collapse Disorder (CCD) in the last few years which only affect the non-native

CCD can cause entire honeybee colonies to disappear and has greatly reduced honeybee populations globally.

The earliest documentation of the honeybee as a resource for humans was depicted as early as 6000 B.C. from a rock painting at La Araña shelter in Eastern Spain. The painting depicts a honey-collecting scene. In ancient Egypt circa 1450 B.C. a wall



A Yellow-faced bumblebee on the flowers of a ceanothus.

Carmen Minch/USFWS

European honeybee. Because native bees are solitary, they do not spread diseases and parasites to other bees quite as easily as those who live in a colony. Some of the symptoms of CCD are waning in the colony, the presence of mites, and foraging loss. CCD and several other parasites afflict bee colonies around the world. Diseases include tracheal mites, wax moths, the American and European foul brood, Israeli wing paralysis disease, nosema, dracula mites, varroa mites, and the South African hive beetles. All of these parasites are now present in California.

painting illustrates the techniques for honey gathering. The painting shows one beekeeper using smoke as an environmental stimulus to drive off bees from their hive while the other beekeeper is removing honeycomb from the apiary. Removing the honeycomb would actually kill the bees. Today, methods have been developed where the bees are not harmed. When bees detect smoke it is an indication of a forest fire. They go from defending to evacuating the

continued next page

hive. The Egyptian wall painting indicates that smoke has been used as a safe tool for honey extraction for over 3,450 years. In the United States beekeepers do not use native bees for expansive pollination because they only make small amounts of honey. This is because native bees lack fidelity for any particular type of flower. Unlike native bees, only the female worker European honeybees collect nectar and pollen. Also unlike native

which is considered one of the most effective pollinators.

The honeybee visits and pollinates a variety of plants, gathering nectar and pollen from both native and non-native vegetation and producing honey. Urban development, unsustainable agricultural practices such as pesticide use and monoculture agriculture have destroyed the European honeybees' habitat. The European honeybees begin to forage outside their normal range and consequently, the honeybee replaces the na-

In the central valley there is monoculture of crops so the honeybees face a restricted diet.

Pollinators, including native bees and European honeybees, are declining at an alarming rate but there are simple things you can do at home to increase pollinator diversity and abundance. Pollinating species require diversity in nectar and pollen sources. When planting a pollinator garden consider the following: choose flowers that bloom at different times during the year to insure a plentiful source of nectar and pollen; planting in clumps rather than single plants attracts more pollinators; provide a variety of flower colors and shapes to attract diverse pollinators; and plant native species to attract native pollinators. Differing pollinators require unique nesting sites; solitary bees such as Carpenter bees use small cavities in wood. Building a bee box is easy. Learn more by visiting the US Fish and Wildlife Service and US Forest Service websites at www.fws.gov/pollinators and www.fs.fed.us/wildflowers/pollinators/index.shtml.



European honeybees in a hive.

Lacey Lutes

bees, the European honeybee has a high fidelity for a variety of flowers. This enables this genus to make excess amounts of honey.

The European honeybee's ability to pollinate a great number of plants can be attributed to its diverse foraging and wide range of suitable living environment. It serves as an important component of the evolutionary process because of its cross-pollination capabilities. This process produces healthier and more genetically diverse plant communities, creating productive habitats.

The ecological importance of the European honeybee has grown steadily since its arrival in California and have become highly dependent on humans. Humans have also become dependent on the European honeybee, for most flowering plants in agriculture require pollination by insects to achieve reproduction success. The demand for successful pollination of our food crops imposes a heavy reliance on this species,

and is considered one of the most effective insect pollinators. In the wild, European honeybees can out-compete and crowd out native pollinators such as carpenter bees and bumblebees. European honeybees can preempt, or prevent the occurrence of, the most productive native habitats and flower species. Introduction of non-native bees into the wild creates competition for floral resources and nest sites. Non-native weed pollination also increases, which can cause the introduction of pathogens.

In addition to habitat loss, European honeybees can encounter stress such as a restricted diet and various diseases. These are all contributors to a health decline. The Department of Agriculture has begun research on the epidemic widespread of the varroa mite. The Farm Bill (HR2409) funds research on Colony Collapse Disorder. There is uncertainty as to what the exact causes of CCD truly are. Adjacent farm fields also affect the honeybees through the use of pesticides, herbicides, and fungicides.

Improving and providing diverse foraging habitat for the European honeybee would not only help agriculture but will help the native bees by decreasing competition among the species. The reduction of pesticide use is critical because they play a role in the decline of all pollinators. It has been determined that 29% of pesticides are toxic to European honeybees. Unfortunately these types are the most frequently used at extended lengths of time. During foraging, European honeybees have the capability to travel a five-mile radius from their hive. This requires flying over other agricultural uses that may be actively utilizing pesticides. Due to the extensive nature of monoculture in California it is likely that a honeybee will encounter pesticide use. Honeybees are communal, so if one bee contracts pesticide exposure it is possible that the entire colony will be exposed. A possible solution to this epidemic would be using the pesticides at night when the honeybees are in the hive.

Conservation practices are important to the livelihood of native bees and the honeybee. In addition to native bees, it is crucial to view honeybees as indicator species. We have come to rely on the free ecosystem service the European honeybees provide through pollination. Through education we can instill culture and heritage back into our society. Spread awareness by Celebrating National Pollinator Week June 18-24, 2012!



Honeycomb of European honeybees.

Photo: Lacey Lutes

Cindy is a graduating senior at San Jose State University, pursuing a B.S. in Environmental Studies with a concentra-

tion in Restoration and Resource Management. Cindy is the first Latino Outreach Intern at the Don Edwards SF Bay National Wildlife

Refuge made possible through a partnership with the Environment for the Americas program. What draws her to environmental education and Latino outreach is her ability to relate to students of all backgrounds. Cindy is bilingual and wants to expand Latino outreach throughout California's South Bay and in her own community of Arvin, CA.

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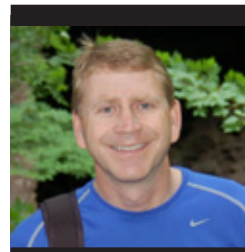
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Until We Meet Again . . .

In June, I will be leaving the San Francisco Bay National Wildlife Refuge Complex to take on a new challenge of leading the National Wildlife Refuge System Division of Budget from our national office in Arlington, Virginia. Saying goodbye is never easy, but sometimes it is harder than others – this is one of those times.

The past seven years have been some of the most rewarding of my career, having given me the opportunity to work with a cadre of dedicated individuals on outstanding conservation efforts. Working together, we completed the first phase of the 15,000-acre South Bay Salt Pond Restoration Project, the largest tidal wetland restoration project on the west coast; acquired over 3000 acres of former military land for addition to San Pablo Bay NWR; and improved office and visitor service facilities on our refuges while continuing to provide outstanding environmental education programs that reach thousands of people.

We also began restoring the Cullinan Ranch Unit on San Pablo Bay NWR and are nearing completion of the Bair Island Unit restoration of the Don Edwards San Francisco Bay NWR. These projects will



Refuge Reflections

by Mendel Stewart

result in over 3000 acres of restored tidal marsh providing homes for countless forms of life, some threatened with extinction like the California clapper rail and the salt marsh harvest mouse. These two projects are being completed through unique cost-effective public/private partnerships that leverage Federal funds with State, local and private contributions. I'm pleased to note that all of our restoration projects continue to address one of our agency's core values: providing abundant opportunities for the public to enjoy appropriate and compatible wildlife-oriented recreation. These endeavors and many more will forever tie me to the Bay Area.

The future is bright for San Francisco Bay. Of course we all must remain vigilant as there are still threats, but the tide has

generally turned away from the age of habitat destruction toward the age of restoration. The talented and dedicated professionals who work not only for the U.S. Fish and Wildlife Service, but for many other Federal, State and local agencies and private organizations, are actively engaged in making good things happen. My memories of their accomplishments will go with me as I head to Arlington. There, I hope to help continue strong funding for refuge programs nationwide—and, who knows, maybe I'll find some extra money I can send along to help continue all the great things happening on refuges in the Bay Area. I do have a vested interest because, maybe in a few years, I'll get a chance to return. So on second thought, I think I'll just say so-long for now.

Refuge Intern Reaches Latino Community

By Doug Cordell

“When I started college, I took an environmental studies course,” explains Cindy Moreno, Environmental Education and Latino Outreach intern at the Don Edwards San Francisco Bay National Wildlife Refuge, describing how her interest in a career in environmental work developed. “It seemed

ing, predominantly Latino community in Alviso, CA.

Much of her focus has been on weekend Spanish-English programs at the refuge’s Environmental Education Center in Alviso, with subjects ranging from “Birds in a Changing Climate” to “Birding in Latino Culture.” She’s also developed bilingual out-

like the Biblioteca Latinoamericana branch of the San Jose Public Library.

It’s also why she developed a bilingual Careers in Wildlife day at the refuge, a chance for high school and college students—particularly Latinos—to talk to refuge biologists, wildlife specialists, law enforcement and other staff about career opportunities. It’s an issue she is passionate about.

“When I first told my parents I was interested in environmental studies, they were bewildered. They didn’t understand what it was about. It’s not a common career in the Latino community. That’s why I think it’s important to reach people in the community at an early age—to let them know this is something they can do.”

Moreno’s internship is co-funded by the U.S. Fish & Wildlife Service and the Environment for the Americas, a non-profit group based in Boulder, CO that sponsors International Migratory Bird Day and develops Latino outreach programs about conservation.

She hopes that the Service will continue and expand its outreach and education efforts aimed at historically underserved communities. “It’s so important to have an appreciation for different cultures,” she says, “especially in a place as diverse as the Bay Area.”

Moreno plans to continue her own environmental education with a master’s degree. After that, she’ll be looking for a full-time position—and perhaps a return someday to the Service, where she has already had a big impact.



Cindy Moreno with students in grades 3-4

relevant—that somehow I could make a difference. And it was a lot of fun!”

Now Moreno is a senior at San Jose State University majoring in environmental studies, and her work at the refuge is making a real difference. Using her environmental training and Spanish language skills, she’s developed bilingual outreach and education programs, helping the refuge do a better job of connecting with its neighbor-

hood and reach materials and activities for the refuge’s annual South Bay Bird Fest, or Festival de Aves de la Bahía Sur.

The challenge has been to reach a community that hasn’t traditionally had a lot of interaction with wildlife refuges—something Moreno understands as a Latino native of Arvin, CA. It’s why she’s been proactive about conducting bilingual programs for the refuge at local libraries,

Skaggs to riches... in wildlife and their habitats

By Don Brubaker, Manager of San Pablo Bay, Antioch Dunes, and Marin Islands National Wildlife Refuges

Over one year ago Skaggs Island, a former naval facility located between Novato and Vallejo, was transferred to San Pablo Bay National Wildlife Refuge, adding more than 3,000 acres to the refuge. With 140 buildings and other naval structures completely dismantled and removed, Skaggs Island now holds tremendous possibilities for wildlife conservation. The land has a storied past, and in over a course of 200+ years, Skaggs Island will once again be a place for wildlife.

The native people in and around the San Pablo Bay area saw a bay much different than what we see today. Likewise the early European explorers who viewed the north

end of San Francisco Bay. The view would have been a huge estuary that extended from Cougar Mountain east (at the junction of State Routes 37 and 121) to beyond the Napa River. Tidal slough channels of all shapes, lengths, and depths would have coursed about the salt marsh habitat where sea and fresh water meet. Composition and abundance of species would have ranged from mosquitos to eagles and from crustaceans to fishes. Estuaries are incredibly rich, fertile, and productive ecosystems. We’d all like to take a trip back in time to see what the early people saw!

In the late 1800s and early 1900s, dikes and levees were constructed to follow the contours of the wider and deeper slough channels to prevent tidal flow into portions of the estuary. This practice reduced the



A black-tailed deer spotted on Skaggs Island Photo: Aric Crabb

North Bay’s vast estuary into a much smaller tidal wetland. These areas were then drained of water to form dry islands to be farmed for hay to feed cattle and the horses drawing carts, buggies, and wagons. One of these

continued next page

Florence LaRiviere Selected as Wetland Community Leader of the Year

When she walks the levees at the Refuge, Florence LaRiviere is not recognized as a heroine. Yet she is. In 1972, she helped organize a band of concerned citizens to establish this country's first urban national wildlife refuge, the Don Edwards San Francisco Bay National Wildlife Refuge.

Florence has been shouldering the responsibility of protecting wetlands for all Bay Area residents without fanfare for more than 40 years. Now, at 88 years of age, with eyesight faltering and after many of her friends and co-pioneering activists of San Francisco Bay wetlands have started to slow down, LaRiviere continues her quest for wetlands preservation as the leader and cofounder of the Citizens Committee to Complete the Refuge.

Florence LaRiviere was selected as the recipient of one of the most prestigious environmental prizes in the nation. LaRiviere was awarded the 2012 National Wetlands Award, and named the Wetland Community Leader of the year, by the Environmental Law Institute headquartered in Washington D.C.

The National Wetlands Awards Program honors individuals who have demonstrated extraordinary commitment to the conservation and restoration of our nation's wetlands.

The awards program is administered by the Environmental Law Institute and supported by the U.S. Environmental Protection Agency, Federal Highway Administration, U.S. Fish and Wildlife Service, USDA Forest Service, NOAA



Fisheries Service, and USDA Natural Resources Conservation Service.

"To win this award is quite special, but I am just one person. The results we have achieved are through the hard work of a wonderful, dedicated, knowledgeable group of people that I've had the pleasure to work with over the years," said Florence LaRiviere, Chairperson of the Citizens Committee to Complete the Refuge, "There are several traits that are vital if you are to be an effective environmentalist. One is caring. Another is to know what you are talking about by doing as much research as you can.

It takes a lot of time and a lot of energy, and occasionally you have wonderful successes. If you walk up the hill at the refuge in Fremont, and look around in almost all

directions, you'll see that there would have been building all the way to the edges of the bay and into the bay if we hadn't put up 'the fight.' Sometimes there are things worth fighting for and when you win it is very rewarding," LaRiviere concluded.

A restored marsh at the Don Edwards Refuge was renamed to LaRiviere Marsh in 1997 in recognition of Florence and Philip LaRiviere's contributions. June 2012 marks the 40th anniversary of President Nixon signing the bill that authorized the creation of the Don Edwards San Francisco Bay National Wildlife Refuge.

The San Francisco Bay National Wildlife Refuge Complex would like to thank the Citizens Committee to Complete the Refuge for contributing this article to Tideline.

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islands was owned and farmed by supermarket and pharmacy mogul M.B. Skaggs, the founder of Safeway supermarkets.

The U.S. Navy purchased 3,300-acres of land from the Skaggs family to create a communications and listening post simply known as Skaggs Island. From the winter of 1941 to 1993, Skaggs Island was a Naval facility complete with a small town of 250-400 people, an elementary school, tennis courts, movie theater, gymnasium, convenience store, baseball diamond, and single family and barracks housing. It was a self-contained community that supported military cloak and dagger activities, although more cloak than dagger.

Upon closure of the Skaggs Island Naval Facility, efforts to convey the naval portion of the island to the U.S. Fish and Wildlife Service were put in motion. Other uses were considered but the idea to convert the former naval facility to a unit of the San Pablo Bay National Wildlife Refuge (NWR) received better traction. On March 31, 2011, signatures were put to paper documenting the transfer of Skaggs Island to San Pablo Bay NWR.

For decades the island was farmed, even while as a spook center for the military. Today, deer, birds of prey, coyote, egrets, herons, and assorted other wildlife use the various grasslands, shrub stands, ephemeral pools, old drainage channels, and non-native eucalyptus trees as habitat. We live

in a very different world today and turning the clock back to 200 years ago may not be the best provision for wildlife of the San Francisco Bay Area. Indeed, the human population has grown substantially, and the surrounding lands have other uses to meet the demands of that population. Perhaps the Skaggs Island Unit can be shaped to provide a range of habitats that support a rich array of wildlife. In the coming months, San Pablo Bay NWR will explore the numerous possibilities of providing, maintaining, and showcasing what Skaggs Island can become for wildlife and their habitats.

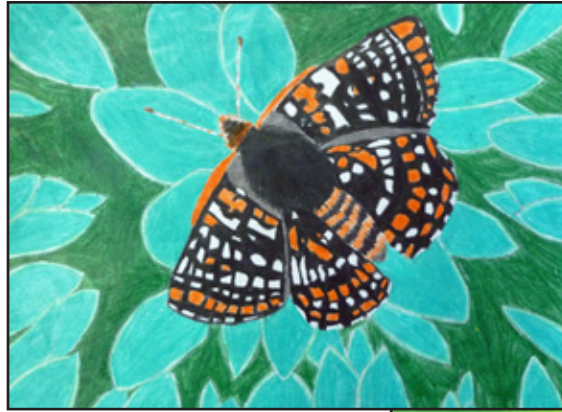
If you would like a group tour of Skaggs Island, call Manager Don Brubaker at 707-769-4200.

Congratulations to the 30th Annual Endangered Species Poster Contest Winners

Congratulations to all the participants who entered in the Don Edwards San Francisco Bay National Wildlife Refuge 30th Annual Endangered Species Poster Contest! This contest is held annually for schools in Union City, Newark, Fremont, and East Palo Alto. Thank you to all who entered. First, second, and third place finishers in each grade level from Kindergarten to 5th grade along with Honorable Mentions can be viewed on-line at www.fws.gov/desfbay/contest.htm. Posters were judged by four criteria:

Concept: How well the work relates to the endangered species theme;
Composition: How well the elements of line and form work together;
Color: How color enhances the artwork;
Expression: How imaginatively the work conveys an idea or emotion.

A huge thank you to the San Francisco Bay Wildlife Society for sponsoring the contest!



Jasmine C. Lee
2nd grade
1st place



Cassandra Yu
4th grade
1st place



Oliver Pang
3rd grade
3rd place



National Fishing & Boating Week • June 2-10

Learn how to fish on the
Dumbarton Fishing Pier in Fremont!

Saturday, June 2

9:00 a.m. – noon

Space is limited to the first 50 people. All equipment will be provided. Please come on time.
Call 510-792-0222 ext. 363 for reservations.
For more information, see page 10.

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. 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

Note: Ratio of 1 adult per 5 children maximum. Space is limited to 20 people, including siblings. Once the program is full

there will be a waiting list. Call Debra at 408-262-5513 ext. 102 for reservations.

Saturday, July 14

Webelos Naturalist Badge

Environmental Education Center, Alviso

10:00 a.m. – 12:00 p.m.

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.

Saturday, July 28

Brownie Eco-Explorer

Try-It Patch

Environmental Education Center, Alviso

10:00 a.m. – 12:00 p.m.

Come and learn about habitats, food chains, and how you can help wildlife. Then take a walk to explore the habitats at the South Bay. We'll have a special craft to round out the day. Space is limited to 20 people and program fills quickly.

Junior Girl Scout Wildlife Badge

Environmental Education Center, Alviso

2:00 p.m. – 4:00 p.m.

Calling all Junior Girl Scouts of Santa Clara County! Anyone out there need to earn a Wildlife badge? We've got the program just for you! Come to the wildlife refuge and learn about features of different creatures, observe animal behavior, see how you can help wildlife, and so much more. Take a walk to explore the habitats at the south end of the bay.

Youth Group Programs at the Refuge Headquarters in Fremont

The Refuge Headquarters offer Webelos programs for up to 15 Webelos. Call 792-0222 ext. 363 for reservations. All programs are led by June Smith.

Sunday, June 10 Saturday, August 4

Webelos Naturalist Program

Visitor Center, Fremont

10:00 a.m. – 12:00 p.m.

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

Comprehensive Conservation Planning Around the Complex

The San Pablo Bay NWR Comprehensive Conservation Plan (CCP) was completed last fall and parts of the plan are beginning to be implemented.

The CCP provides a framework for managing the refuge for the next 15 years. Highlights of the CCP include: developing an inventory and monitoring program; developing wildlife population goals; and assessing climate change impacts. Additional habitat management activities include improving hydrological connectivity of tidal marsh habitat. A visitor services plan would be developed to further explore public opportunities on the refuge. Environmental education and interpretation opportunities would be expanded.

The Don Edwards San Francisco Bay NWR Draft CCP was available for public comment in late spring. Three alternatives were identified:

Alternative A: No Action. Under this alternative, the refuge would continue

current management actions, including habitat management, wildlife management, wildlife-oriented recreation opportunities, and environmental education. Habitat restoration projects, invasive weed management, and predator management would continue. Wildlife-oriented recreation opportunities would continue to be offered including waterfowl hunting and interpretation. The refuge would continue to conduct a variety of environmental education programs.

Alternative B (preferred alternative): Moderate increase in wildlife management, habitat management, visitor services, and the environmental education program. Under this alternative, additional biological activities would include baseline surveys on native species. Habitat management activities would include a weed management plan and addressing climate change. Wildlife observation opportunities would be expanded through a bus stop at the headquarters and non-motorized boat launch sites. Access for

dog walking would be reduced to protect tidal marsh areas. A new visitor center complex would be constructed and the Environmental Education Center (EEC) in Alviso would be remodeled, while the volunteer program would be expanded.

Alternative C: Same as B; and substantial increase in wildlife management, habitat management, visitor services, and the environmental education program. Under this alternative, the refuge would investigate the reintroduction of endangered species. Additional habitat management actions would include marsh-upland ecotone restoration. Visitor service opportunities would include a bus stop at the EEC and constructing photography blinds. A hunt fee would be imposed to fund additional hunt blinds. Dog walking would be eliminated for wildlife protection. Environmental education would be expanded to include climate change.

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, 2012 and March 31, 2012. 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.**

For a gift membership, call 510-745-8170.

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* and 15% discount at the Don Edwards SF Bay National Wildlife Refuge bookstore. 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 Visa or MasterCard # _____ Exp. Date _____

Signature _____

Name _____

Address _____ City _____ State _____ Zip _____

Phone _____ **Thank you for your support!**

Virtual Watershed Flight Campaign: **Endow WOWW!**



Help raise \$60,000 to create two interactive computer exhibits at the Visitor Center in Fremont and the Environmental Education Center in Alviso. You can contribute first-hand to education programs for local schools and the general public.

To donate, go to our website at www.sfbws.com or call 510-745-8170

Pilot Level

Donate \$5,000 or more

Recognition in Kiosk WOWW application program, shown as Sponsor on www.sfbws.com website and special mention in *Tideline* for 1 year.

Navigator Level

Donate \$1,000 or more

Recognition in Kiosk WOWW application program and special mention in *Tideline* for that quarter.

WOWW Support Level

Donate \$100 or more

Receive a Wildlife Society memento of your choice: mug or mouse pad

What is WOWW?

W.O.W.W. is the acronym for the Watching Our Watersheds & Wildlife Project that brings interactive learning kiosks and educational tools to introduce visitors and students to the concepts of watersheds, wildlife corridors, wildlife and plant identification, historical ecology, climate change, and the effects of pollution on the San Francisco Bay. This project will use the latest technologies to provide visitors the opportunity to “fly” their way through the Google Earth Alameda and Santa Clara County watershed maps when their zip code is typed in. They will see which creeks go by their houses or schools, observe valley historical ecology, or have the option to take an automated fly-through tour of the watershed.

This project will include two permanent touch-screen computers on the refuge, one at the Visitor Center in Fremont and one at the Environmental Education Center in Alviso. In addition, the fun, engaging learning modules can be uploaded from the San Francisco Bay Wildlife Society’s website for in-classroom and public use! The kiosks and the programs available for download are expected to be in place by the end of this year.

Check out the new web site and domain for the San Francisco Bay Wildlife Society at www.sfbws.com

The San Francisco Bay Wildlife Society has a new look and a new domain! The new website will be updated regularly with blogging, photos, the *Watershed Watchers* and *Living Wetlands* (formerly known as *Slow the Flow*) programs, and activities offered at the Don Edwards San Francisco Bay National Wildlife Refuge. Although the domain has changed to “.com”, we continue to be an active not-for-profit 501(c)(3) organization dedicated to environmental programs for the San Francisco Bay National Wildlife Refuge Complex. The Society Board of Directors and employees welcome your input to help us make the site an informative, helpful place for you.

Check out the site and send us your comments and ideas to webmaster@sfbws.com.

Thank you for your support!

Summer Activity Schedule

June

Saturday, June 2

Connections to Pier Fishing

Dumbarton Fishing Pier, Fremont

9:00 a.m. – 12:00 p.m.

Have you ever wanted to try fishing but didn't know how to begin? Learn the fundamental basics of catch and release fishing at the Dumbarton fishing pier! Discover the types of wildlife living in the San Francisco Bay, learn the safety and ethics of fishing, and then try your luck out on the pier with our fishing poles. All participants receive free box with tackle. No fishing license needed. Space is limited to the first 50 people. You must arrive at 9 a.m. to participate. RESERVATIONS REQUIRED. Call the Visitor Center at 510-792-0222 ext. 363.

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. Call 510-792-0222 ext. 363 for reservations.

*Bird Tales

Ravenswood Unit (SF2), Menlo Park

10:00 a.m. - 11:30 a.m.

Docent Jane Moss will lead you on a 1-mile walk through the ever-changing panoramas surrounding a former salt pond. Learn about the exciting ways this area is being reshaped as newly created habitat for nesting and resting birds. Trail is easy and level. All ages and abilities welcome. For information, call 510-792-0222 ext. 139.

Levee Bike Tour

Alviso Marina County Park, Alviso

10:00 a.m. – 1:00 p.m.

Get a new perspective! Take a docent-led bicycle tour along the levees of the Don Edwards SF Bay Refuge. Learn about the Salt Pond Restoration Project and see Silicon Valley from a new angle. It's nature in the middle of it all! The trail is level and smooth, but unpaved, and it can be windy. The tour starts and ends at the Alviso Marina County Park. The pace is moderate with stops. Helmet and water recommended. Recommended for ages 14 and over. Rain cancels. For information, call 510-792-0222 ext. 139.

*Marshlands of Dreams

Visitor Center, Fremont

2:00 p.m. – 3:00 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. There are opportunities for bird watching as well.

Sunday, June 3

Water Wizards

Environmental Education Center, Alviso

2:00 p.m. – 3:30 p.m.

Life on the 'Blue Planet' would not be possible without our most precious resource, water. Join us at the EEC to learn more about the unique properties of water through hands-on activities, a presentation, and a guided wetlands walk. We will investigate what makes water such an important resource to people and wildlife, and probably get a little wet too! RESERVATIONS RECOMMENDED. All ages are welcome. Call 408-262-5513 ext. 104.

Saturday, June 9

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 at the Visitor Center 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 a different location. For more information, or to make reservations, call 510-792-0222 ext. 363.

A Trip Back in Time

Visitor Center, Fremont

10:30 a.m. – 12:00 p.m.

Revive the vanishing knowledge of the history of the Don Edwards San Francisco Bay National Wildlife Refuge grounds by strolling the trails with docent Ray Studer. Using a collection of old photographs, the last vestiges of a way of life such as salt production, the old railroads, and homes can be traced back to the 1850s that led to the construction of the town of Newark in 1876.

Twilight Marsh Walk

Visitor Center, Fremont

7:30 p.m. – 9:00 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1 1/3 mile) 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. RESERVATIONS REQUIRED. Call 510-792-0222 ext 363. Led by Mary and Gene Bobik.

Sunday, June 10

Intro to Nature Drawing for Adults

Visitor Center, Fremont

10:30 a.m. - 12:30 p.m.

Learn the basics of sketching nature. We will learn how to draw with negative shapes and shadows, and how to use light to add dimension. There will be opportunities to

practice these techniques on the trail. Paper and pencils will be provided. Program begins in the pavilion. Bring binoculars if you have them. Call for reservations at 510-792-0222 ext. 363. Led by Travis Turner.

Story Hunters - Part 1

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Discover what stories lie hidden on the Don Edwards Refuge in this 3-part series by Art Garibaldi. After a brief introduction on how to use our GPS units, we'll give you a set of coordinates that will lead you to the landmarks that embodies the rich human history that helped shaped refuge lands. GPS units are available for loan. Call 510-792-0222 ext. 363 for reservations.

Saturday, June 16

Levee Bike Tour

Alviso Marina County Park, Alviso

10:00 a.m. – 1:00 p.m.

Get a new perspective! Take a docent-led bicycle tour along the levees of the Don Edwards SF Bay Refuge. Learn about the Salt Pond Restoration Project and see Silicon Valley from a new angle. It's nature in the middle of it all! The trail is level and smooth, but unpaved, and it can be windy. The tour starts and ends at the Alviso Marina County Park. The pace is moderate with stops. Helmet and water recommended. Recommended for ages 14 and over. Rain cancels. For information, call 510-792-0222 ext. 139.

*Family Bird Walk

2:30 p.m. – 4:30 p.m.

Visitor Center, Fremont

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. Call 510-792-0222 ext. 363.

Sunday, June 17

*A Taste of the Refuge

Visitor Center, Fremont

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

Take a guided walk on Tidelands Trail and discover which plants are edible or have medicinal uses. We'll taste some of these plants on the refuge, or in commercially made products. Led by Carmen Minch.

The Remarkable Gray Fox

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Gray foxes are successful survivors even in the face of climate change. What kind of an environment do gray foxes need to thrive? What makes them unique? We will observe their habitat during our walk and learn the answers to these questions and more. Good walking shoes and a hat recommended. Led by Bill Leikam.

Saturday, June 23

Explore the Weep

Environmental Education Center, Alviso

10:00 a.m. – 1:00 p.m.

Join microbial ecologist Dr. Wayne Lanier on a short van ride to study microbial communities. The weep is a shallow persistent pond fed by seepage. Throughout the year it undergoes wide swings in salinity, and the result is a uniquely rich microbial community of Cyanobacteria,

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

Visitor Center, 2 Marshlands Road, Fremont – (510) 792-0222 ext. 363 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513

Archeabacteria, Diatoms, Dinoflagellates, and protozoa. Boots are recommended. Ages 10 and up. RESERVATIONS REQUIRED. Call Debra at 408-262-5513 ext. 102.

Story Hunters - Part 1

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Discover what stories lie hidden on the Don Edwards Refuge in this 3-part series by Art Garibaldi. After a brief introduction on how to use our GPS units, we'll give you a set of coordinates that will lead you to the landmarks that embodies the rich human history that helped shaped refuge lands. GPS units are available for loan. Call 510-792-0222 ext. 363 for reservations.

Sunday, June 24

*Life at the Bottom of the Food Chain

Visitor Center, Fremont

10:00 a.m. – 12:00 p.m.

Wetlands microbes are often called "the lungs of the earth." Explore the dynamics of microbial communities in LaRiviere Marsh ponds. Join microbiologist Wayne Lanier, PhD for a brief presentation; then a microscope hike to LaRiviere Marsh where we will sample and view the most ancient creatures on earth. See how they produce the oxygen we breathe and take up the carbon dioxide we produce. Discover how tides shape these vital communities. Easy short hiking level. Ages 9-90 years. Call 510-792-0222 ext. 363 for reservations.

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 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. Call 510-792-0222 ext. 363. Led by Carmen Minch.

Saturday, June 30

Moffett Bay Trail – 6.7 miles

Meet in Sunnyvale. Directions Below.

8:30 a.m.

Let's Go Outside!

Meet new people while getting fit and healthy! This trail is the 3rd walk featured in the Refuge Rambler club. It is a compacted dirt levee that is flat and level. The walk is self-paced and you may turn back at any time. You do not need to be a Refuge Rambler to join this walk. Go to <http://www.fws.gov/desfby> to learn more about the Refuge Rambler Club. No reservations are needed. Hats, water, and sunscreen are strongly recommended. Jennifer Fraga will be there to greet you. **Directions:** From Hwy 101 or 880, exit onto Highway 237 towards Alviso. From 237, take the Caribbean Dr. exit and head north onto Caribbean Dr. (not Lawrence Expy). Turn right on Borregas Ave. At the stop sign in front of the sewage treatment plant, take a left onto Carl Rd and park in the far parking lot.

Meet new people while getting fit and healthy! This trail is the 3rd walk featured in the Refuge Rambler club. It is a compacted dirt levee that is flat and level. The walk is self-paced and you may turn back at any time. You do not need to be a Refuge Rambler to join this walk. Go to <http://www.fws.gov/desfby> to learn more about the Refuge Rambler Club. No reservations are needed. Hats, water, and sunscreen are strongly recommended. Jennifer Fraga will be there to greet you. **Directions:** From Hwy 101 or 880, exit onto Highway 237 towards Alviso. From 237, take the Caribbean Dr. exit and head north onto Caribbean Dr. (not Lawrence Expy). Turn right on Borregas Ave. At the stop sign in front of the sewage treatment plant, take a left onto Carl Rd and park in the far parking lot.

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. Call 510-792-0222 ext. 363 for reservations.

Bird Drawing for Families and Adults

Environmental Education Center, Alviso

11:00 a.m. – 12:30 p.m.

Learn how to draw birds. Increase your confidence in drawing and develop skills to help you draw what you see. We will have a variety of mounted birds available for drawing and for observing bird anatomy. We will practice techniques to make life-like drawings and learn about proportions. Appropriate for ages 8 to adult. Children, please bring an adult who would like to participate. Adults without children are also welcome. Bring a sketch pad and pencil or use ours. All skill levels welcome. Call Debra at 408-262-5513 ext. 102 for reservations.

Intermediate Bird Drawing

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Learn techniques to help your bird drawings come to life. This class will be a continuation of the morning class or can be taken independently. This class will emphasize the 3-dimensional form of the bird and will provide more advanced techniques. Appropriate for ages 8 to adult. Children, please bring an adult who would like to participate. Adults without children are also welcome. Bring a sketch pad and pencil or use ours. All skill levels welcome. Please call Debra at 408-262-5513 ext. 102 for reservations.

July

Sunday, July 8

Nature Drawing for Kids

Visitor Center, Fremont

10:30 a.m. - 12:30 p.m.

Does your child have an interest in the arts? Introduce your child to outdoor sketching in this workshop by Travis Turner and increase their observations skills. We will learn how to draw what we see by incorporating common shapes, and learn about shading value. We will then head out onto the trail and practice the various techniques. Paper and pencils will be provided. This program takes place outside so dress warmly. Rain cancels. Kids age 7-12 only! Call for reservations at 510-792-0222 ext. 363. Bring binoculars if you have them.

Story Hunters - Part 2

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Discover what stories lie hidden on the Don Edwards Refuge in this 3-part series by Art Garibaldi. New coordinates will lead you to two new landmarks that embody the rich human history that helped shaped refuge lands. We'll begin with a brief introduction on how to use our GPS units. GPS units are available for loan. This program is open to everyone. Call 510-792-0222 ext. 363 for reservations.

Summer Activity Schedule

Saturday, July 14

Levee Bike Tour

Alviso Marina County Park, Alviso

10:00 a.m. – 1:00 p.m.

Get a new perspective! Take a docent-led bicycle tour along the levees of the Don Edwards SF Bay Refuge. Learn about the Salt Pond Restoration Project and see Silicon Valley from a new angle. It's nature in the middle of it all! The trail is level and smooth, but unpaved, and it can be windy. The tour starts and ends at the Alviso Marina County Park. The pace is moderate with stops. Helmet and water recommended. Recommended for ages 14 and over. Rain cancels. For information, call 510-792-0222 ext. 139.

A Trip Back in Time

Visitor Center, Fremont

10:30 a.m. – 12:00 p.m.

Revive the vanishing knowledge of the history of the Don Edwards San Francisco Bay National Wildlife Refuge grounds by strolling the trails with docent Ray Studer. Using a collection of old photographs, the last vestiges of a way of life such as salt production, the old railroads, and homes can be traced back to the 1850s that led to the construction of the town of Newark in 1876.

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. Call 510-792-0222 ext. 363 for reservations.

All About Owls

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Learn all you've ever wanted to know about owls on the refuge! Where do owls eat? Why don't we hear them when they flap their wings? Are owls the brainiacs of the bird world? Through an interactive presentation and owl pellet dissection, we'll find the answers to all these questions! Led by Paul Bridges. Call Debra at 408-262-5513 ext. 102 for reservations.

Sunday, July 15

*A Taste of the Refuge

Visitor Center, Fremont

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

Take a guided walk on Tideland Trail and discover which plants are edible or have medicinal uses. We'll taste some of these plants on the refuge, or in commercially made products. Led by Carmen Minch.

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

Visitor Center, 2 Marshlands Road, Fremont – (510) 792-0222 ext. 363 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513

Summer Activity Schedule

Chompers & Stompers

Environmental Education Center, Alviso

2:00 p.m. – 3:30 p.m.

Ever wondered why birds come in so many shapes, sizes, and colors? Come and find out why some birds exhibit wacky behaviors. We will examine the different bird specimens we have collected over the years to see how birds have adapted some extraordinary features. Admire the wonders of the bird kingdom and then take a guided walk on the refuge to see these marvelous creatures in action! RESERVATIONS RECOMMENDED— All Ages are welcome. Call 408-262-5513 ext. 104

Saturday, July 21

Why Tides Matter

Environmental Education Center, Alviso

10:00 a.m. – 11:00 a.m.

Docent Laurel Stell will talk and walk you through all things tides. What are they? How do they affect wildlife? How have humans reshaped the Bay's tidal lands? Program starts indoors but will move outside for an easy 0.5-mile walk. All are welcome.

Wetland Safari

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Take a one-hour van tour around our former salt ponds. Bird life is generally more abundant as you travel farther away from the Education Center. We will make several stops for better viewing and photography. Plus, we'll take a look at what is left of Drawbridge. Due to limited van seating, a second tour will begin at 2:30 if needed. Call Debra at 408-262-5513 ext. 102 for reservations.

*Family Bird Walk

2:30 p.m. – 4:30 p.m.

Visitor Center, Fremont

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. Call 510-792-0222 ext. 363.

Twilight Marsh Walk

Visitor Center, Fremont

7:30 p.m. – 9:00 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1 1/3 mile) 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. RESERVATIONS REQUIRED. Call 510-792-0222 ext 363. Led by Mary and Gene Bobik.

Sunday, July 22

Wetlands Water Cafe

Environmental Education Center, Alviso

11:00 a.m. – 12:30 p.m.

Wetlands can be filled with all sorts of nutrients and organisms that build a diverse web of life. Come visit the wetlands of the South Bay at the Environmental Education Center during this program. Participants will use our lab to observe wetland critters up close, and learn about their role in the ecosystem. RESERVATIONS RECOMMENDED – All Ages are welcome. Call 408-262-5513 ext. 104.

The Remarkable Gray Fox

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Gray foxes are successful survivors even in the face of climate change. What kind of an environment do gray foxes need to thrive? What makes them unique? We will observe their habitat during our walk and learn the answers to these questions and more. Good walking shoes and a hat recommended. Led by Bill Leikam.

Saturday, July 28

Shoreline Trail – 8 miles

Dumbarton Fishing Pier Parking Lot, Fremont

8:30 a.m.

Let's Go Outside!

Meet new people while getting fit and healthy! This is the fourth walk featured in the Refuge Rambler club. This trail near the Dumbarton Fishing Pier is eight miles roundtrip, flat, and level. The walk is self-paced and you may turn back at anytime. Hats, water, and sunscreen are strongly recommended. You do not need to be a Refuge Rambler to join this walk. No reservations are needed. Jennifer Fraga will be there to greet you at 8:30 a.m. Directions: See map on the back for driving directions to the Visitor Center in Fremont. Drive down Marshlands Rd until it ends. Park along fence.

Levee Bike Tour

Alviso Marina County Park, Alviso

10:00 a.m. – 1:00 p.m.

Get a new perspective! Take a docent-led bicycle tour along the levees of the Don Edwards SF Bay Refuge. Learn about the Salt Pond Restoration Project and see Silicon Valley from a new angle. It's nature in the middle of it all! The trail is level and smooth, but unpaved, and it can be windy. The tour starts and ends at the Alviso Marina County Park. The pace is moderate with stops. Helmet and water recommended. Recommended for ages 14 and over. Rain Cancels. For information, call 510-792-0222 ext. 139.

Story Hunters - Part 2

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Discover what stories lie hidden on the Don Edwards Refuge in this 3-part series by Art Garibaldi. New coordinates will lead you to two new landmarks that embody the rich human history that helped shaped refuge lands. We'll begin with a brief introduction on how to use our GPS units. GPS units are available for loan. This program is open to everyone. Call 510-792-0222 ext. 363 for reservations.

Sunday, July 29

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 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. Call 510-792-0222 ext. 363. Led by Carmen Minch.

Intro to Nature Drawing for Adults

Visitor Center, Fremont

10:30 a.m. - 12:30 p.m.

Learn the basics of sketching nature. We will learn how to draw with negative shapes and shadows, and how to use light to add dimension. There will be opportunities to practice these techniques on the trail. Paper and pencils will be provided. Program begins in the pavilion. Bring binoculars if you have them. Call for reservations at 510-792-0222 ext. 363. Led by Travis Turner.

August

Saturday, August 4

*Why Tides Matter

Environmental Education Center, Alviso

10:00 a.m. – 11:00 a.m.

Docent Laurel Stell will talk and walk you through all things tides. What are they? How do they affect wildlife? How have humans reshaped the Bay's tidal lands? Program starts indoors but will move outside for an easy 0.5-mile walk. All are welcome.

Sunday, August 5

Nature Drawing for Kids

Visitor Center, Fremont

10:30 a.m. - 12:30 p.m.

Does your child have an interest in the arts? Introduce your child to outdoor sketching in this workshop by Travis Turner and increase their observations skills. We will learn how to draw what we see by incorporating common shapes, and learn about shading value. We will then head out onto the trail and practice the various techniques. Paper and pencils will be provided. This program takes place outside so dress warmly. Rain cancels. Kids age 7-12 only! Call for reservations at 510-792-0222 ext. 363. Bring binoculars if you have them.

Story Hunters - Part 3

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Discover what stories lie hidden on the Don Edwards Refuge in this 3-part series by Art Garibaldi. New coordinates will lead you to two new landmarks that embody the rich human history that helped shaped refuge lands. We'll begin with a brief introduction on how to use our GPS units. GPS units are available for loan. This program is open to everyone. Call 510-792-0222 ext. 363 for reservations.

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

Visitor Center, 2 Marshlands Road, Fremont – (510) 792-0222 ext. 363 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513

Saturday, August 11

Levee Bike Tour

Alviso Marina County Park, Alviso

10:00 a.m. – 1:00 p.m.

Get a new perspective! Take a docent-led bicycle tour along the levees of the Don Edwards SF Bay Refuge. Learn about the Salt Pond Restoration Project and see Silicon Valley from a new angle. It's nature in the middle of it all! The trail is level and smooth, but unpaved, and it can be windy. The tour starts and ends at the Alviso Marina County Park. The pace is moderate with stops. Helmet and water recommended. Recommended for ages 14 and over. Rain cancels. For information, call 510-792-0222 ext. 139.

*Family Bird Walk

2:30 p.m. – 4:30 p.m.

Visitor Center, Fremont

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. Call 510-792-0222 ext. 363.

Twilight Marsh Walk

Visitor Center, Fremont

7:00 p.m. – 8:30 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1 1/3 mile) 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. RESERVATIONS REQUIRED. Call 510-792-0222 ext. 363. Led by Mary and Gene Bobik.

Sunday, August 12

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. Call 510-792-0222 ext. 363 for reservations.

Saturday, August 18

Bike the Levees

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Join Ed Kantack for an easy 5-6 mile bike ride along the levees. Due to restoration work, the route will be determined as the date approaches. It should be interesting! Helmets are required and knobby tires are recommended. Open to all ages. Space is limited, so please call Debra at 408-262-5513 ext. 102 for reservations.

Sunday, August 19th

Intro to Nature Drawing for Adults

Visitor Center, Fremont

10:30 a.m. - 12:30 p.m.

Learn the basics of sketching nature. We will learn how to draw with negative shapes and shadows, and how to use light to add dimension. There will be opportunities to practice these techniques on the trail. Paper and pencils will be provided. Program begins in the pavilion. Bring binoculars if you have them. Call for reservations at 510-792-0222 ext. 363. Led by Travis Turner.

*Marsh Mud Mania

Environmental Education Center, Alviso

1:00 p.m. – 2:30 p.m.

Mud – It's what's for dinner! The mudflats of the southern San Francisco Bay are food sources for thousands and thousands of migratory and resident bird species. One handful of south bay mud can contain thousands of organisms! See for yourself during this fun, hands-on program. Participants will use tools to investigate mud, and then go on a guided walking tour of the marshlands. RESERVATIONS RECOMMENDED. All ages welcome. Call 408-262-5513 ext. 104.

The Remarkable Gray Fox

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Gray foxes are successful survivors even in the face of climate change. What kind of an environment do gray foxes need to thrive? What makes them unique? We will observe their habitat during our walk and learn the answers to these questions and more. Good walking shoes and a hat recommended. Led by Bill Leikam.

Saturday, August 25

Redwood Shores Trail – 5 miles

Meet in front of Marriot Towne Place Suites.

Directions Below.

9:00 a.m.

Let's Go Outside!

Meet new people while getting fit and healthy! This trail in Redwood Shores is flat and level. The walk is self-paced and you may turn back at anytime. No reservations are needed. Hats, water, and sunscreen are strongly recommended. Jennifer Heroux will be there to greet you at 9 a.m. **Directions:** From northbound 101, take the Holly St/ Redwood Shores Parkway exit. From southbound 101, take the Holly St/Brittan Ave exit. Head east towards Redwood Shores Parkway. Turn right on Twin Dolphin Dr and meet at 1000 Twin Dolphin Dr, Redwood City. Meet in parking lot in front of Marriot Towne Place Suites.

*Changing of the Bird Guard - Summer to Fall

Ravenswood Unit (SF2), Menlo Park

10:00 a.m. -11:30 a.m.

Docent Jane Moss will lead you on a 1-mile walk through the ever-changing panoramas surrounding a former salt pond. Learn about the exciting ways this area is being reshaped as newly created habitat for nesting and resting birds. Trail is easy and level. All ages and abilities welcome. For information, call 510-792-0222 ext. 139.

Levee Bike Tour

Alviso Marina County Park, Alviso

10:00 a.m. – 1:00 p.m.

Get a new perspective! Take a docent-led bicycle tour along the levees of the Don Edwards SF Bay Refuge. Learn about the Salt Pond Restoration Project and see Silicon Valley from a new angle. It's nature in the middle of it all! The trail is level and smooth, but unpaved, and it can be windy. The tour starts and ends at the Alviso Marina County

Summer Activity Schedule

Park. The pace is moderate with stops. Helmet and water recommended. Recommended for ages 14 and over. Rain cancels. For information, please call 510-792-0222 x139.

Nature Drawing for Families and Adults

Environmental Education Center, Alviso

11:00 a.m. – 12:30 p.m.

Increase your confidence in drawing while exploring natural objects from the refuge and beyond. We will carefully observe all manner of cool objects and learn skills to translate these observations into realistic drawings. Appropriate for ages 8 to adult. Children, please bring an adult who would like to participate. Adults without children are welcome as well. Bring a sketch pad and pencil or use ours. All skill levels welcome. Led by Kathy Kleinsteinber. For reservations, call Debra at 408-262-5513 ext. 102.

Drawbridge Van Excursion

Environmental Education Center, Alviso

2:00 p.m. – 4:30 p.m.

There's a ghost town in the San Francisco Bay? That's right! Nestled on an island in the salt marshes of South San Francisco Bay, the town of Drawbridge once boomed. Was it a quiet, peaceful town full of nature lovers, or a rip-roaring town full of two-fisted rowdies? Find out at this program led by Ceal Craig. Start with a slideshow, and then take a short van excursion to view Drawbridge across Coyote Creek. Program is intended for adults and space is very limited. RESERVATIONS ARE ESSENTIAL. Call Debra at 408-262-5513 ext. 102. (Note: we do not visit the town itself – we go to the closest spot that one can legally view Drawbridge.)

Story Hunters - Part 3

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Discover what stories lie hidden on the Don Edwards Refuge in this 3-part series by Art Garibaldi. New coordinates will lead you to two new landmarks that embody the rich human history that helped shaped refuge lands. We'll begin with a brief introduction on how to use our GPS units. GPS units are available for loan. This program is open to everyone. Call 510-792-0222 ext. 363 for reservations.

Sunday, August 26

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 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. Call 510-792-0222 ext. 363. Led by Carmen Minch.

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

Visitor Center, 2 Marshlands Road, Fremont – (510) 792-0222 ext. 363 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513

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 and Living Wetlands (formerly Slow the Flow) field trips 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 Training. The trainings 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 Training. New teachers must attend the New Teacher Training. In addition, it is our policy that lead educators must attend a training every third year. Location of activities and trail conditions may vary. Please call for accessibility information.

Field Trips at the Learning Center in Fremont

Wetland Round-Up

Explore the habitats of the refuge! Investigate the creatures of the mudflats, collect plankton from the slough, and taste the pickleweed from the salt marsh. This field trip is designed for grades K-6, for up to 65 students.

Information about Fall field trips will be announced on our website in August. Visit <http://www.fws.gov/desfbay/enviro.htm>

Contact the Environmental Education Staff at Fremont:

Office: (510) 792-0222 ext. 475

Cell: (510) 377-7269

E-mail: ee.hq.intern@gmail.com

Field Trip Orientation Dates at the Learning Center in Fremont

Orientation dates to be announced.

Field Trips at the Environmental Education Center in Alviso

Wetland Round-Up

Explore the habitats of the refuge! Taste pickleweed in the salt marsh, discover the creatures that live in the slough water and investigate the plants growing in the uplands on a Wetland Round-Up Field Trip in Alviso. This field trip is designed for grades K-6, for up to 65 students.

Information about Fall field trips will be announced on our website in August. Please visit <http://www.fws.gov/desfbay/enviro.htm>.

Contact the Environmental Education Staff in Alviso:

Office: (408) 262-5513 ext. 100

E-mail: genie_moore@fws.gov

Field Trip Training and Orientation Workshop Dates at the Environmental Education Center in Alviso

Announcing our NEW Field Trip Training and Orientation Program! Please note the following changes. *Thank you to all the teachers and parents who have provided us feedback so we could restructure our training program to better serve you!*

New Teacher Field Trip Training

New teachers who have not yet attended a field trip orientation **must** attend a **New Teacher Field Trip Training**.

Dates for New Teacher Field Trip training will be announced in the Fall issue of *Tideline*.

Returning Teacher and Parent Workshop

Returning Teachers and Parents will be offered a separate Returning Teacher and Parent Workshop. **It is a requirement that returning teachers must attend one of these workshops once every three years.** We highly recommend that Parent Activity Leaders attend one of the following workshops. In addition, we **strongly encourage** returning teachers to attend the workshop with their parent volunteers.

Returning Teacher and Parent Workshops

Workshop dates to be announced

Living Wetlands Program

The Living Wetlands Program (formerly Slow the Flow) provides an experiential learning environment for students and educators to explore the topics of wetlands, watersheds, and how students can take an active role in protecting valuable wetlands habitat. Activities and presentations focus on the relationship between personal habits and their effects on local habitats. 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.

Living Wetlands Program Offerings:

Integrated Field Trip Program (5th – 12th grades): This program incorporates multiple activities. Participating classes will receive two full-length classroom presentations from Living Wetlands educators that includes hands-on activities and demonstrations, and a field trip to the Don Edwards Refuge. There is a limit of 60 students per field trip and a 1:10 chaperone to student ratio is required.



Classroom Presentations (5th – 12th grades): Currently there are three classroom presentation activities available, *Watersheds and Wetlands*, *Mysteries of Wastewater Treatment*, and *Marsh Lab Study*. Each of these presentations takes approximately one hour. Please contact us for specific classroom presentation needs.

Field Trip and Guided Tours for other Schools, Colleges, Universities, and related organizations: General presentations and guided tours are available, and generally last 1.5 hours.

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 Julie Kahrnoff, the Living Wetlands Coordinator, at 408-262-5513 ext. 104 or email at LivingWetlands@gmail.com.

PLEASE NOTE CONSTRUCTION AT THE ENVIRONMENTAL EDUCATION CENTER:

The salt ponds (A16 and A17) adjacent to the Environmental Education Center will be undergoing construction for the South Bay Salt Pond Restoration Project. Restoring A16 and A17 will create 130 acres of tidal marsh habitat and 240 acres of shallow water foraging habitat for migratory birds, including nesting islands. *Thank you for your patience during this exciting restoration project!*

TIDELINE

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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: Mendel Stewart
Deputy Project Leader: John Bradley
Wildlife Refuge Specialist: Val Urban
Don Edwards Refuge Manager: Eric Mruz

Don Edwards Wildlife Specialist:Melisa Amato
Don Edwards Warm Springs Unit Manager: Ivette Loreda
Farallon Refuge Manager: Gerry McChesney
Farallon Wildlife Specialist: Jonathon Shore
North Bay Refuges Manager: Don Brubaker
North Bay Wildlife Specialist: Louis Terrazas
South Bay Refuges Manager: Diane Kodama
Public Affairs Officer: Doug Cordell
Refuge Planner: Winnie Chan
Chief of Visitor Services: Jennifer Heroux
Outdoor Recreation Planner: Carmen Minch
Environmental Education Specialists: Tia Glagolev, Genie Moore, and Kimby Wells
Volunteer Coordinator: Paul Mueller
Law Enforcement Officers: Jared Klein, Scott Neumann, and Kurt Rees
Biologists: Joy Albertson, Brian Alfaro, Christopher Caris, Susan Euing, Meg Marriott, Cheryl Strong, and Rachel Tertes
Administrative Staff: Lucinda Ballard, Patricia Compton, 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.

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Tideline is On-Line

Visit our web site, which features past issues of *Tideline*, at <http://www.fws.gov/desfbay>



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San Francisco Bay NWR Complex

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SAN FRANCISCO BAY NATIONAL WILDLIFE REFUGE COMPLEX

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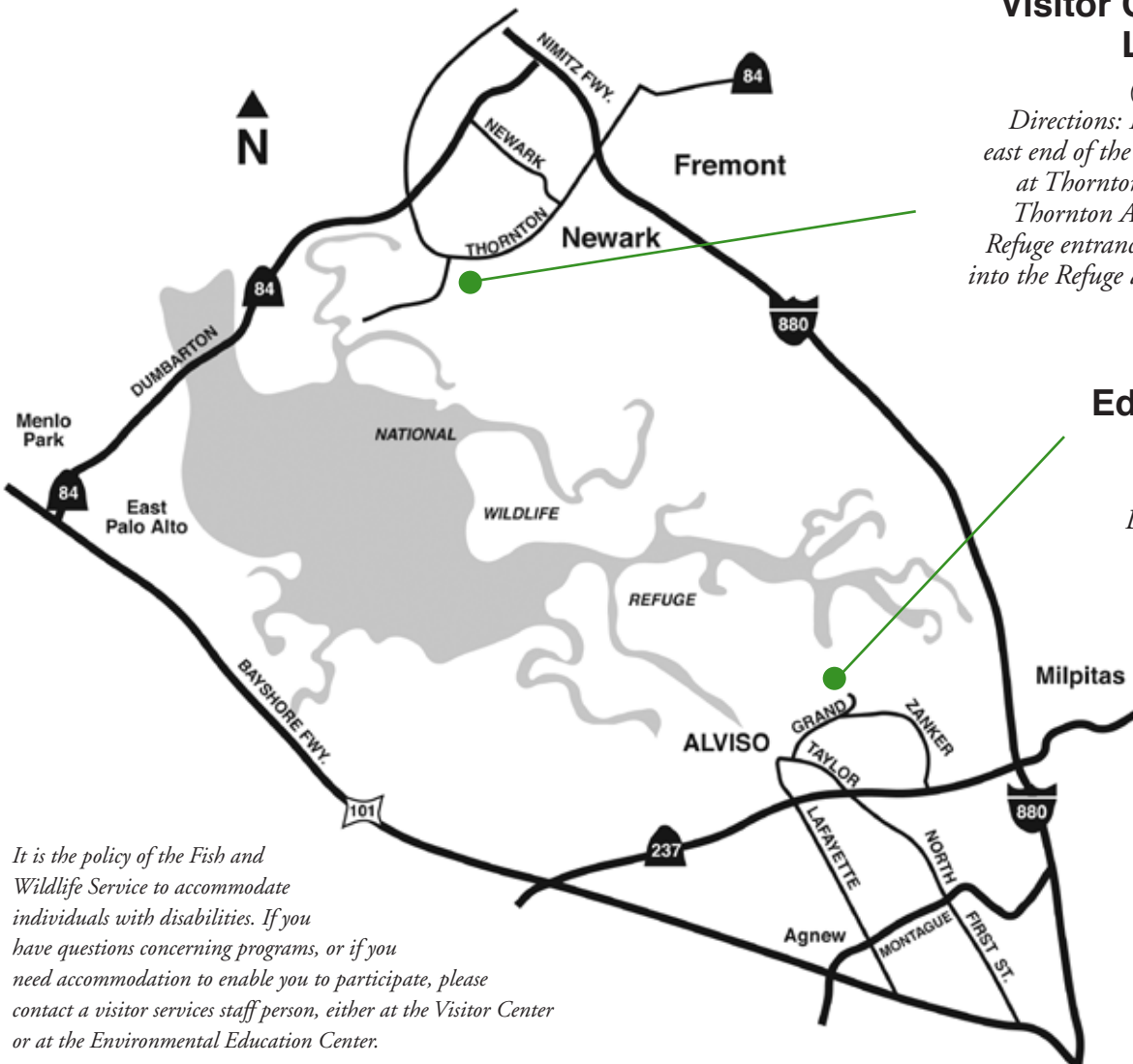
Tideline



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Don Edwards / Antioch Dunes / 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 Highway 101, exit on Highway 237 toward Mountain View/Alviso. Turn north onto Zanker Road. Continue on Zanker Road to the Environmental Education Center entrance road (a sharp right turn at Grand Blvd.) The distance from 237 to the entrance road is 2.1 miles.

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.