

SUMMER 2009
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Tideline



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

Return of the Swallows

By Roy Sasai

Who said the housing market is in a slump? Last month, the building of new homes was non-stop. Abandoned homes were once again filled. Those homes, once in disrepair with cobwebs, cracks and missing walls, are now repaired and occupied. The real estate market is raging with absolutely no vacancies anywhere. As I look up to peer at the condos, I can hear the roar of hundreds of cars traveling on the freeway above them. You wouldn't think that homes near a highway would become prime real estate but the Dumbarton Bridge has become just that. It provides homes to hundreds of Cliff Swallows (*Petrochelidon pyrrhonota*). The story would be the same at most of the bridges around the bay. Like the historic Return of the Swallows of San Juan Capistrano near San Diego, our very own "Swallows of San Francisco Bay" have come back to their breeding grounds.

Upon their arrival to the Bay Area, similar to the California Gold Rush of 1848, they will immediately stake a claim to their new home site. You'll often see hundreds of nests on the east side of the



Cliff swallow condos

Dumbarton Bridge on the Don Edwards San Francisco Bay National Wildlife Refuge as these birds are colonial nesters who like to build in large groups. Like the gold the prospectors sought, the swallows are looking for the riches the Bay Area provides. Food is plentiful during the summer months and there is enough mud to build a bazillion homes. The swallows were so linked with their unusual habit of using mud that Medieval Europeans, who were unaware that birds migrated, believed that swallows went into hibernation in the mud during the winter.

Cliff Swallows are aerial songbirds. They are one of 89 species of swallows

worldwide. They appear on all continents except Antarctica (due to food availability) and are found in great numbers in Africa and South America. Cliff Swallows are typically five inches in length weighing approximately 6/8 ounce (This is about the weight of 10 pennies), with a short black bill, white forehead, and dark brown throat.

You can readily identify Cliff Swallows by their coat of metallic blue on their head and back as they fly like jets, darting back and forth with their blue-black saber shaped wings. Looking carefully you can see that their undercarriage is white with a short,



Photo: Ron Wolf

continued next page

but wide, squared off tail that allows them to stay aloft for long periods. They have very short legs and small feet so their walk is akin to Charlie Chaplin's famous shuffle.

The male and female look so similar it is difficult to tell the sexes apart, unlike ducks where females are camouflaged for protection as they nest in the brush. Building nests in hard to climb places (vertical walls) may be the reason why there is no need for camouflage.

Swallows are protected by the Migratory Bird Treaty Act of 1918, in which it is prohibited to kill, capture, possess, sell, or ship these birds. This act also protects their nests and eggs. So I observe and take pictures, but don't touch.



Photo: Carmen Minch/USFWS

The Cliff Swallow spends its winters as far south as the Amazon Rain forest and up to the eastern slopes of the Andes, living in trees without a nest. Seasonal migration helps birds get to abundant food sources and better climates each year. The days are longer in the higher latitudes here in North America, which allows more time for food gathering. They begin their 5,000-mile trek each spring with the main intent to fly northward to their breeding grounds. They need to fly to where food will be abundant in order to feed a growing family.

When they begin their journey, they will fly at an altitude of 5,000 feet due to their heavier body weight. During their migration, they will lose up to half of their weight, and will reach cruising altitudes of up to 20,000 feet to avoid dehydration in the lower and warmer altitudes. Being diurnal, or active during the day, they will travel during the daylight hours.

A popular belief that the swallows return on a specific date each year is not true. The famed return celebration of the "Swallows of San Juan Capistrano" is scheduled yearly on March 19, but in actuality, their arrival depends upon the availability of food along their northward route. In the past several years, the swallows of Capistrano have not returned because of what some believe is the result of the development of homes and shopping centers

over much of the city. With such large flocks migrating together, it is crucial that there is enough food for all. Otherwise, the birds could starve by arriving before the insects appear or to areas where insects are no longer found. In the Bay Area the swallows arrive between April and May via the Pacific Flyway. The Don Edwards San Francisco Bay National Wildlife Refuge provides plenty of foraging and nesting habitat for them.

Once they arrive, you can hear their mating calls as couples will pair up by their



Photo: Stephen Turner

"twittering" during the early morning hours. Swallows will begin breeding at the age of one year as their life expectancy is about eight years. Their homes are typically built on a vertical surface protected from the elements by an overhang. They often return to the same nests each year, and if the nests haven't survived the winter, they will rebuild in the very same place. The male will stake out a nesting claim and await the arrival of the female to help him begin building their home. They will begin to build their bubble-shaped mud nest, gathering the mud from the nearby marsh and bay. They build their nests one beak-full at a time. It will take them one to two weeks to complete their home, building at a rate of about one inch per day. The average nest will use anywhere between 900 to 1,200 mud pellets to make a sphere of 7" by 7" with a two-inch opening at the top. The cliff swallows are purists in their home building. They only use mud while their close relative, the Barn Swallow (*Hirundo rustica*), will intertwine twigs, feathers, weeds and other foreign materials into their homes. Barn Swallows can be seen on the footbridges on the Tidelands Trail in Fremont and at the Environmental Education Center in Alviso.

Cliff Swallow nests are built so densely that they will touch their neighbor's home. Colonies can have upwards of 3,700 nests in one spot! Living so close to their neighbors does have its drawbacks, as parasites, promiscuity, and egg dumping can occur. Lice and other parasites can easily travel amongst the nests. Close quarter living can also interfere with their monogamous relationships. Pairs may become promiscuous and mate with neighbors, or they may lay eggs in others nests to be fostered by unknowing neighbors.

Each pair will have a brood of four to five spotted white eggs, incubated by the female for 17-24 days. The young are born

altricial, without feathers and their eyes closed. The babies are cared for by both parents and will be strong enough to fly in 17-24 days. Once the young swallows begin to fly, they will often gang together with other youngsters. These gangs are called “creches”, a French word referring to daycare in bird colonies. The kids may look all the same to us, but the youngsters do have distinctive facial plumage which their parents can recognize. The parents can also recognize the voice of their young.

The swallows will fly from the nest hundreds of times a day to capture food, feeding on mosquitoes, brine flies, and any other flying insects. They use their keen eyesight to target their meal, using a swooping flight pattern to attack swarming insects often found near the marsh and shoreline. They follow each other to find food and can also alert one another through calls to food sources. They can also eat larger prey such as small beetles and winged ants, as they have very strong jaws. Perhaps you’ve seen them

skimming over fresh water and dipping their bill for a drink, or bathe by splashing quickly into fresh water, similar to us taking a quick shower.

Watching them flutter, dive, and dart, I can feel their sense of urgency as the entire family must be ready to leave for South America by September. As fall arrives in a few months, the days will grow shorter, the temperature will grow cooler, and the food will begin to diminish. This will be the final signal to the swallows that it is time for them to begin their migration southward and the droves will leave together. The swallows’ homes will once again be silent and empty. The cobwebs will grow over the doorway and the cold winter wind will once again whistle amongst the hollow homes. As I watch the swarms of swallows above me, I am reminded of the similarity of our own housing market and how it will also be full and robust again, once the right conditions re-appears.

To see the Cliff Swallows and hear more about them, join Roy Sasai on a van ride to the Dumbarton Fishing Pier on June 14, July 12, and August 9. Times vary. See the activity section beginning on page 10 for more details.

Roy Sasai is a volunteer at the Don Edwards San Francisco Bay National Wildlife Refuge Visitor Center and used this opportunity to learn more about the preservation of our wildlife and environment. He enjoys investigating the wildlife which is often unnoticed while driving over the Dumbarton Bridge to work each day. The Visitor Center is looking for more community volunteers to provide invaluable support to the Refuge staff.

Skaags Island a welcome addition to San Pablo Bay NWR

In 2002, the U.S. Fish and Wildlife Service requested the transfer of former military base Skaggs Island to the National Wildlife Refuge System, specifically as an addition to San Pablo Bay National Wildlife Refuge. The former tidal marshlands were once integral parts of the larger San Francisco Bay/Delta Estuary. In the 1920’s, over 4,000 acres of North San Francisco Bay tidal wetlands were drained and separated from the surrounding wetlands by flood levees to enable agricultural production. The U.S. Navy purchased 3,310 acres of Skaggs Island in 1941 for use as a military base. The Navy operated the base as a high frequency tracking facility to find and communicate with ships far at sea and as a training facility for the Department of Defense. It closed in 1993.

Since closing, Skaggs Island has been one of our highest priorities for long-term conservation and restoration. Its location just north of Hwy 37 and east of Hwy121 in the San Pablo Bay Area is the key to completion of a region-wide wetland restoration program. These restoration



efforts are beginning to turn the tide on the extensive wetland loss in the greater San Francisco Bay Area, an area that has seen over 85 percent of its original wetlands lost. Much of the surrounding 30,000-acre wetland complex that made up the northern San Francisco Bay Area had already been converted for salt production, agriculture, and other human uses.

Negotiations between the Navy and the U.S. Fish and Wildlife Service have been long and extensive over the years, but recent developments are bringing high expectations for an eventual transfer. The cooperation of many agencies, organizations and individuals including Congressional Representatives has been instrumental in keeping the

potential for this transfer alive. The San Pablo Bay Refuge staff is prepared to take on these additional acres and manage them for wildlife habitat. Plans will be developed for Skaggs Island’s eventual return to wetlands.

San Pablo Bay National Wildlife Refuge is one of seven refuges in the San Francisco Bay National Wildlife Refuge Complex. It encompasses 13,000 acres of tidal marsh, bay, mud flats and seasonal and managed wetland habits. The refuge provides habitat for the endangered Salt Marsh Harvest Mouse and the California Clapper Rail. If you would like to learn more about San Pablo Bay NWR, please go to our website at <http://www.fws.gov/sfbayrefuges/>.

Geocachers welcomed on refuge trails

Bay Carmen Minch

Geocaching, a high-tech treasure hunting activity, has become enormously popular all over the world. Since May 2000, when the United States Government permitted public global positioning systems (GPS) to become more precise, more than 700,000 caches have been logged by high-tech treasure hunters worldwide. Creative techies, wanting to test the accuracy of their GPS units, began to hide stashes, or caches, to see if other like-minded people could find them. They did. And so, the hunt was on. The thrill of finding a cache appeals to just about everyone - kids, adults, couples, and families.

Geocaching can be a perfect marriage between technology and outdoor recreation. The growing popularity of the sport has introduced new audiences to public parks and scenic outdoor spaces, including Don Edwards San Francisco Bay National Wildlife Refuge. The aspects of the sport present unique challenges to refuge managers. For example, despite improvements to GPS technology over the years, there is still a margin of error of about 60 feet. The impreciseness of GPS creates a dilemma for refuges which must protect sensitive habitats for wildlife. Federal regulations also prohibit people searching for buried treasures, treasure troves or taking anything from a national wildlife refuge.

Refuges, including Don Edwards San Francisco Bay, are working through these challenges and are looking to geocaching as an innovative way to introduce new sets of visitors to refuges. The unique combination of GPS technology and outdoor recreation helps refuges showcase lesser-known areas and expands visitors' knowledge of the refuge, and the role of the National Wildlife Refuge System.

Many geocachers will tell you the items in the cache are not really the reward - it is the hunt itself. With this in mind, staff at Don Edwards San Francisco Bay Refuge have created a challenging, refuge-friendly multi-cache activity that gets people out on the refuge without impacting sensitive habitats and other refuge resources. Rather than hiding a cache on a trail, the activity leads the geocacher to 10 locations on the refuge. At each of the refuge locations, the person must answer a question correctly. Once all 10 sites have been visited (some may involve



Photo by Nancy Pickett



Photo by Mike Smelser



Photo by Gail Ivey



Photo by Kan Parsons

Photos taken by geocachers on their Refuge Roundup Adventure

walking on a trail for up to three miles), the geocacher must go to the refuge visitor center to present the answers to the visitor center staff. After confirming that the 10 questions have been answered, the person then has access to the cache located inside the visitor center where he or she can sign the log book and leave and take something from the cache box. To make it a bit more interesting, a combination lock has been placed on the cache box. The combination is derived from some of the answers on the answer sheet. The last digit is given to the person when he or she comes into the visitor center with answer sheet.

Coordinates, information about the site, and the 10 questions can be downloaded from the refuge's website at www.fws.gov/desfbay or at www.geocaching.com code GC1HQ1W . The latter website is used by geocachers to locate and obtain coordinates of caches in their area, and to log their finds.

Feedback has been great: here is just one of several quotes from geocachers who found the Don Edwards Refuge Refuge Roundup cache:

. . . it's a fabulous cache adventure, laid out to visit the highlights of most of the wildlife refuge, which is beautiful and different in each of its areas. The hikes are easy even if they are long, because they are on wide, flat, well-maintained trails. Coords for the plaques and signs involved in the necessary questions are good. We learned a lot (well, I learned a lot; Touchstone will have to speak for himself) in the process of reading the signs and doing this cache. We had a lot of fun seeing parts of the baylands we might never have gotten to otherwise. . .

More feedback is available online at geocaching.com.

Environmental Education Center in Alviso Doubles as a Research Site

by David Thomson

For over a decade Don Edwards San Francisco Bay National Wildlife Refuge staff and volunteers of the Environmental Education Center in Alviso painstakingly battled nonnative, invasive plants in an upland area where the Marsh View Trail traverses. With hard work and persistence they succeeded in turning what was once a solid mass of 6-foot tall weeds into mostly open ground.

Unfortunately, the native plants did not return by themselves. And since open ground invites opportunistic weeds to take root, volunteers had to laboriously continue weeding. After a decade this seemed like a never-ending story; something had to change. If the area was vegetated with native plants there would be less open ground available for nonnatives. The Refuge invited Peter Baye, a local botanist and coastal plant ecologist, to identify the native plants that once thrived in the area and to develop a native plant community design for the 10-acre site. The plan also proposed several techniques, including seeding grasses as a cover crop to preclude weeds, which were tested over several growing seasons.

Although we have met with some success, overall success was not to be had so easily. We have learned from our setbacks and will be applying that knowledge this fall. We now know seeding grasses and controlling weeds is not enough. The soil that was trucked in to create these uplands was nutrient-poor, and grasslands flourish on moderate to high fertility soils (which is why most grasslands had been converted into farmland in this country). We tried improving the soils last fall, but it was not enough. The soils contain a seed bank full of nonnative forbs (broad-leaf plants) that are capable of thriving on poor soils. How can struggling grasses compete against the invasive plants in their element? And finally, even if we discovered a method of establishing grasses on poor soils, how do we keep the army of grass-eating rabbits, Canada Geese, and other birds at bay?

Last year the Refuge received several grants to study these challenges. This new phase of the project works on researching methods for managing vegetation in habitats adjacent to San Francisco Bay. The ultimate goal is to create self-sustaining habitats beneficial to native plants and wildlife. Our conclusion is the grasses need help, and the strong performance of native forbs leads us to



Upland ground in 2006 cleared by volunteers and refuge staff. Photo: Cris Benton KAP



Grassland community. Photo: David Thomson

believe they are the ones to help. Poor soils, heavy animal browse, and drought conditions don't appear to bother it in the slightest. This patch was the last bit of evidence we needed to change our focus.

Our findings led us to ask why we are trying to create a grass-dominated plant community from scratch. Why not a native forb-dominated plant community? Or better yet, why not a mixture of native grasses and forbs, working together to hold the weeds at bay? Perhaps one day the forbs will have worked the soils enough, improving them to a point where grasses can take over the site and create grasslands. A side benefit of this approach is



The foreground is seeded grass mulched with straw. Native forbs are growing in the background sprouted from seed scattered by a volunteer.

Photo: David Thomson

a native forb seed bank will be created in the process, waiting for its opportunity to sprout and compete against any nonnatives that try to come back. Or perhaps the site will remain forb-dominated, which will meet the project goal of controlling weeds and creating native-dominated plant communities. We will be testing these thoughts this fall.

David Thomson is a Restoration Ecologist researching methods on managing habitats adjacent to San Francisco Bay.

Don Edwards San Francisco Bay *National Wildlife Refuge*



Teens take action! **BE A HABITAT HERO**

July 14– 17, 2009

If you are a teen entering 7th grade or above and have the desire to develop leadership skills through team-building activities and community service on a National Wildlife Refuge this is a program for YOU! Participants will also serve at one of our special events in 2009. We are specifically recruiting Junior Leaders for our Marsh-In Summer Camp later in the summer. The program is FREE, but space is limited. Applicants must attend all four days of the program and be able to fulfill the service component in 2009.

How to apply: Please submit a letter (one page) of interest (with your name, age, address, phone number, parent/guardian's name) indicating why you would like to participate AND a letter of reference from someone who knows you well (teacher, coach, neighbor, etc.). **Application deadline is 5:00 pm on Friday, June 12, 2009.** Participants will be notified by mail and subject to parent/guardian approval. Questions? Please call Tia at 510-792-0222 ext. 36.

Please send your letters to:

Habitat Heroes
c/o EE Specialist
9500 Thornton Avenue
Newark, CA 94560



*What are YOU
doing to save the
environment?*

Congratulations to the 27th Annual Endangered Species Poster Contest Winners!

Congratulations to Catherine Wang for taking the Best in Show in the Don Edwards San Francisco Bay National Wildlife Refuge 27th 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 6th grade along with Honorable Mentions can be viewed on-line at www.fws.gov/desfbay/contest.htm. Posters were judged for their attention to detail, portrayal of the habitat, and for the written paragraph describing the species. A huge thank you to the San Francisco Bay Wildlife Society for sponsoring the event!

Other winners include:

Kindergarten:

1st Place: Sophia Benton, Parkmont Elementary

2nd Place: Praveen Kandasamy, Parkmont Elementary

3rd Place: Grace Bergquist, Mattos Elementary

Honorable Mention: Sachat Arun, New Horizons Elementary

First Grade:

1st Place: Afzal Khan, Oliveira Elementary

2nd Place: Dorothy Luo, Gomes Elementary

3rd Place: Patrick Liu, Gomes Elementary

Honorable Mention: Kellie Chen, Gomes Elementary

Second Grade:

1st Place: Kunal Patel, Parkmont Elementary

2nd Place: Karina Gadkari, Mission Valley Elementary

3rd Place: Omar Mahmood, Bunker Elementary

Honorable Mention: Gini Lo, Vallejo Mill Elementary



Best in Show: San Joaquin Kit Fox by Catherine Wang, Chadbourne Elementary, 6th Grade

Third Grade:

1st Place: Pawan Sohal, Pioneer Elementary

2nd Place: Sami Khan, Ardenwood Elementary

3rd Place: Aditi Cuddalore, Mission Valley Elementary

Honorable Mention: Kudrat Paul, Pioneer Elementary

Fourth Grade:

1st Place: Ariana Chen, Gomes Elementary

2nd Place: Nitya Vakil, Mission Valley Elementary

3rd Place: Humza Mahmood, Bunker Elementary

Honorable Mention: Christine Yu, Mission Valley Elementary

Fifth Grade:

1st Place: Sreejay Pedapenki, Parkmont Elementary

2nd Place: Jennifer Breton, Blacow Elementary

3rd Place: Geralyn Moore, Ardenwood Elementary

Honorable Mention: Tracy Mao, Mission Valley Elementary

Sixth Grade:

1st Place: Sneha Patkar, Mission Valley Elementary

2nd Place: Madeline Zheng, Gomes Elementary

3rd Place: Lesley Lu, Gomes Elementary

Honorable Mentions: Stephen Lau, Gomes Elementary and Lillian Dong, Chadbourne Elementary

View winning posters at
<http://www.fws.gov/desfbay/contest.htm>

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 17, 2009 and March 31, 2009. These gifts will be used for capital, environmental education, habitat restoration, and interpretive programs at the Don Edwards San Francisco Bay National Wildlife Refuge.

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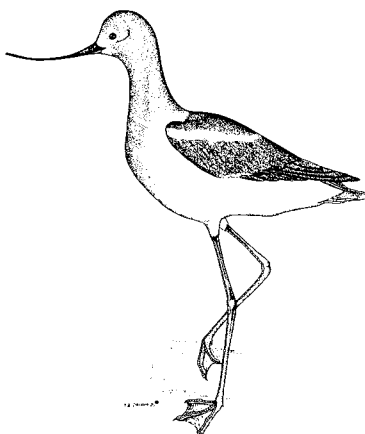
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Help Us Help the Refuge

Mail your donation to: San Francisco Bay Wildlife Society, P.O. Box 234, Newark, CA 94560. You may also fax your membership donation using a Visa or MasterCard number to (510) 745-9285.

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

San Francisco Bay Wildlife Society is a nonprofit 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 _____

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The San Francisco Bay National Wildlife Refuge Complex Visitor Center in Fremont has Migrated to a New Location!

Visitors have noticed several changes taking place at the San Francisco Bay National Wildlife Refuge Complex at Headquarters in Fremont. Amongst them is the location of a new visitor contact station adjacent to the LaRiviere Marsh trailhead.

One of the primary goals for this project was to provide a universally accessible visitor contact station. After considering several alternatives, including retrofitting the original contact station/museum on Level 3 of our 30-year old Refuge headquarters building, we decided the option that would best meet the needs of the visiting public was to open a new facility along Marshlands Road. The new building is as large as space and clearance from overhead power lines will allow. The “kids corner” in the new contact station will likewise be accessible. An audiovisual room will include space where we will be able to emphasize the importance of “Connecting People to Nature” as well as provide ideas/materials to facilitate those connections. Exhibits are being developed which will present an updated image of the San Francisco Bay National Wildlife Refuge Complex and the habitat restoration activities currently underway on our seven local refuges.

A second primary goal for the renovation was to make the entire headquarters building “greener” by replacing the original



View from the new visitor center

HVAC system and modernizing the aging telephone communication system. Adding eight offices to Level 3 will also provide much needed space for staff. Once renovation of Level 3 is complete, we will open the conference room, loft, lobby and restrooms to the public as often as staffing allows.

Throughout this process, we have tried to be mindful of the need to retain the

building’s historical integrity.

We appreciate everyone’s patience during the renovation period. Please feel free to contact the San Francisco Bay NWR Complex Project Leader Mendel Stewart at (510) 792-0222 extension 23 or our Visitor Services Chief, Karla Tanner, at (510) 792-0222 ext. 39.

Special Project Needs Your Help!

The Don Edwards San Francisco Bay National Wildlife Refuge Environmental Education Center (EEC) in Alviso needs your help! The San Francisco Bay Wildlife Society has been awarded funds from the Preserve America Matching Grant from the National Fish and Wildlife Foundation for developing an interpretive exhibit at the EEC auditorium. As one of the conditions of the grant, we need to raise funds to match the award from the Foundation. We have secured all but \$2,000 to meet our goals!

This exciting exhibit will include historical and modern artifacts, and five interpretive panels featuring artwork by local artist Emmett Dingle. The exhibit will provide nearly 100,000 visitors to the Environmental Education Center with a comprehensive overview of how bay land habitats have been influenced and used by the Ohlone people, Spanish missionaries, European settlers, and present-day Californians, and how we can restore and preserve these lands for future generations of people and wildlife.

Please send your tax-deductible donation to the SF Bay Wildlife Society Preserve America Project, PO Box 234, Newark, CA 94560. Please write “Preserve America Project” on the check.

For questions about the project or if you have historical information or artifacts to share, please call Genie Moore, Environmental Education Center Director at 408-262-5513 ext. 100 or Sue Ten Eyck, Program Administrator, San Francisco Bay Wildlife Society at 510-745-8170.

Summer Activity Schedule

June

Saturday, June 6

Mallard Slough Trail – 5.5-mile loop

Environmental Education Center, Alviso

9:00 a.m.

Let's Go Outside!

This is the third walk featured in the Refuge Rambler club. It also commemorates 20 years of progress on the San Francisco Bay Trail, a regional shoreline trail that will extend 500 miles around the entire perimeter of the Bay. The Mallard Slough Trail is 5.5 miles, 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. To become a Refuge Rambler, log on to <http://www.fws.gov/desfbay>. No reservations are needed. Refuge staff will be there to greet you at 9 a.m. Directions: See map on the back for driving directions to the EEC.

*Marshlands of Dreams

New Visitor Center, Fremont

11:00 a.m. – 12:00 p.m.

Join a refuge ranger 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. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Led by Paul Mueller.

Twilight Marsh Walk

New 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. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-745-8695. Led by Mary and Gene Bobik.

Sunday, June 7

Webelos Naturalist Program

New 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. Space is limited to 15 Webelos. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Call 510-745-8695. Led by June Smith.

Botany Bash

Environmental Education Center, Alviso

1:00 p.m. – 3:00 p.m.

Don't know the difference between a poppy and a pickleweed? Then this program is for you! A short presentation will be followed by a plant identification walk around our California Native Butterfly Garden. Come and learn about the diversity, function, and importance of our local plants and the role they serve in refuge habitats. RESERVATIONS REQUIRED – Ages 10 and up. Call Eric at 408-262-5513 ext. 104.

Saturday, June 13

Exploring the Dunes

Antioch Dunes NWR, Antioch

10:00 a.m. – 11:00 a.m.

Did you know there's a National Wildlife Refuge in Antioch? Here's your chance to explore this refuge that is usually closed to the public. This guided tour (1-1.5 mile) will focus on the wonders of Antioch Dunes National Wildlife Refuge. Wear sturdy shoes for the sandy hike along the dunes. All ages welcome. No reservations required. No facilities. Contact 510-521-9624 for additional information and directions.

A Trip Back in Time

New 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. Ray spent most of 2004 researching the on-site salt production, railroads, and homes that were located on the refuge grounds until the 1950s. Using a collection of old photographs, the last vestiges of a way of life can be traced back to the 1850s that led to the construction of the town of Newark in 1876.

* Birding by Van

Environmental Education Center, Alviso

10:00 a.m. – 12:00 p.m.

Ever wonder what birds are hiding in our very own backyards? Visitors will get a chance to enjoy a minivan excursion with birding enthusiast Ceal Craig as we drive around the salt ponds to view a variety of birds. Program is intended for adults and space is very limited. RESERVATIONS REQUIRED. Call Debra at 408-262-5513 ext. 102.

Sunday, June 14

Return of the Swallows

New Visitor Center, Fremont

10:00 a.m. – 11:00 a.m.

Join Roy Sasai to view the cliff swallows and their nests by the Dumbarton Fishing Pier. Meet at the Visitor Center to take a ride in the van to the site. Learn about this species' natural history, their habits, and unusual homes. Space is extremely limited. Reservations are required. Call 510-745-8695.

Saturday, June 20

Pond A3W Trail – 6.8-mile loop

Meet at the Trailhead in Sunnyvale.

Directions Below.

9:00 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 in Sunnyvale is 6.8 miles, flat, and level. This trail is normally closed to the public. The walk is self-paced and you may turn back at anytime. You do not need to be a Refuge Rambler to join this

walk. To become a Refuge Rambler, log on to <http://www.fws.gov/desfbay>. No reservations are needed. Hats, water, and sunscreen are strongly recommended. Refuge staff will be there to greet you at 9 a.m. Directions: From Hwy 101 or 880, exit onto Hwy 237 towards Alviso. Take the Caribbean Dr. exit and head north onto Caribbean Dr. 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.

Sunday, June 21

* Father's Day Beginning

Bird Watching

Environmental Education Center, Alviso

10:00 a.m. – 12:00 p.m.

Come join us for a special Father's Day Beginning Bird Watching walk! This will be a great way to spend time with family and also learn about many local and migratory birds. Start with a slide show indoors to learn how to recognize the regulars, then borrow binoculars and take a walk to try out your new skills. All ages welcome. Reservations required – please call Debra at 408-262-5513 ext. 102.

*Father's Day in The Marsh

Environmental Education Center, Alviso

2:00 p.m. – 4:00 p.m.

Give Dad the day off and take him on a relaxing vacation to the Environmental Education Center in Alviso where he can enjoy a day with the family. After a brief slideshow about the refuge, we'll take a guided walk around the different wetland habitats searching for native plants and animals. RESERVATIONS REQUIRED – All ages are welcome. Call Eric at 408-262-5513 ext. 104.

Saturday, June 27

* Wetland Safari

Environmental Education Center, Alviso

9:30 a.m. – 11:00 a.m.

Take a 1-hour van tour around our former salt ponds. Bird life is generally more abundant farther away from the EEC. We will make several stops for better viewing and photography (if desired), plus we'll take a look at what is left of Drawbridge. Due to limited van seating, a second tour will begin at 11:00 a.m. if needed. RESERVATIONS REQUIRED. Call Debra at 408-262-5513 ext. 102.

Life at the Bottom of the Food Chain

NEW 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 in the Visitor Center; 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 510-745-8695 for reservations.

Salt Pond Restoration 101: An Introduction to the Project

Environmental Education Center, Alviso

2:00 p.m. – 3:00 p.m.

Restoration of 15,100 acres of South San Francisco Bay salt ponds to wetlands habitats has begun. Please join us for an overview of this incredible project happening in our backyard. Program will be held indoors in the auditorium. All are welcome! Led by Jennifer Heroux.

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

Visitor Center, 1 Marshlands Road, Fremont – (510) 745-8695 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513

*Family Bird Walk

New Visitor Center, Fremont

2:30 p.m. – 4:30 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. Learn about the salt marsh habitat along the way. A limited number of binoculars are available to borrow. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Call 510-745-8695.

Sunday, June 28

Salt Marsh Adventure for Children

New Visitor Center, Fremont

3:00 p.m. – 5:00 p.m.

Come for a short walk to a section of the salt marsh as we go on our adventure to study the plant and the animal life. We shall explore the marsh using magnifying glasses of various shapes and sizes plus reward the kids with some pictures and posters. Children must be accompanied by a responsible adult. The program is targeted for kids ages 6 to 10. Reservations are required. Call 510-745-8695. Led by Mansur Nur.

July

Saturday, July 11

Shoreline Trail – 8 miles

Dumbarton Fishing Pier Parking Lot, Fremont

9:00 a.m.

Let's Go Outside!

Meet new people while getting fit and healthy! This is the fifth 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. A refuge representative will be there to greet you at 9 a.m. Directions: See map on the back. Drive three miles down Marshlands Rd until it ends in the parking lot.

* Drawbridge Van Excursion

Environmental Education Center, Alviso

9:30 a.m. – 12:00 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.)

Exploring the Dunes

Antioch Dunes NWR, Antioch

10:00 a.m. – 11:00 a.m.

Did you know there's a National Wildlife Refuge in Antioch? Here's your chance to explore this refuge that is usually closed to the public. This guided tour (1-1.5 mile) will focus on the wonders of Antioch Dunes National Wildlife Refuge. Wear sturdy shoes for the sandy hike along the dunes. All ages welcome. No reservations required. No facilities. Contact 510-521-9624 for additional information and directions.

* Beginning Bird Photography Workshop

Environmental Education Center, Alviso

2:30 p.m. – 4:30 p.m.

Whether you are interested in photography tips or would like to get to know some of the birds commonly sighted at the refuge, join us! We will discuss ideal sighting and photography conditions, lighting, composition, and equipment. We will also have a slideshow to familiarize you with some common birds at the refuge. Then we will go on an easy walk and try our skills. Please be sure to bring your camera and/or binoculars, and wear comfortable walking shoes. Led by Jennifer Woo. Ages 14 and up. RESERVATIONS REQUIRED. Please call Debra at 408-262-5513 ext. 102.

*Marshlands of Dreams

New Visitor Center, Fremont

3:30 p.m. – 4:30 p.m.

Join a refuge ranger 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. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Led by Paul Mueller.

Twilight Marsh Walk

New 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. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-745-8695. Led by Mary and Gene Bobik.

Sunday, July 12

*Bird Drawing and Sketching

Environmental Education Center, Alviso

1:00 p.m. – 3:00 p.m.

Grab a pencil and some paper and join us for an introduction to drawing and sketching our feathered friends. We will go over the basic concepts of pencil drawing and use refuge specimens to take a closer look at shapes and forms to help bring your drawings to life! RESERVATIONS REQUIRED – Ages 10 and up. Call Eric at 408-262-5513 ext. 104.

Return of the Swallows

New Visitor Center, Fremont

3:00 p.m. – 4:00 p.m.

Join Roy Sasai to view the cliff swallows and their nests by the Dumbarton Fishing Pier. Meet at the Visitor Center to take a ride in the van to the site. Learn about this species' natural history, their habits, and unusual homes. Space is extremely limited. Reservations are required. Call 510-745-8695.

Wednesday, July 15

* Monster Bacteria & Other

Suspicious Critters

Environmental Education Center, Alviso

1:30 p.m. – 3:30 p.m.

Explore the salt marsh's hidden habitats. See monster bacteria, some of whom love rotten eggs, and some of whom makes the air we breathe. Microbial ecologist Wayne Lanier will take you on a short hike where you will use field microscopes to dive

Summer Activity Schedule

down into a tiny world – an ecology hidden from view. Don't miss this unique opportunity to see the marsh closer than you ever have before. Recommended for ages 8 to 80. Reservations required. Call Debra at 408-262-5513 ext. 102.

Saturday, July 18

Bike Tour on the Levees

Environmental Education Center, Alviso

9:30 a.m. – 11:30 a.m.

The salt ponds of the South Bay are undergoing an amazing transformation! Journey by bike out into this unique landscape and discover the rebirth of the Bay's edge through wetlands restoration. Salt Ponds A16 and A17 will play a starring role in this leisurely 5.5-mile tour of the South Bay Salt Pond Restoration Project. Helmets are required and knobby tires strongly encouraged. Recommended for ages 8 and over. RSVP by calling Jennifer at 408-262-5513 ext.106.

A Trip Back in Time

New 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. Ray spent most of 2004 researching the on-site salt production, railroads, and homes that were located on the refuge grounds until the 1950s. Using a collection of old photographs, the last vestiges of a way of life can be traced back to the 1850s that led to the construction of the town of Newark in 1876.

* Brownie Eco-Explorer Patch

Environmental Education Center, Alviso

10:30 a.m. – 12:30 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 bottom of the bay. Maximum ratio of 1 adult to 5 children. Space is limited to 20 people and program fills quickly. RESERVATIONS REQUIRED. Reservations for summer scout programs begin on Thursday, June 18 between 3-4 p.m. and will continue until program is booked. Call Debra at 408-262-5513 ext. 102.

Saturday, July 18

* Butterflies, etc.

Environmental Education Center, Alviso

1:30 p.m. – 3:30 p.m.

Do you know the difference between butterflies, moths and skippers? Learn about them and their life cycles from refuge volunteer Ed Kantack. Then take a leisurely walk around our butterfly garden to see some of the beautiful insects! Suitable for ages 7 and up. Reservations required – please call Debra at 408-262-5513 ext. 102.

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

Visitor Center, 1 Marshlands Road, Fremont – (510) 745-8695 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513

Summer Activity Schedule

Sunday, July 19

*A Taste of the Refuge

NEW 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. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Led by Carmen Minch.

Tuesday, July 21

* Discover Native Species

Environmental Education Center, Alviso

10:30 a.m. - 12:00 p.m.

Want to know more about native plant and animal species? Here is the program for you! Come learn all about them with an informative walk through our native plant demonstration garden. Take a look at some great drought-tolerant plants for Bay Area gardens that attract wildlife and will add beauty to any garden. Led by native plant specialist, June Smith. Program is intended for adults, but all ages are welcome. Reservations required. Call Debra at 408-262-5513 ext. 102.

Thursday, July 23

* Marshes, Mud and Plankton – Oh My!

Environmental Education Center, Alviso

1:30 p.m. - 3:30 p.m.

Who knows what lurks in the mud or hides in the marshes? Come join us to find out! We'll be scientists for the day: taking a hike through the salt marsh; collecting water and mud samples; and using microscopes to make some fascinating discoveries. Suitable for ages 7 and up. Reservations required. Call Debra at 408-262-5513 ext. 102.

Saturday, July 25

Cruisin' Towards Restoration

Environmental Education Center, Alviso

9:30 a.m. - 12:00 p.m.

The salt ponds of the South Bay are undergoing an amazing transformation. We'll journey by van out into this unique landscape to discover the rebirth of the Bay's edge through wetlands restoration. Recommended for ages 12 and over. Space is very limited. RESERVATIONS REQUIRED. Call Jennifer at 408-262-5513 ext. 106.

*Family Bird Walk

New Visitor Center, Fremont

2:30 p.m. - 4:30 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. Learn about the salt marsh habitat along the way. A limited

number of binoculars are available to borrow. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Call 510-745-8695.

Sunday, July 26

Chompers and Stompers

Environmental Education Center, Alviso

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

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

Salt Marsh Safari for Adults

New Visitor Center, Fremont

3:00 p.m. - 5:00 p.m.

How can anything survive in a salty, gooey place that gets flooded twice a day? Come along on this short nature walk and discover the answer! Reservations are required. Call 510-745-8695. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Led by Mansur Nur.

August

Saturday, August 1

*Marshlands of Dreams

New Visitor Center, Fremont

9:30 a.m. - 10:30 a.m.

Join a refuge ranger 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 farms, railroads, salt production, and quarries. There are opportunities for bird watching as well. Meet at the new Visitor Center located by the first parking lot to the right after on Marshlands Road.

* Junior Girl Scout Wildlife Badge

Environmental Education Center, Alviso

10:30 a.m. - 12:30 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. Maximum ratio of 1 adult for every 5 children. Space is limited to 20 people and program fills quickly. RESERVATIONS REQUIRED. **Reservations for summer scout programs begin on Thursday, June 18 between 3-4 p.m. and will continue until program is booked.** Please call Debra at 408-262-5513 ext. 102. (Note: badges are not provided)

* Beginning Bird Photography

Workshop

Environmental Education Center, Alviso

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

Whether you are interested in photography tips or would like to get to know some of the birds commonly sighted at the refuge, join us! We will discuss ideal sighting and photography conditions, lighting, composition, and equipment. We will also have

a slideshow to familiarize you with some common birds at the refuge. Then we will go on an easy walk and try out our skills. Please be sure to bring your camera and/or binoculars, and wear comfortable walking shoes. Led by Jennifer Woo. Ages 14 and up. RESERVATIONS REQUIRED. Please call Debra at 408-262-5513 ext. 102.

Sunday, August 2

Mysteries of Wastewater Treatment

Environmental Education Center, Alviso

10:30 a.m. - 12:00 p.m.

The San Jose-Santa Clara Water Pollution Control Plant treats hundreds of millions of gallons of wastewater from millions of people every day using some of the most advanced treatment technologies available. Come and learn about what it takes to make this interesting process happen through a slideshow and hands-on activities. RESERVATIONS REQUIRED - All Ages are welcome. Call Eric at 408-262-5513 ext. 104.

Saturday, August 8

Pond A2W/Stevens Creek East Trail - 8.5 miles

Shoreline Park at Mountain View, Mountain View

Directions below.

Let's Go Outside!

8:30 a.m.

Meet new people while getting fit and healthy! This is the sixth walk featured in the Refuge Rambler club. This trail is 8.5 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. A refuge representative will be there to greet you at 8:30 a.m. Directions: From Hwy 101, take the San Antonio North exit. Head north towards the bay. Turn right at Terminal Blvd and park your car. Meet at the restrooms.

Exploring the Dunes

Antioch Dunes NWR, Antioch

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

Did you know there's a National Wildlife Refuge in Antioch? Here's your chance to explore this refuge that is usually closed to the public. This guided tour (1-1.5 mile) will focus on the wonders of Antioch Dunes National Wildlife Refuge. Wear sturdy shoes for the sandy hike along the dunes. All ages welcome. No reservations required. No facilities. Contact 510-521-9624 for additional information and directions.

Exploring the Weep

Meet at Alviso Marina County Park

10:00 a.m. - 1:00 p.m.

Join expert microbial ecologist Wayne Lanier at the Alviso Marina parking lot on a short bike ride (pedestrians welcome, trip to the Weep site will take longer) to study microbial communities. The Weep is a shallow persistent pond fed by seepage. Over a course of a year, it undergoes very wide swings in salinity. The result is a uniquely rich microbial community of Cyanobacteria, Archeobacteria, Diatoms, Dinoflagellates, and protozoa. Boots are recommended. Ages 10 and up. RESERVATIONS REQUIRED. Call Debra at 408-262-5513 ext. 102.

Oliver Salt Works Photography Hike

Eden Landing Ecological Reserve, Hayward

7:00 a.m. - 9:00 a.m.

Hidden among the salt ponds is one of the East Bay's most intriguing historical sites. The refuge and the South Bay Salt Pond Restoration Project are sponsoring this early morning

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

Visitor Center, 1 Marshlands Road, Fremont - (510) 745-8695 • Environmental Education Center, 1751 Grand Blvd, Alviso - (408) 262-5513

photography hike to the old Oliver Salt Works within the Eden Landing Ecological Reserve. We'll be walking into an area of the Reserve not yet open to the public so please be prepared to walk several miles on unimproved levees. Reservations needed. Please call Jennifer at 408-262-5513 ext.106.

Sunday, August 9

Return of the Swallows

New Visitor Center, Fremont

1:30 p.m. – 2:30 p.m.

Join Roy Sasai to view the cliff swallows and their nests by the Dumbarton Fishing Pier. Meet at the Visitor Center to take a ride in the van to the site. Learn about this species natural history, their habits, and unusual homes. Space is extremely limited. Reservations are required. Call 510-745-8695.

Friday, August 14

Community Service

Environmental Education Center, Alviso

10:30 a.m. – 12:30 p.m.

Do you need to fulfill community service requirements? Or would you just like to come lend a hand? Come help in our native plant garden by removing non-native plants, pruning, mulching, or doing other various jobs that help protect wildlife and clean up our gardens. Great service project for scout groups, high school students needing community service, church groups, or home-schooled groups. Bring your own gloves or borrow a pair of ours. Tools provided. Dress in layers and bring water and sunscreen. Be prepared to get dirty! Ages 9 and up. Participants 18 and under must be accompanied by a chaperone. RESERVATIONS REQUIRED. Call Debra at 408-262-5513 ext. 102.

Saturday, August 15

* Lazy Days of Summer

Environmental Education Center, Alviso

10:00 a.m. – 11:30 a.m.

The hectic days of locating a nesting site and mating are over. Now our wildlife friends are busy raising their families. Join Ed Kantack in a leisurely walk to explore refuge habitats and observe summer living. Bring water and sunscreen! Open to all ages. Reservations required. Call Debra at 408-262-5513 ext. 102.

* Webelos Naturalist Program

Environmental Education Center, Alviso

2:30 p.m. – 4:30 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. Maximum ratio of 1 adult for every 5 children. Space is limited to 20 people and program fills quickly. RESERVATIONS REQUIRED. Reservations for summer scout programs begin on Thursday, June 18 between 3-4 p.m. and will continue until program is booked. Call Debra at 408-262-5513 ext. 102.

Sunday August 16th

Life at the Bottom of the Food Chain

NEW 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 in the Visitor Center; 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 breath and take up the carbon dioxide we produce. Discover how tides shape these vital communities. Easy short hiking level. Ages 9 - 90 years. Call 510-745-8695 for reservations.

Marsh Mud Mania

Environmental Education Center, Alviso

11:00 a.m. - 1:00 p.m.

What's that wiggling and squiggling? Think that brown stuff is just mud? Think again! A living colony of organisms is at work in the mucky-muck. Discover how the smallest of creatures have the largest impact on the ecosystem. Learn how to filter a mud sample and use our microscopes to investigate the creepy crawlies of the sloughs. RESERVATIONS REQUIRED – All ages are welcome. Call Eric at 408-262-5513 ext. 104.

Wednesday, August 19

* Making Tracks

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Who's making all those different tracks? Come join us on an exploration of the mysterious footprints around the refuge, and discover who's behind it all. We'll have a fun indoor activity and then take a hike outside. Each person will also be able to take home their very own hand-made guide! All ages are welcome. Reservations required. Call Debra at 408-262-5513 ext. 102.

Saturday, August 22

Twilight Marsh Walk

NEW 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. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-745-8695. Led by Mary and Gene Bobik.

Sunday, August 23

* Drawbridge Van Excursion

Environmental Education Center, Alviso

9:30 a.m. – 12:00 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.)

Webelos Naturalist Program

New 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. Space is limited to 15 Webelos. Meet at the new Visitor Center located by the first parking lot to the right on Marshlands Road. Call 510-745-8695. Led by June Smith.

Summer Activity Schedule

Deep Ecology in the Marsh for College and University Students

New Visitor Center, Fremont

3:00 p.m. – 5:00 p.m.

Come to the refuge to learn about the basic ecological principles as they apply to a salt marsh. We shall try to understand the nature of the intricate relationships that exist between the various entities found in the marsh. Both the biotic as well as the abiotic factors will be discussed. At the end, we shall come out of the program with a much clearer and deeper understanding on the "interconnectedness as well as the interdependence of objects" in nature. Reservations are required. Call 510-745-8695. Led by Mansur Nur.

Saturday, August 29

Bike Tour on the Levees

Environmental Education Center, Alviso

9:30 a.m. – 11:30 a.m.

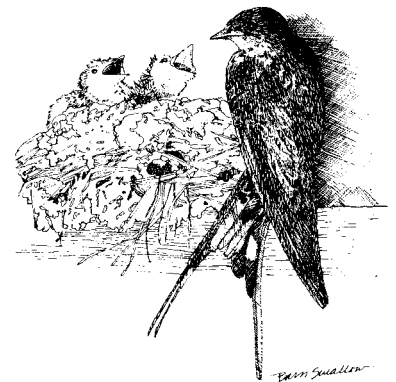
The salt ponds of the South Bay are undergoing an amazing transformation! Journey by bike out into this unique landscape and discover the rebirth of the Bay's edge through wetlands restoration. Salt Ponds A16 and A17 will play a starring role in this leisurely 5.5-mile tour of the South Bay Salt Pond Restoration Project. Helmets are required and knobby tires strongly encouraged. Recommended for ages 8 and over. RSVP by calling Jennifer at 408-262-5513 ext.106.

* Discover Native Species

Environmental Education Center, Alviso

10:30 a.m. – 12:00 p.m.

Want to know more about native plant and animal species? Here is the program for you! Come learn all about them with an informative walk through our native plant demonstration garden. Take a look at some great drought-tolerant plants for Bay Area gardens that attract wildlife and will add beauty to any garden. Led by native plant specialist, June Smith. Program is intended for adults, but all ages are welcome. Reservations required. Call Debra at 408-262-5513 ext. 102.



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

Visitor Center, 1 Marshlands Road, Fremont – (510) 745-8695 • 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 the Newark Slough Learning Center in Fremont, and Wetland Round-Up and Slow the Flow field trip programs 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 Orientation Workshop. The Orientation Workshop allows 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 rotating from station to station. We provide easy to follow "scripts" for each station, but both "leaders" and "chaperones" are strongly encouraged to attend a Field Trip Orientation Workshop. It is our policy that lead educators must attend training every two years. 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 creatures of the mud flats, collect plankton from the slough, and taste pickleweed from the salt marsh. This field trip is designed for grades K-6, for up to 65 students. Wetland Round-Up is offered Tuesday – Friday from October – December 2009 and March – May 2010.

Our facilities are undergoing renovation and our offices have moved. Details about scheduling a field trip for Fall 2009 at the Learning Center in Fremont will be listed on our website and in the Fall issue of *Tideline*. During this transition, it is best to contact us on our cell phone at 510-377-7269. Thanks for your patience and understanding.

Field Trip Orientation Dates at the Learning Center in Fremont

Fall orientations will be announced in September 2009.

Field Trips at the Environmental Education Center in Alviso

Wetland Round-Up

Investigate the butterflies in the butterfly garden, taste pickleweed in the salt marsh, and discover the creatures that live in the slough water on a Wetland Round-Up Field Trip. This field trip program is designed for up to 65 students in grades K-6. Wetland Round-Up is offered Monday – Thursday from October – December 2009 and March – May 2010.

We will begin scheduling Fall 2009 field trips on Thursday, September 10 from 4:00 – 5:00 p.m. We will begin scheduling Spring 2010 field trips on Tuesday, December 8, 2009. For more information, call the Environmental Education intern at 408-262-5513 ext 103.

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

All Orientations are from 4:00 p.m. – 7:30 p.m. Fall orientations will be announced in September.

Call the Environmental Education Intern at 408-262-5513 ext 103 to attend an orientation. ** Please note: The cut off date to make a reservation is the Friday before each orientation date.

The Slow the Flow Program

Slow the Flow provides an experiential learning environment for students and educators to explore the topics of water use, wastewater treatment, and habitat preservation. Activities and presentations focus on the relationship between personal habits and their effects on local habitats. Slow the Flow is an environmental education program offered at no cost through the cooperating efforts of the City of San Jose, U.S. Fish and Wildlife Service, and the San Francisco Bay Wildlife Society. Slow the Flow programs are available to educators and groups located in San Jose, Alviso, Milpitas, Santa Clara, Saratoga, Monte Sereno, Los Gatos, Campbell, and Cupertino.

Programs are offered to 5th – 12th grade students, although a modified field trip is available for college groups. Educators are encouraged to contact us to discuss options for customizing field trips and classroom presentation activities and schedules. Reservations for the Slow the Flow program are on a first – come basis. For more information or to make a reservation for Summer or Fall 2009 call Eric McKee, the Slow the Flow Program Coordinator at 408-262-5513 ext 104.

Free Discovery Packs available at the Environmental Education Center in Alviso!

Explore the salt marsh habitat and the birds of the refuge with your family or small youth group! The Discovery Pack includes an activity booklet and equipment such as magnifying lenses, binoculars and bug boxes that you will need to take a closer look at the salt marsh and the birds! The back pack is suitable for up to six people and for those five-years old and up. There are also group packs available for 12 – 24 people. Please call in advance if you would like a group pack. You can check out the Discovery Packs free of charge at the Environmental Education Center. The Environmental Education Center is open Saturday and Sunday from 10:00 a.m. – 5:00 p.m. For questions please call 408-262-5513 ext 102.

Spring 2009 Scout Programs in Alviso

Offered by the Watershed Watchers Program



The Environmental Education Center in Alviso currently offers free hands-on, small group programs for Scouts. During the programs Scouts learn about endangered species, migratory birds, wetland habitats, and the relationship between personal habits and their effects on the Bay. The programs in Alviso are sponsored by the Santa Clara

Valley Urban Runoff Pollution Prevention Program and the San Francisco Bay Wildlife Society and are hosted at the Don Edwards San Francisco Bay National Wildlife Refuge.

We offer three specific Scout Programs that meet the badge/patch requirements. The Scout Programs offered are:

Webelos Naturalist Badge

Saturday, August 15, 2009

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

Brownie Eco-Explorer Patch

Saturday, July 18, 2009

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

Junior Girl Scout Wildlife Badge

Saturday, August 1, 2009

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

RESERVATIONS ARE REQUIRED.

Programs fill up quickly. **Reservations for summer Scout Programs begin on Thursday, June 18 between 3 p.m. – 4 p.m. and will continue until the program is booked.** To make a reservation or for more information please call Debra at 408-262-5513 ext. 102.

Note: Ratio of 1 adult per 5 children maximum. Space is limited to 20 people, including siblings (no siblings under 5 yrs old). Once the program is full there will be a waiting list. Programs are usually on Saturdays at scheduled times and are roughly two hours. Almost all of the badge/patch requirements will be covered. Weekday programs are offered in the summer and during some school holidays.

Scouts are also invited to make reservations for other weekend programs that may be suitable to their badge/patch needs. Please see the individual program description for more information and who to contact for a reservation. Some of the regular programs offered that may meet badge requirements include: Community Service, Habitat Hike, Special Events, Owl Programs, Butterfly Programs, Mud and Critter Programs, Cleanups, etc.

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Editor: Carmen Minch

To receive *Tideline*, email carmen_leong-minch@fws.gov, or write to: Tideline, Don Edwards San Francisco Bay National Wildlife Refuge, 9500 Thornton Ave, Newark, CA 94560.

San Francisco Bay National Wildlife Refuge Complex

Administered by the U.S. Fish and Wildlife Service, San Francisco Bay National Wildlife Refuge Complex exist 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.

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Deputy Project Leader: John Bradley

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Don Edwards Warm Springs Unit Manager: Ivette Loreda

Farallon Refuge Wildlife Specialist: Zach Coffman

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North Bay Wildlife Specialist: Louis Terrazas

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

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SUMMER 2009
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Headquarters & Visitor Center

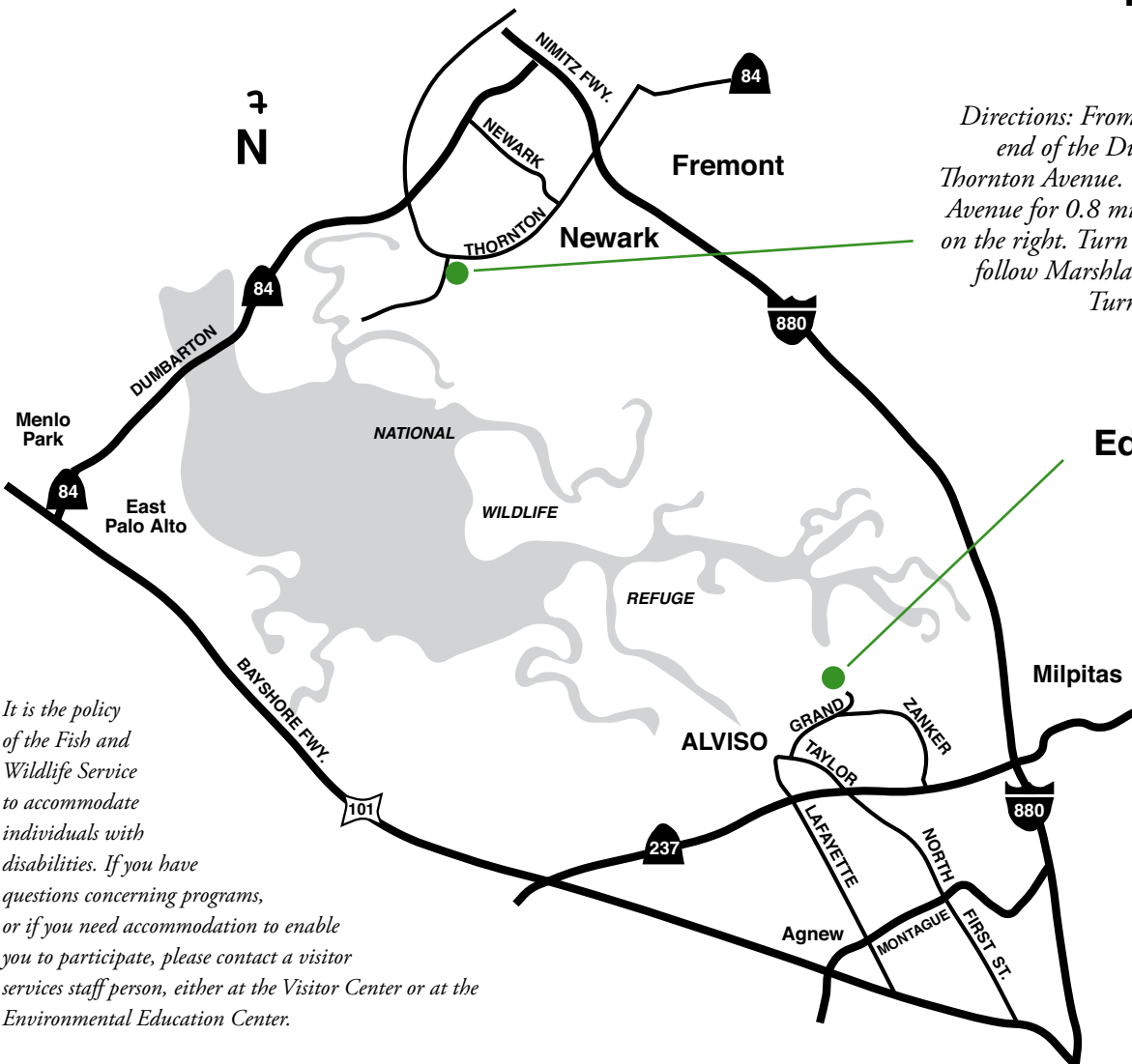
(510) 745-8695

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 Marshlands Road to the stop sign. Turn left into the parking lot.

Environmental Education Center

(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.