

Tideline



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

“I’m just a soul whose intentions are good...” **The Misunderstood Gopher Snake**

by Debra King

“Is it poisonous?”

That’s always the first question visitors ask when they get a glimpse of a four-foot long gopher snake at the Don Edwards San Francisco Bay National Wildlife Refuge Environmental Education Center in Alviso, and the answer is, “No.”

Most snakes are not actually “poisonous,” but some are venomous. Poisons are substances that are dangerous when ingested or inhaled. Venom, in contrast, is injected. Snakes store venom in glands behind their eyes and use their fangs to inject the venom when they bite their prey. Snake venom can be a hemotoxin that affects blood and organs, or a neurotoxin that affects the nervous system. Both types are painful and often deadly, and many snakes use a combination of the two. Not all snakes are venomous, however. Of more than 2,700 known species, only about 300, or 11% of snakes, are venomous.

The Pacific gopher snake is not venomous at all. In fact, it is known to be a fairly harmless snake, and people often pick them up. (Even though Pacific gopher snakes can be docile, they should never be picked up or handled because like any other animal, they can bite if they feel threatened). To get their food, Pacific gopher snakes coil around and constrict their prey until it suffocates. Commonly found in California and throughout North America and Mexico, the gopher snake ranges from cream to tan, with stripes, diamond-like patterns and ridged scales. Gopher snakes are similar in appear-

ance to rattlesnakes, and the two are often confused because gopher snakes mimic rattlesnakes by coiling up and vibrating their tails to warn off predators. They also flatten their heads to resemble those of

atop Medusa’s head, the snake has long been a symbol of deceit and sin. Today, we have Slytherin in the popular Harry Potter books and snakes are regularly used as antagonists in Disney films, such as Jafar in *Aladdin*,



Gopher snake – “Please don’t let me be misunderstood.”

Photo by Debra King

rattlesnakes and emit a hissing sound. While this performance may protect gopher snakes from many of their foes, humans often kill harmless gopher snakes thinking they are venomous and a threat to their safety.

Gopher snakes are not the only serpents to be misunderstood. Throughout history, the snake has often been painted in a negative light. From the deception of Eve in the Garden of Eden, to the serpents writhing

Hiss in *Robin Hood*, and Kaa in *Jungle Book*.

Perhaps you’ve heard of the term “snake oil.” “Snake oil”, while traditionally from the Chinese water snake and used in Chinese medicine to relieve pain, is now associated with fake miracle cures and false advertising. As the story goes, the Chinese, who helped build the Transcontinental

continued next page

Railroad across North America, would give snake oil to Europeans with joint pain. This was ridiculed by doctors in the west and eventually, snake oils referred to all sorts of cures whose ingredients were usually secret, unidentified, and were mostly inert or ineffective. Snake oil peddlers are also familiar characters in Western films, often producing astounding remedies in front of astonished crowds.

Some cultures, however, do admire and worship snakes. Hindus worship snakes and in Judaism, they are a symbol of healing. In ancient Egyptian mythology, it is said that Isis, one of their gods, was transformed into a fire-spewing cobra, and whoever bore that symbol would be in possession of all the secrets of the material world. In the Chinese Zodiac, people born in the year of the snake are said to have the snake's characteristics of intelligence and grace.

In western cultures, consuming snakes is not a common practice. On the other hand, some cultures see the consumption of snakes as acceptable. The snake is considered a delicacy in some communities, prized for its supposed ability to warm the heart. In some Asian countries such as China, Thailand and Vietnam, it is thought that drinking the blood of snakes increases virility. In contrast, many people in the United States consider snakes to be wonderful pets.

You may not agree that gopher snakes are intelligent, graceful, or even tasty, but they do have many important qualities. Gopher snakes are a valuable part of California's ecosystem. As predators, they help control populations of other species, and are vital to reducing the number of animals we consider pests, such as rats or gophers. Keeping rodent populations under control also help reduce the spread of germs and diseases. A gopher snake's diet consists of small rodents, birds, eggs, and sometimes lizards and insects. After a large meal, gopher snakes can go for days, even weeks, without eating. This is due to their slow rate of metabolism. Some snakes, like cobras, can even survive for months without eating. Gopher snakes also provide food for other species. Although they are predators themselves, they sometimes fall prey to other animals such as red-tailed hawks, foxes and coyotes.

Snakes have other interesting qualities too - most swallow their prey whole. If their meal is too big, gopher snakes, like

all snakes, can unhinge their jaws to fit the entire animal in. Adult gopher snakes are usually between three and seven feet long, and are mainly ground dwellers and burrowers. These snakes have adapted to live in a variety of climates. In colder regions, they hibernate in the fall and winter but in warmer locations, such as southern California, they can easily be active all year round. Gopher snakes are cold-blooded animals that rely on the temperature of their environment to help regulate body temperature. That's why you often see gopher snakes on the refuge sunning themselves on a warm rock. Generally diurnal (active during the day), they sometimes alter their behavioral patterns and become nocturnal, to avoid extreme heat. Because of their adaptability, gopher snakes can be found in a variety of habitats, including coniferous forests, deserts, coastal dunes, grasslands and open brush areas.

Even if you were not born in the year of the snake, you still share many traits with them. Like humans, snakes have five senses: sight, smell, taste, hearing, and touch. Some of those features are limited while others are truly extraordinary. Snakes may not be able to see or hear as well as we do but some of their senses are truly remarkable. Snakes lack external ears, but they can use their jaws to hear by picking up vibrations from the ground. They have a very sensitive sense of touch, with tactile receptors that allow them to feel very slight changes in their environment. This also allows snakes to make quick adjustments in their movements while moving or hunting. Heat sensitive pits are one of snakes' finest senses. These pits are located between the eyes and nostrils and allow snakes to observe changes in ambient temperature, enabling them to sense heat coming from other creatures. This is invaluable for nocturnal hunters.

Many snakes look for motion because they are unable to focus on objects while other snakes only see shades of light and dark. They make up for this limitation with their amazing sense of taste and smell. The two are often linked together because combined, they are very powerful tools for snakes. Snakes are typically seen or depicted with their tongues gently flicking outside of their mouths. This is because their tongues have been adapted to capture scent particles in the air. The vomeronasal organ, or

Jacobson's organ, is located at the roof of the snake's mouth and collects scent information gathered by the tongue.

These fascinating creatures are a welcome sight here at the Don Edwards San Francisco Bay National Wildlife Refuge. We often see them sunning themselves on a warm day or crossing the entrance road to search for food or shade in the upland restoration areas, or on levee trails surrounding managed ponds. If you come across a gopher snake, or any other type of wildlife, you can admire it from a distance so it doesn't feel threatened. You'd be amazed at how closely you can observe wildlife when you are silent and still.



Gopher snake

Photo by Peter Cervantez

Gopher snake sightings give educators and interpreters a chance to discuss predator/prey relationships, and to illustrate the importance of all species and how they affect other animals in their shared habitats. Although the refuge is known for its significant role in providing habitat for migratory birds, the presence of gopher snakes reminds us that salt marsh and upland habitats are important to the survival and wellbeing of many types of wildlife. It reminds us that the refuge is home to a diversity of species and that we are all interconnected. Come explore the refuge, enjoy the wildlife, and when you get a glimpse of that often underappreciated gopher snake, we hope you will remember that all snakes and all indigenous species are intrinsically valuable and special in their own way.

Debra King is the Interpretive Specialist for the San Francisco Bay Wildlife Society at the Don Edwards SF Bay NWR Environmental Education Center in Alviso, and coordinates the Watershed Watchers program for the Santa Clara Valley Urban Runoff Pollution Prevention Program. She is a California native who studied Environmental Sciences and Music at UC Berkeley, and enjoys spending her time outdoors, traveling, and playing with animals.

The Dust Has Settled

After four years of planning and construction, the Visitor Center and Administrative Headquarters in Fremont are now complete. The original facilities, built in 1979, were designed to house a total staff of 14 people and act as the principal

in 2006 and the building renovation began in 2008. Thanks to the American Recovery and Reinvestment Act (federal stimulus funding), we were able to provide both a more accessible Visitor Center for the public and more energy-efficient and comfortable



Refuge Reflections

by Mendel Stewart

Visitor Center and Headquarters for Bay Area refuges. Over the years, our responsibilities have grown with new refuges and the addition of land to existing refuges. The facilities were never expanded or upgraded adequately when more employees were hired to manage these lands and monitor the wildlife. Currently, seven refuges totaling more than 45,000 acres are managed from the Fremont office. The visitor facilities also did not meet standards set by the American Disability Act and the exhibits were outdated. This left both the public and refuge staff underserved. We began planning

offices for our staff. The Visitor Center now overlooks the LaRiviere Marsh and includes new interpretive exhibits, courtesy of the San Francisco Bay Wildlife Society. The exhibits highlight the species and habitats found on the Don Edwards Refuge, along with the restoration efforts currently taking place. The office improvements, meanwhile, will allow our staff to step up and help lead the restoration and management of wetlands around San Francisco Bay in the next decade and beyond.

An Open House, coupled with Endangered Species Day, was held in



New Visitor Center exhibits

Photo by Beth Huning

mid-May to introduce the new facilities to the communities near Fremont. I hope you will also stop by and view the exhibits in the Visitor Center. The Visitor Center is open Tuesday-Sunday from 10 a.m. – 5 p.m.

U.S. Fish & Wildlife Service
Don Edwards San Francisco Bay
National Wildlife Refuge



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

July 20-23, 2010

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 2010. 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 2010.

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 p.m. on Friday, June 11, 2010. Participants will be notified by mail and subject to parent/guardian approval. Questions? Please call Tia at 510-792-0222 ext 474. Please send your letters to: Habitat Heroes, c/o EE Specialist, 9500 Thornton Avenue, Newark, CA 94560.

Revitalizing a Marsh

by Karen Leggett

As soon as the bulldozer broke through a levee on Tubbs Marsh in San Pablo Bay in northern California in December 2009, dowitchers and other shorebirds launched a feeding frenzy in the newly exposed mud. It took several years of planning and effort by San Pablo Bay National Wildlife Refuge and



Tubbs Marsh in San Pablo Bay National Wildlife Refuge, CA, is once again a healthy habitat for shorebirds and other wildlife. Photo by Angela Sanan/USFWS

its partners and volunteers to free the marsh of the levees, some of which are a century old, and make it once again a healthy habitat for wildlife.

Levees and berms were originally constructed to control the flow of water, which often sat for extended periods of time, especially after high tide or heavy rains. The standing water killed vegetation, harmed habitat, and promoted mosquitoes. The Marin-Sonoma Mosquito and Vector Control District treated the marshes with

approved chemicals. However, accessing the marshes for mosquito management and surveillance disturbed wildlife and plant populations, and degraded habitat.

“We had conflicting missions,” says Giselle Block, wildlife biologist at San Pablo Bay Refuge, “but we came to realize that by improving tidal hydrology and returning the marsh to a more natural state, we could benefit both our missions.”

The 65-acre Tubbs Marsh enhancement project restored the natural hydrology to an area of tidal marsh that had impaired tidal flows. The project cost \$339,000, with funds and in-kind contributions from the Service (a Challenge Cost Share), ConocoPhillips, the San Francisco Foundation, the Marin-Sonoma Mosquito and Vector Control District and Audubon California, which had a longstanding interest in San Pablo Bay as a specially designated Important Bird Area. The project created nine new channels and widened or deepened eight, breached levees at six locations and lowered two levees to marsh elevation. The

physical work took three weeks. Planning, raising money and obtaining permits took more than two years.

Volunteers contributed 500 hours of baseline monitoring on Tubbs Marsh, providing an inventory of birds, vegetation, water quality, sediment, mosquitoes and small mammals – including two endangered species: the California clapper rail and the salt marsh harvest mouse. The inventory will be maintained for at least the next five years.



Come Back in Two Years

As each levee was breached, “the shorebirds responded immediately,” says Block, “but we don’t expect California clapper rails for two years because their habitat takes longer to develop.” The remaining levees will erode naturally now that the original flow of water has been restored. They are being planted with native upland cover like California sagebrush, mudwort and monkey flower. This cover can provide refuge habitat for marsh-dependent species during extreme high tides. Some believe the levee remnants could be a buffer against erosion during extreme tidal events.

The success of the Tubbs Marsh levee breaches is just the beginning, Block says. The refuge is now collecting baseline data on 500 acres of marsh on Sonoma Creek where once again, past human action has led to poor hydrology. Permitting and fundraising are underway with actual work expected to begin in about three years.

“This was an example of different agencies coming together with different missions and finding common ground,” says Block, with obvious enthusiasm. “The Mosquito Control District is addressing mosquitoes, the refuge improves habitat for endangered species and migratory birds and Audubon California improved an Important Bird Area. Plus, it was an incredible way for people to engage with the environment.”

Karen Leggett is a writer/editor in the Division of Visitor Services & Communications for the National Wildlife Refuge System.

Getting a lift to the Farallones

By Doug Cordell

Getting onto the Farallon Islands has never been easy – not for people, anyway. Twenty-eight miles off the coast of San Francisco, separated from the mainland by shark-infested ocean waters, the tiny cluster of steep, rocky isles has long posed a challenge for researchers and managers looking to study the teeming seabirds and marine mammals on this historic National Wildlife Refuge.

In recent times, access to Southeast Farallon Island—the most commonly traversed – has principally been via a 50-foot derrick designed to hoist visitors and supplies out of the water in a small “safe boat.” Even that limited access became restricted last fall, though, when parts of the derrick were found to be severely corroded and in need of replacement.

Thanks, however, to an impressive,



Stinson Beach staging area. FWS photo

elaborately coordinated effort by the U.S. Fish & Wildlife Service (FWS) and the California Air National Guard (ANG) – together with Sheedy Drayage Company and Aris Helicopters – the derrick was removed and replaced in a series of carefully choreographed airlifts running from December to March.

With powerful, eight-ton Pave Hawk helicopters, crew members from the ANG’s 129th Rescue Wing (Moffett Federal Airfield, CA) and workers from Sheedy Drayage were able to sling 30-foot, steel sections of derrick to and from the islands, using Stinson Beach on California’s northern coast as a staging site. FWS refuge staff provided logistical coordination and oversight.

Since the airlifts met training hour

requirements for ANG crew, FWS was spared the considerable expense of paying for crew, fuel and helicopter time.

“It’s great when two government agencies are able to cooperate like that and both benefit somehow,” said Gerry McChesney, acting manager of the Farallon National Wildlife Refuge.

The operation also required coordination with the National Park Service, since Stinson Beach, part of the Golden Gate National Recreation Area, is typically open to the public. Stinson Beach Fire Department crews were on hand to provide emergency assistance in the event of an accident.

In addition to the logistical difficulty of moving enormously heavy equipment by helicopter over nearly 25 miles of ocean, there was the added pressure of a ticking clock. Because the roar of helicopters disturbs nesting birds, all transports had to be completed by mid-March, when nesting season begins for 13 species of seabirds on the island.

With members of the operation putting in long hours over many days, all sections of the derrick—fashioned and refurbished by Heco Pacific Mfg. – were delivered to the Farallones by March 15. PRBO Conservation Science researchers and FWS refuge staff were on site throughout to help unload and move the materials. Within days of the last delivery, the sections were reassembled by workers from Sheedy Drayage, with the assistance of Aris Helicopters – both outfits serving as subcontractors for Brahma Engineering, Inc. – and the restored derrick was up and running.

The Farallon National Wildlife Refuge was created by President Theodore Roosevelt in 1909 to protect seabirds. Southeast Farallon and adjacent islets were added to the refuge in 1969. Today, the islands contain the largest seabird breeding colony in the contiguous U.S. – including the largest colonies of western gulls and Brandt’s cormorants in the world. They support half the world’s population of rare Ashy storm-petrels, and are also home to five species of seals and sea lions.

Acting refuge manager McChesney, who began his career as an intern on the Farallones with PRBO, describes his first



California Air National Guard transports derrick. FWS photo

impressions of the place: “I was enthralled... amazed. The sheer numbers and diversity of bird and animal wildlife – what a scientific goldmine it is.”

Current research at the islands looks at species populations and reproductive success, not only to gauge the survival of the creatures themselves, but to search for clues to changing conditions in the surrounding ecosystem. In recent years, there have been sharp drops in the populations of some seabird species – which researchers attribute to the decline of seabird prey, such as krill and anchovies, in local ocean waters. That decline, in turn, is linked to an increasingly volatile ocean environment, including wild swings in ocean temperatures, that may be the result of climate change.

It turns out that, with its incredible density and variety of marine wildlife, the Farallon Refuge is a unique barometer of our changing environment. What we monitor there can tell us a lot about larger changes afoot.

Now, thanks to a remarkable team effort – and some very heavy lifting – researchers can count on continuing that monitoring.

Doug Cordell is the Public Affairs Officer at the San Francisco Bay National Wildlife Refuge Complex.

Congratulations



Best in Show by Sami Khan, California Condor, Ardenwood Elementary, 4th Grade

Congratulations to Sami Khan for taking the Best in Show in the Don Edwards San Francisco Bay National Wildlife Refuge 28th 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!



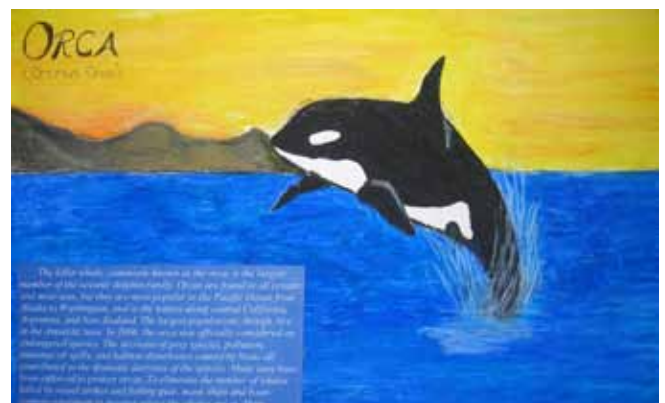
3rd grade 1st Place: Rhea Advani, Chadbourne Elementary



4th grade 1st Place: An-Chi Tsai, Warm Springs Elementary



5th grade 1st Place: Emily Hsiao, Warm Springs Elementary



6th grade 1st Place: Kajal Raju, Gnomes Elementary

to the 28th Annual Endangered Species Poster Contest Winners!



Kindergarten 1st Place: Pari Sarangdevot, Parkmont Elementary



1st grade 1st Place: Clarise Han, Chadbourne Elementary



2nd grade 1st Place: Sabrina Liu, Mission Valley Elementary

Other winners include:

Kindergarten:

1st Place: Pari Sarangdevot, Parkmont Elementary

2nd Place: Kiely Wu, Monarch Christian School

3rd Place: Akshata Shetty, Mission San Jose Elementary

Honorable Mention: Danyal Khan, Warwick Elementary

First Grade:

1st Place: Clarise Han, Chadbourne Elementary

2nd Place: Olivia Graham, Maloney Elementary

3rd Place: Tavish Mohanti, Mission Valley Elementary

Honorable Mention: Isha Juneja, Maloney Elementary

Second Grade:

1st Place: Sabrina Liu, Mission Valley Elementary

2nd Place: Kelli Chen, Chadbourne Elementary

3rd Place: Emma Shen, Gnomes Elementary

Honorable Mention: Justin Jung, Eastin School

Third Grade:

1st Place: Rhea Advani, Chadbourne Elementary

2nd Place: Gini Chi-Ling Lo, Vallejo Mills Elementary

3rd Place: Gloria Cheng Yang, Chadbourne Elementary

Honorable Mention: Kunal Patel, Parkmont Elementary

Fourth Grade:

1st Place: An-Chi Tsai, Warm Springs Elementary

2nd Place: Maya Mundada, Stratford School

3rd Place: Lucas Hirsch, Mission Valley Elementary

Honorable Mention: Briant Shen, Mission Valley Elementary

Fifth Grade

1st Place: Emily Hsiao, Warm Springs Elementary

2nd Place: Nitya Vakil, Mission Valley Elementary

3rd Place: Tejas Harith, Warm Springs Elementary

Honorable Mention: Imoni Sanders, Eastin School

Sixth Grade:

1st Place: Kajal Raju, Gnomes Elementary

2nd Place: Susan Nabizada, Milani Elementary

3rd Place: Anirudh Ivengar, Parkmont Elementary

Honorable Mention: Brian Chou, Gnomes Elementary

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, 2010 and March 31, 2010. 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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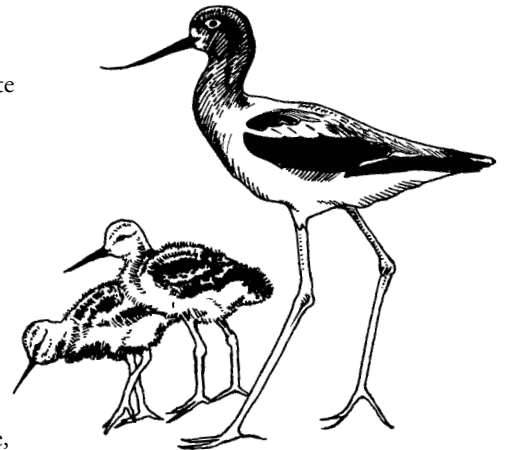
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Help Us Help the Refuge

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) 792-5828.

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 _____

Signature _____

Name _____

Address _____ City _____ State _____ Zip _____

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

Volunteer Docent Training Coming in June!

If you love our wetlands and want to share your enthusiasm with the public, then the refuge and the South Bay Salt Pond Restoration Project has the perfect opportunity for you! We are restarting the Project's docent program and are looking for community members to lead programs with the public.

No experience necessary!

We will provide the training and tools that you need to become a success.

What you will do:

- Attend a docent training program
- Develop and present your own programs around your interests and passions and/or co-lead preplanned programs with project staff.
- Provide important outreach to the public about a project that will reshape the bay for future generations!

What you will receive:

- Professional presentation and resource training
- Mentoring and coaching as you develop your own programs
- An opportunity to work closely with project staff
- And a free volunteer T-shirt! Maybe some snacks too...



Call Jennifer at 408-262-5513 x106 to learn more and to sign up for the June docent training.

CCP Watch: Status of Comprehensive Conservation Plans (CCP) around the SF Bay NWR Complex

What is a CCP?

A comprehensive conservation plan is like a recipe for managing a wildlife refuge. These plans provide a 15-year guide, using the best available scientific knowledge, to help managers achieve the purposes for which each refuge was established, and to contribute to the mission of the National Wildlife Refuge System. The National Wildlife Refuge System Improvement Act of 1997 defined the mission for the Refuge System and requires refuges to have CCPs in place by 2012. The Act provides the U.S. Fish and Wildlife Service (Service) with guidance for managing refuges in a way that ensures the long-term conservation of fish, wildlife, plants and their habitats. CCP outline goals, objectives and management strategies for a refuge to achieve during the 15-year life of a CCP.

San Pablo Bay NWR

Alternatives are available for review in the latest planning update. The three alternatives include:

- A. Continue current management

- B. Wildlife survey emphasis; expand tidal restoration activities; and expand visitor opportunities and interpretation
- C. Same as B, but also develop wildlife population goals; expand environmental education and interpretation opportunities

The latest planning update can be viewed at <http://www.fws.gov/cno/refuges/planning/ccp.cfm>. A draft CCP and environmental assessment is expected to be published for public comment in May 2010. Contact Winnie Chan (see below) if you would like a hard copy of these documents.

Ellicott Slough NWR

Like San Pablo Bay NWR, the Ellicott Slough NWR CCP alternatives have been developed and will be available for review in the next planning update. The three alternatives include:

- A. Continue current management
- B. Wildlife emphasis; increase visitor services and environmental education
- C. Same as B, but expand non-native/in-

vasive emphasis; create boat access; and develop full visitor services programs

The latest planning update can be viewed at <http://www.fws.gov/cno/refuges/planning/ccp.cfm>. A draft CCP and environmental assessment is expected to be published for public comment in May 2010. Contact Winnie Chan (see below) if you would like a hard copy of these documents.

Don Edwards San Francisco Bay NWR

A planning update is now available at <http://www.fws.gov/desfbay/> that summarizes input gathered from public meetings held in October and November 2009. Staff are now developing goals, objectives, and alternatives that are expected to be available for review in the next planning update in late fall 2010.

For more information about the above CCPs, contact Winnie Chan at 510-792-0222 x145. To learn more about CCPs, or to view CCPs from other National Wildlife Refuges, log on to <http://www.fws.gov/cno/refuges/planning/ccp.cfm>

Summer Activity Schedule

June

Saturday, June 5

*Marshlands of Dreams

Visitor Center, Fremont

10:30 a.m. – 11:30 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 farming, quarrying, salt production, and transportation. Led by Paul Mueller.

Intro to Nature Drawing for Adults

Visitor Center, Fremont

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

Learn the basics of sketching nature. We will learn how to draw with negative shapes and shadows, and how to use color and light to add dimension. We will discuss how the changing horizon lines can offer depth. There will be opportunities to practice these techniques on the trail. Paper and pencils will be provided. A hat and water bottle is recommended. Call for reservations at 510-792-0222 ext. 363. Led by Travis Turner.

Sunday, June 6

In Search of: California Grey Fox Learning Center, Fremont (Near Visitor Center)

2:00 p.m. - 3:30 p.m.

Learn about the California Grey Fox, the only canine that can climb trees. What do they look like? Where do they live? What do they eat? We will share information about this fox to optimize your chances of capturing a glimpse of them. The tour begins with a 45-minute slideshow, followed by a 45-minute walk. Led by Art Garibaldi.

Saturday, June 12

Redwood Shores Trail

5 miles roundtrip

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 is the 4th walk featured in the Refuge Rambler club. This trail in Redwood Shores 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. No reservations are needed. Hats, water, and sunscreen are strongly recommended. A Refuge Representative 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 front of Marriot Towne Place Suites.

Sunday, June 13

*The Salt Marshes: Then and Now Learning Center, Fremont (Near Visitor Center)

2:00 p.m. – 3:30 p.m.

Approximately 85% of San Francisco Bay's wetlands have disappeared over the last 200 years due to industry and development, impacting the wildlife that lived in and around them. Some of the plants and animals have made a comeback and a few have adapted to the changes. Learn a little about the history of the salt marshes and the wildlife affected by the changes. The presentation includes a slide show followed by a 45-minute walk to view a salt marsh and the remains of a salt evaporation pond. Bring binoculars, or borrow one of ours. Reservations are required. Call 510-792-0222 ext. 363. Led by Gregg Aronson.

Saturday, June 19

*Family Bird Walk

10:00 a.m. – 12:00 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.

*Wetland Safari

Environmental Education Center, Alviso

10:00 a.m. – 11:15 a.m.

Take a 1-hour van tour around our former salt ponds. Bird life is generally more abundant on little-used portions of the trail. We will make several stops for better viewing and photography (if desired) and we'll take a look at what is left of Drawbridge. Due to limited van seating, a second tour will begin at 11:30 a.m. if needed. Please call Debra at 408-262-5513 ext. 102 for reservations.

*Salt Marsh Life at the Bottom of the Food Chain

Environmental Education Center, Alviso

1:00 p.m. – 4:00 p.m.

Let's explore the salt marsh's hidden habitats! Wetlands microbes are often called "the lungs of the earth" and we will explore the dynamics of microbial communities in New Chicago Marsh ponds. Join microbiologist Wayne Lanier, PhD, for a brief presentation at the Environmental Education Center, then a microscope hike around New Chicago 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. Easy short hiking level. Ages 10 to 80 and beyond! Call Debra at 262-5513 ext. 102 for reservations.

*Return of the Swallows

Learning Center, Fremont (Near Visitor Center)

2:00 p.m. – 4:00 p.m.

Join Roy Sasai to view barn and cliff swallows at the refuge. See their nests and view their feeding habits. Meet

at the pavilion for a slideshow, and then take a ride in the van to the Dumbarton Fishing Pier. You will learn about this species' natural history, their unusual homes, and migration from South America. Space is extremely limited. Reservations are required. Call 510-792-0222 ext. 363.

Sunday, June 20

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 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. Easy short hiking level. Ages 9 - 90 years. Call 510-792-0222 ext. 363 for reservations.

*Father's Day In The Marsh

Environmental Education Center, Alviso

11:00 a.m. – 12:30 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.

*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.

Saturday, June 26

*Advanced Bird

Photography Workshop

Environmental Education Center, Alviso

10:00 a.m. – 1:00 p.m.

Continuing where "Beginning Bird Photography" left off, this three-hour workshop will address aesthetics (e.g., advanced composition) nature (animal behavior, seasons, tides), and techniques (exposure, depth of field, flash, etc.). Material is geared toward SLR cameras, but much is applicable to any camera type. Afterwards, we'll take an optional stroll on the refuge to practice what we learned, so bring your camera if you have one. Not suitable for children. Led by Paul Bridges. Reservations are required. Call Debra at 408-262-5513 ext. 102.

Nature Drawing for Kids

Visitor Center, Fremont

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

Learn the basics of sketching nature in this new workshop by Travis Turner. We will learn how to draw what we see by incorporating common shapes, and learn about color value. We will then head out onto the trail and practice the various techniques. Paper and pencils will be provided. Recommended for ages 5-10. Bring a hat and water. Call for reservations at 510-792-0222 ext. 363.

*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

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.

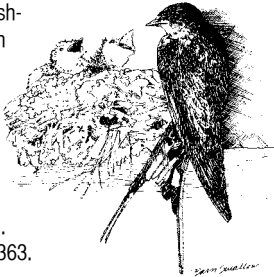
Sunday, June 27

*Return of the Swallows

Learning Center, Fremont (Near Visitor Center)

2:00 p.m. – 4:00 p.m.

Join Roy Sasai to view barn and cliff swallows at the refuge. See their nests and view their feeding habits. Meet at the pavilion for a slideshow, and then take a ride in the van to the Dumbarton Fishing Pier. You will learn about this species' natural history, their unusual homes, and migration from South America. Space is extremely limited. Reservations are required. Call 510-792-0222 ext. 363.



JULY

Saturday, July 3

*Marshlands of Dreams

Visitor Center, Fremont

10:30 a.m. – 11:30 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 farming, quarrying, salt production, and transportation. Led by Paul Mueller.

Saturday, July 10

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 in Fremont for a community service project. We will do either a trash pickup or a planting/weeding project. Dress appropriately for the task and for the weather. Gloves and tools will be provided. Bring a water bottle. Meet in the parking lot at the Visitor Center. Driving an additional 2.5 miles may be required if project takes place at a different location. For more information, or to make reservations, call 510-792-0222 ext. 363.

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 limited. RESERVATIONS REQUIRED. Call Jennifer at 408-262-5513 ext. 106.

Exploring the Weep!

Environmental Education Center, Alviso

10:00 a.m. – 1:00 p.m.

Join expert microbial ecologist Dr. Wayne Lanier on a short bike ride to study microbial communities. Pedestrians are welcome – trip to the weep site will just take a while longer. The weep is a shallow persistent pond fed by seepage. Over the year it undergoes very wide swings in salinity, and 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.

*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, July 11

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. We do not visit the town itself – we go to the closest spot where one can legally view Drawbridge.

*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? Find out why some birds exhibit wacky behaviors. We will examine different bird specimens we have collected over the years to see how birds have adapted to some extraordinary features. Come admire the wonders of the bird kingdom and then take a guided walk to see these marvelous creatures in action. RESERVATIONS REQUIRED – All Ages are welcome. Call Eric at 408-262-5513 ext. 104.

*The Salt Marshes: Then and Now

Learning Center, Fremont (Near Visitor Center)

2:00 p.m. – 3:30 p.m.

Approximately 85% of San Francisco Bay's wetlands have disappeared over the last 200 years due to industry and development, impacting the wildlife that lived in and around them. Some of the plants and animals have made a comeback and a few have adapted to the changes.

Summer Activity Schedule

Learn a little about the history of the salt marshes and the wildlife affected by the changes. The presentation includes a slideshow followed by a 45-minute walk to view a salt marsh and the remains of a salt evaporation pond. Bring binoculars or borrow one of ours. Reservations are required. Call 510-792-0222 ext. 363. Led by Gregg Aronson.

Saturday, July 17

Water, Water, Everywhere!

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Where does the water come from and where does it go? Learn all about the water cycle and watersheds. Build your own model of a watershed and see if you can predict where the water will go! Recommended for ages 7 and up. Led by Ed Kantack. Please call Debra at 408-262-5513 ext. 102 for reservations.

Intro to Nature Drawing for Adults

Visitor Center, Fremont

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

Learn the basics of sketching nature. We will learn how to draw with negative shapes and shadows, and how to use color and light to add dimension. We will also talk about how the changing horizon lines can offer depth. There will be opportunities to practice these techniques on the trail. Paper and pencils will be provided. A hat and water bottle is recommended. Call for reservations at 510-792-0222 ext. 363. Led by Travis Turner.

Sunday, July 18

*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.

*Return of the Swallows

Learning Center, Fremont (Near Visitor Center)

2:00 p.m. – 4:00 p.m.

Join Art Garibaldi to view barn and cliff swallows at the refuge. See their nests and view their feeding habits. Meet at the pavilion for a slideshow, and then take a ride in the van to the Dumbarton Fishing Pier. You will learn about this species' natural history, their unusual homes, and migration from South America. Space is extremely limited. Reservations are required. Call 510-792-0222 ext. 363.

*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

Friday, July 23

Just 4 Tots

Environmental Education Center, Alviso

1:00 p.m. – 2:15 p.m.

If you have a tot, then this program is for you! We'll explore the refuge and its wildlife with fun and entertaining activities geared toward the younger set. We'll have story time, puppet time, and craft time! Suitable for ages 4-6. Call Debra at 408-262-5513 ext. 102 for reservations.

Saturday, July 24

Mallard Slough Trail

5.5 miles roundtrip

Environmental Education Center, Alviso

9:00 a.m.

Let's Go Outside!

Meet new people while getting fit and healthy! This is the 5th walk featured in the Refuge Rambler club. This trail is compacted dirt, flat and level. 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 our website. No reservations are needed. Hats, water, and sunscreen are strongly recommended. Park Ranger Jennifer Heroux will be there to greet you at 9 a.m.

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 25

Marsh Mud Mania

Environmental Education Center, Alviso

1:00 p.m. – 2:30 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.

Return of the Swallows

Learning Center, Fremont (Near Visitor Center)

2:00 p.m. – 4:00 p.m.

Join Art Garibaldi to view Barn and Cliff swallows at the Refuge. See their nests and view their feeding habits. Meet at the pavilion for a slideshow, and then take a ride in the van to the Dumbarton Fishing Pier. You will learn this species' natural history, unusual homes, and migration from South America. Space is extremely limited. Reservations are required. Call 510-792-0222 ext. 363.

Saturday, July 31

Nature Drawing for Kids

Visitor Center, Fremont

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

Learn the basics of sketching nature in this new workshop by Travis Turner. We will learn how to draw what we see by incorporating common shapes, and learn about color value. We will then head out onto the trail and practice the various techniques. Paper and pencils will be provided. Recommended for ages 5-10. Bring a hat and water. Call for reservations at 510-792-0222 ext. 363.

August

Saturday, August 7

Dawn Photography Hike

Eden Landing Ecological Reserve, Hayward

5:00 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 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 with your equipment. Reservations required. Call 408-262-5513 ext.106

*Marshlands of Dreams

Visitor Center, Fremont

10:30 a.m. – 11:30 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 farming, quarrying, salt production, and transportation. Led by Paul Mueller.

*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, August 8

*The Salt Marshes: Then and Now

Learning Center, Fremont (Near Visitor Center)

2:00 p.m. – 3:30 p.m.

Approximately 85% of San Francisco Bay's wetlands have disappeared over the last 200 years due to industry and development, impacting the wildlife that lived in and around them. Some of the plants and animals have made a comeback and a few have adapted to the changes. Learn a little about the history of the salt marshes and the wildlife affected by the changes. The presentation includes a slide show followed by a 45-minute walk to view a salt marsh and the remains of a salt evaporation pond. Bring binoculars, or borrow one of ours. Call 510-792-0222 ext. 393 for reservations. Led by Gregg Aronson.

Saturday, August 14

*Mud Creatures Study

Environmental Education Center, Alviso

10:30 a.m. – 12:00 p.m.

Ever wonder what lies beneath the water and lurks about in our wetlands? Come find out! We'll explore all the different habitats at the refuge and then focus on the tiny critters that call the mud their home. We'll collect samples and use microscopes, just like scientists! Recommended for ages 7 and up. Call Debra at 408-262-5513 ext. 102 for reservations.

Intro to Nature Drawing for Adults

Visitor Center, Fremont

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

Learn the basics of sketching nature. We will learn how to draw with negative shapes and shadows, and how to use color and light to add dimension. We will also talk about how the changing horizon lines can offer depth. There will be opportunities to practice these techniques on the trail. Paper and pencils will be provided. A hat and water bottle is recommended. Call for reservations at 510-792-0222 ext. 363. Led by Travis Turner.

In Search of: Endangered

California Clapper Rail

Learning Center, Fremont (Near Visitor Center)

2:00 p.m. - 3:30 p.m.

Come learn about the endangered and rarely-seen California Clapper Rail. What do they look like? What do they eat? How many are left? When is the best time to see them? We will share information about this secretive bird to optimize your chances of capturing a glimpse of them. The tour is comprised of a 45-minute slideshow followed by a 45-minute walk. Led by Art Garibaldi.

Sunday, August 15

Barnacles, Mussels, and

Snails, Oh My!

Learning Center, Fremont (near Visitor Center)

1:30 p.m. – 3:30 p.m.

Join Roy Sasai to learn about the bay shore life, it's wildlife, and local history. Meet at the Learning Center for a short presentation before taking a ride in the van to the bay shore to see the wildlife. Space is extremely limited. Reservations are required. Call 510-792-0222 Ext 363.

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

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Bird Drawing & Sketching

Environmental Education Center, Alviso

2:00 p.m. – 3:30 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.

Friday, August 20

Night Sky Party!

Environmental Education Center, Alviso

8:00 p.m. – 9:30 p.m.

Meet the stars of Summer! Join amateur astronomer Bob Havner as we learn about constellations. Make a star chart and then venture outside to view the night sky through a telescope. Afterwards, warm up with some hot chocolate. Bring your own binoculars or spotting scopes if you have them. Fun for the whole family! Dress warmly. Program will go on sprinkling rain or shine. Program will be canceled only if it is pouring rain. RESERVATIONS REQUIRED. Call Debra at 408-262-5513 ext 102.

Saturday, August 21

Nature Drawing for Kids

Visitor Center, Fremont

10:30 a.m. – 12:30 p.m.

~~Learn the basics of sketching nature in this new workshop by Travis Turner. We will learn how to draw what we see by incorporating common shapes, and learn about color value. We will then head out onto the trail and practice the various techniques. Paper and pencils will be provided. Recommended for ages 5-10. Bring a hat and water. Call for reservations at 510-792-0222 ext. 363.~~

Cancelled

Butterflies, Etc.

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Do you know the difference between butterflies, moths and skippers? Learn the difference and their life cycles. Then take a leisurely walk around our butterfly garden and see some of these beautiful insects. Suitable for ages 7 and up. Led by Ed Kantack. Call Debra at 408-262-5513 ext. 102 to sign up!

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.

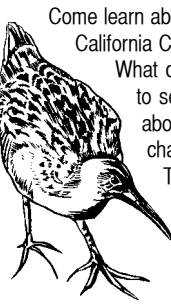
Sunday, August 22

In Search of: Endangered

California Clapper Rail

Learning Center, Fremont (near Visitor Center)

2:00 p.m. - 3:30 p.m.



Come learn about the endangered and rarely-seen California Clapper Rail. What do they look like?

What do they eat? When is the best time to see them? We will share information about this secretive bird to optimize your chances of capturing a glimpse of them.

The tour is comprised of a 45-minute slideshow followed by a 45-minute walk. Led by Art Garibaldi.

Saturday, August 28

Alviso Slough Trail – 9 mile-loop

Meet at the Alviso Marina, Alviso

8:30 a.m.

Let's Go Outside!

Meet new people while getting fit and healthy! This is the 6th walk featured in the Refuge Rambler club. This trail in Alviso is a 9-mile loop, flat, and level. The walk is self-

paced and you may turn back at anytime. Hats, water, and sunscreen are strongly recommended. There is no shade. 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 237, exit at Lafayette/Gold St. Head north onto the Gold St. Connector and left onto Gold St. Turn left onto Elizabeth St and right onto Hope St., which leads you to the Alviso Marina. Meet in the picnic table area adjacent to the restrooms.

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 at 408-262-5513 ext.106.

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?

Summer Activity Schedule

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. We do not visit the town itself – we go to the closest spot where one can legally view Drawbridge.

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 overview of this incredible project happening in our backyard. Program will begin indoors but will move outside via an easy 0.25-mile trail to a view of the salt ponds. All are welcome!

All About Owls

Environmental Education Center, Alviso

2:30 p.m. – 4:30 p.m.

Learn all that you've ever wanted to learn about owls here at the refuge! Where and what do owls eat? How do we not hear them when they flap their wings? Through an interactive presentation and owl pellet dissection, we'll find the answers to all these questions. Paul Bridges will lead the way. Call Debra at 408-262-5513 ext. 102 for reservations.

Sunday, August 29

Mysteries Of Wastewater Treatment

Environmental Education Center, Alviso

1:00 p.m. – 2:30 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.

Barnacles, Mussels, and Snails, Oh My!

Learning Center, Fremont (Near Visitor Center)

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

Join Roy Sasai to learn about the bay shore life, it's wild-life, and local history. Meet at the Learning Center for a short presentation before taking a ride in the van to the bay shore to see the wildlife. Space is extremely limited. Reservations are required. Call 510-792-0222 Ext 363.

*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 Field Trip 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 refuge headquarters 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. 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 will be offered Tuesday – Friday from October to mid-December, 2010.

NEW MAIL-IN RESERVATION PROCEDURES
can be found on our web site at
http://www.fws.gov/desfbay/EE_Registration.htm.

Field Trip Orientation Dates at the Learning Center in Fremont

To be announced.

Call the Environmental Education Intern at 510-792-0222 ext. 475 for further information.

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, or 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 to December, 2010.

We will begin scheduling Fall 2010 field trips on Thursday, September 9 from 4:00 p.m. – 5:00 p.m. 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.

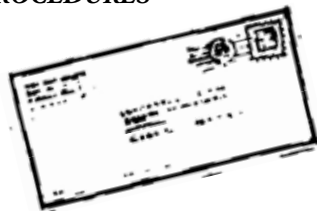
Fall orientations will be announced in September.

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. 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, call Eric McKee, the Slow the Flow Program Coordinator at 408-262-5513 ext. 104 or email at sfbay.slowtheflow@gmail.com.**



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

Reservations for Summer programs begin on **Thursday, June 17 between 3-4 p.m.** and will continue until program is full. 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.

Saturday, July 10

Brownie Eco-Explorer Patch

2:30 p.m. – 4:30 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 southern end of the bay.

Saturday, July 24

Junior Girl Scout Wildlife Badge

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, and see how you can help wildlife. Take a walk to explore the habitats at the southern end of the bay.

Saturday, July 24

Webelos Naturalist Badge

2:00 p.m. – 4:00 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.

Youth Group Programs at the Refuge Headquarters in Fremont

The Refuge Headquarters offers Webelos programs for up to 15 Webelos. Call 510-792-0222 ext. 363 for reservations. All programs are led by June Smith.

Saturdays, June 12 and July 31

Webelos Naturalist Program

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.



TIDELINE

Published quarterly by San Francisco Bay National Wildlife Refuge Complex, with funding from San Francisco Bay Wildlife Society.

Volume 31, Number 2

Editor: Carmen Minch

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

Don Edwards Refuge Manager:.....Eric Mruz

Don Edwards Wildlife Specialist:.....Melisa Helton

Don Edwards Warm Springs Unit Manager: Ivette Loreda

Farallon Refuge Wildlife Specialist:.....Zach Coffman

North Bay Refuges Manager:.....Christy Smith

North Bay Wildlife Specialist: Louis Terrazas

South Bay Refuges Manager:Diane Kodama

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Refuge Planner:Winnie Chan

Outdoor Recreation Planners:..... Jennifer Heroux and

Carmen Minch

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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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Tideline is On-Line

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

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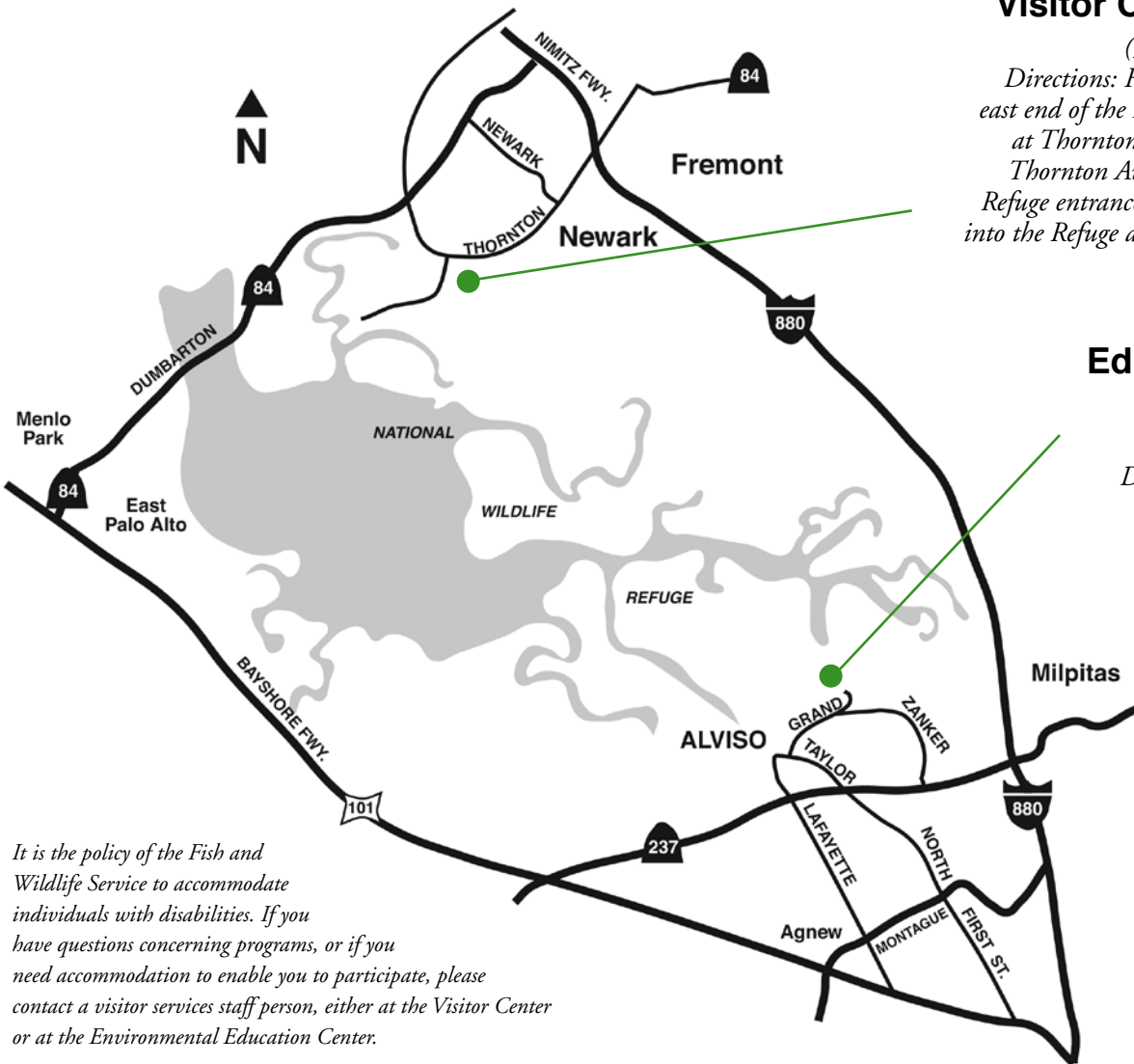


Tideline

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



Visitor Center, Fremont

(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.