



Volume 29, Number 1

# The Story of the Birds and the Bees

By Carmen Minch

Birds do it, and so do bees. But did you know flies, beetles, and slugs do it too?

Nearly 90% of the world's flowering plants rely on these animals "doing it" in order for them to reproduce, while humans rely on these animals to keep on "doing it" to produce 1/3 of the food we eat. "Doing it" refers to the act of transporting pollen grains from the stamen (male organ) of one flower to the stigma (female organ) of the same flower or another flower. This phenomenon is more commonly known as pollination.

Flowering plants and their pollinators have been coevolving for millions of years. It is a story that is as extraordinary as it is fantastic. Plants, unlike the mobile animal kingdom, are rooted to the ground. Their only movement is the swaying of stems, branches, and leaves in response to wind. This left plants in a bit of a conundrum – how to exchange genetic information with nearby and not so nearby plants to produce viable offspring? Grasses and trees grew to rely on wind to transport pollen. Other flowering plant species developed a faster and more efficient way to get the job done.

Flowers are the sexual organs of plants and their main function is to attract pollinators by offering nutrient-rich nectar or pollen. Hungry pollinators wooed by a flower's shape, color, and/or scent follow the markings toward the flower's center, crawling to the pollen or inadvertently brushing past pollen to get to the flower's sweet nectar. Subsequent visits to other flowers for food transport the pollen and ultimately fertilizes the flower. Once fertilized, the plant develops fruits and seeds.

The fruits and seeds are either eaten by other animals, or dropped to the ground to become a new plant.

There are more than 200,000 invertebrate species of pollinators that include bees, moths, butterflies, beetles, ants, wasps, and flies. There are over 1000 vertebrate species that pollinate including mammals, birds, and reptiles. Although bees are by far the most diverse - about 4,000 native bees have been identified in

hummingbirds do not smell. Butterflies prefer flowers with flat open surfaces and flowers that smell like rotting flesh attract flies. Some flowers, like snapdragons, only attract insects that have the ability to open the specialized parts to access the stamen and stigma. Pollinators that are generalists can pollinate several species of plants, while specialists are restricted to one plant. These extraordinary relationships have resulted in maintaining ecosystem



*The rufous hummingbird is an important pollinator species.*

*Photo by Dean E. Biggins/USFWS*

North America and pollinate the majority of crops - beetles are the most abundant.

Not all pollinators are equal. The relationship between flower and pollinator is special. The shape, smell, and color of flowers have evolved to attract certain types of pollinators. For example, tubular flowers filled with nectar are ideal for long-beaked hummingbirds. These flowers generally do not have any odor because

health and biodiversity for millions of years.

Plant diversity has long been recognized as a vital component of ecosystem health, and all living organisms benefit from their existence. Through photosynthesis, plants absorb carbon dioxide and release oxygen in the atmosphere.

*Continued page 2*

# The Story of the Birds and the Bees *continued*

Flowering plants, through foliage, roots and fruits, are primary food sources for countless wildlife and people. Berries and other fruits and nuts are a major component of the diets of 25% of bird species. This can easily be witnessed around the Don Edwards San Francisco Bay National Wildlife Refuge in the late fall and winter by the influx of waxwings and robins munching on toyon berries. Evidence in gray fox scat can also attest to the fox's utilization of these fruits.

Plants prevent soil erosion and help purify water before it enters into our bays and oceans. In addition, several medicines humans use today are derived from plants.

Plants also provide nesting sites for many insects like butterflies. The endangered Lange's metalmark butterfly, a nesting site specialist, only lays its eggs on naked-stemmed buckwheat found at Antioch Dunes National Wildlife Refuge. Unfortunately, nonnative weeds have stabilized the dunes, altering the conditions which the naked-stemmed buckwheat needs to survive. Fewer naked-stemmed buckwheat plants are reproducing. As the breeding site for Lange's metalmark butterflies declines, the butterfly, a health indicator of the Antioch Dunes system, is also steadily declining due to this loss of essential habitat.

Yes, flowering plants are extremely important and much valued, but what are often overlooked are their life cycles and their dependence on pollinators. As mentioned previously, the majority of flowering plants depend on animal pollinators for their existence. More than 150 food crops in the United States such as apples, blueberries, melons, and almonds depend on pollinators to reproduce. This does not include the number of plants grown for medicines and products made of fiber.

Because one species of butterfly migrates and several species of birds pollinate and migrate, protecting their migratory corridors is important. Most migratory species must stop along their migration route to feed and refuel their depleted energy sources before moving on to the breeding or wintering grounds. Protecting these stopover sites is just as essential as protecting the breeding and wintering sites.

National wildlife refuges can play an important role in protecting pollinators and their migratory routes. Several national wildlife refuges are already established strategically along these routes, called flyways, across the continent. Through

proper management, these refueling stations help conserve biodiversity in North America.

The rufous hummingbird is a prime example of a bird species that pollinates a variety of plant species during its lengthy migrations. These hummingbirds winter in Mexico and travel to Oregon, Washington, Idaho, western Canada and as far north as southern Alaska to breed. Their circular migration route, the longest distance of any bird as measured in body lengths, requires an enormous amount of caloric intake and makes them a significant pollinator for a large area.

The monarch butterfly is another species important for pollination. It is the



*Monarch butterflies pollinate many, if not all, 108 species of milkweed in North America .*

*Photo by Glen Smart/USFWS*

only known butterfly to migrate like birds do. While most species of butterflies can survive the winter as larva and pupa, the monarch must travel to warmer temperatures. It is the most abundant butterfly in the world. The western populations winter in California while the eastern populations winter in Mexico. The eastern populations can travel between 2,000-3,000 miles and take four generations to complete. Because of the unique behavior, monarch butterflies can pollinate many, if not all 108 species of milkweed across North America.

Several species of pollinators have been declining for the last 50 years, native bees in particular. In 1999 the North American Pollinator Protection Campaign

was founded by scientists, and natural resource managers. Today, more than 100 organizations, including the U.S. Fish and Wildlife Service, have joined in the efforts to protect pollinators and their habitats. Threats to bees and other pollinators include loss of habitat, improper use of pesticides, invasive species, disease and weather.

Maintaining and increasing the diversity of native pollinators will positively affect the diversity of plant communities. Here's how can you help native pollinators and maintain diversity:

1. Plant native plants. The flowering period of native plants has evolved to coincide with the peak emergence of insects or arrival of migratory birds. Native plants also provide food and shelter during certain times of the season for migrating birds and other wildlife. They may also contain special adaptations that only a particular species can access and pollinate, or provide specialized nesting sites.
2. Reduce or eliminate the use of pesticides.
3. Leave wildflowers in parks, wildlife refuges, and in your garden for pollinators and for people to enjoy.
4. Learn more about pollinators and support local, national, and international efforts to promote pollinators.
5. Participate in the Wonderful Wildflowers program offered at the Environmental Education Center at Don Edwards San Francisco Bay National Wildlife Refuge on May 25. See page 13 for details.

More information about pollinators can be found on the Fish and Wildlife Service website at <http://www.fws.gov> and on the North American Pollinator Protection Campaign website at <http://www.nappc.org>.

*Carmen Minch is the Outdoor Recreation Planner for the San Francisco Bay National Wildlife Refuge Complex.*

References: U.S. Fish and Wildlife Service (<http://www.fws.gov>), North American Pollinator Protection Campaign (<http://www.nappc.org>), U.S. Forest Service (<http://www.fs.fed.us>), Arizona-Sonora Desert Museum Center for Sonoran Desert Studies (<http://desertmuseum.org/pollination>), the Xerces Society (<http://www.xerces.org>), and National Sustainable Agriculture Information Service (<http://www.attra.org/attra-pub/nativebee.html>).

# A Year of Transitions for the Refuge

## Refuge Reflections

By Mendel Stewart



The San Francisco Bay National Wildlife Refuge Complex is composed of seven refuges comprising 45,000 acres. It spans 120 miles from Monterey County to Sonoma County. Amazingly, we have been able to conserve and manage important resources over this huge area with just 33 full-time staff in varied disciplines such as management, law enforcement, biology, maintenance, administration, and visitor services. Volunteers and partnerships with private, local and State agencies have also been pivotal in helping us meet our refuge mission. But as is often the case with any organization, the number of employees

fluctuates at any given time as good people move on either through retirement or by taking new jobs elsewhere.

Within the past few months, two additional employees have parted ways with the Refuge Complex - Supervisory Wildlife Biologist and Farallon National Wildlife Refuge (NWR) Manager Joelle Buffa, and Don Edwards San Francisco Bay NWR Manager, Clyde Morris. After contributing 12 years to the Refuge Complex, Joelle has accepted a position as Supervisory Wildlife Biologist at Chincoteague NWR. Clyde has retired after 30 years of Federal Service, 10 of which had been devoted to the Refuge Complex. Their experience, ability and leadership will be greatly missed. There will be challenging times ahead as we attempt to fill their shoes but in the interim, several capable staff will be filling the gaps until new staff can be found.

Another transition this spring is moving the visitor contact station at Don Edwards San Francisco Bay NWR in Fremont. This new station will be located adjacent to the lower parking lot along Marshlands Road near LaRiviere Marsh. It will be of modular construction and will

be accompanied by a restroom facility. We are looking forward to getting this facility up and running to provide better access to all refuge visitors.

And finally, we are moving toward the implementation phase of the South Bay Salt Pond Restoration Project! The five-year planning process has culminated with the December 2007 release of the Final Environmental Impact Statement/ Report. This report may be viewed at [www.southbayrestoration.org](http://www.southbayrestoration.org). This final document outlines the overall ambition to restore 9,600 acres of former Cargill salt evaporation ponds, acquired in 2003, to tidal marsh and other types of wildlife habitat. This summer, former salt pond SF2, located on the west side of the bay just south of the Dumbarton Bridge will undergo some major changes. Levees will be breached and water control structures will be built to allow tidal flow into SF2. Construction of bird nesting islands, trails, observation decks and restrooms will soon follow.

Changes are afoot for our refuge complex in the coming months and opportunities abound. We look forward to meeting the challenges ahead.

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

## Earth Day Clean-Up

Saturday, April 26, 2008  
8:30 a.m. – 12:00 p.m.

Protect wildlife and the environment! Join us on our Annual Earth Day Clean-up at Guadalupe Slough in Alviso. We'll supply latex gloves and trash bags. Wear sturdy shoes, a hat, and sunscreen. Prepare to work hard and get dirty!

RESERVATIONS REQUIRED! Call 408-262-5513 to sign up.  
**Space is limited to 50 people.** Free Swag from REI!

Meet at the Environmental Education Center.  
**Please be on time.** We will transport you to and from the cleanup location.

# TRAILS

at the Don Edwards San Francisco Bay National Wildlife Refuge

Don Edwards San Francisco Bay National Wildlife Refuge spans nine cities and three counties, and contains over 30 miles of hiking trails. Former Refuge Manager and birding enthusiast Clyde Morris continues to highlight trails found on America's first urban National Wildlife Refuge. For descriptions of other trails, contact Carmen Minch at [carmen\\_leong-minch@fws.gov](mailto:carmen_leong-minch@fws.gov).

**Name:** Stevens Creek East Trail

**Mileage:** 1.5 miles one way, 3 miles total

**Trail Use:** Walking & bicycling only; dogs are prohibited

**Trail Conditions:** Flat, compacted dirt/gravel levee. Strong winds are common in the summer afternoons.

**Highlights:** This trail follows Stevens Creek and passes ponds with large concentrations of water birds in the winter. It is one of the few access points on the refuge to the bay shoreline.

through the brown metal gate.

**Trail Details:** Just past the brown metal gate is the best area for birds that prefer fresher water such as mallards, green-winged teals, cinnamon teals and possibly blue-winged teals. The creek is important habitat for steelhead, a federally-listed fish.

After passing the NASA/AMES search and rescue training site, you will arrive at the footbridge that crosses Stevens Creek to the Shoreline Park at Mountain View with its own extensive trail system. Stay on the levee and continue north to remain on the Stevens Creek East Trail. To the right is a seasonal wetland owned by Mid Peninsula Open Space District. Depending on the season, this area may contain waterfowl and shorebirds when wet, and western meadowlarks, house finch, and killdeer when dry. Scan the PG&E towers along the trail for nesting ravens and double-crested cormorants, and perching peregrine falcons, red-tailed hawks and white-tailed kites.

The refuge begins at the kiosk welcoming you to the Don Edwards San Francisco Bay National Wildlife Refuge. Refuge Pond A2E is on the right and Pond A2W on the other side of the creek is to the left. These ponds were purchased from Cargill as part of the South Bay Salt Pond Restoration Project. The numbers of ducks using these ponds have increased over 100% after the ponds had been retrofitted. From the late fall

through early spring, these ponds are filled with ducks including northern shoveler, American wigeon, bufflehead, greater and lesser scaup, mallard, ruddy duck, gadwall, common goldeneye, northern pintail and even a few redheads and Eurasian wigeon. In the fall, this is the best location accessible to the public to see endangered least terns. After breeding in Alameda Point, the adults take their young to these ponds to improve their flying and fishing techniques before spending the winter in Mexico and

points further south. Other water birds found include American white pelican, American coot, double-crested cormorant, and eared grebe.

The ponds to the right of the trail are open to waterfowl hunting from existing hunting blinds on Wednesdays, Saturdays and Sundays from mid-October through late January. The trail remains open throughout the hunting season. At 0.9 miles, you reach the internal levee separating Pond A2E from Pond AB1. The hunting blind along this levee is reserved for hunters with disabilities.

Near the end of the trail, Forster's terns and American avocets nest on the small island in the pond during the summer.

The vegetation in this section of Stevens Creek reflects the more saline nature of the water from the bay. The pickleweed is habitat for the endangered salt marsh harvest mouse and the gum plant is the favorite nesting site for the endangered California clapper rail. The refuge hopes to restore some of these ponds back to tidal wetlands to increase habitat for these endangered species. More information on these restoration efforts can be found on <http://www.southbayrestoration.org>.

At 1.5 miles you reach the end of the trail at the shoreline of the bay. At high tide in the winter, you see many bay ducks such as canvasback and surf scoters. At low tide during the spring and fall migrations, and in the winter, this is a great spot to see large numbers of shorebirds including willet, marbled godwit, semipalmated plover, western and least sandpipers, dowitchers and dunlin. This is the best place in county to see red knots.

On the return hike, enjoy views of snowy and great egrets and great blue herons feeding in the creek. Further southeast you have more distant views of historic Moffett Field, with its huge hangers that served the World War II Dirigible fleet.

*For More information on trails, contact the Don Edwards San Francisco Bay National Wildlife Refuge Visitor Center, Tuesday through Sunday, 10:00 a.m. – 5:00 p.m. or call 510-792-0222 ext. 43.*



*American Wigeon. Photo by Donna Dewhurst/USFWS*

**Directions to Trailhead:** The trailhead is reached from the end of Crittenden Lane in Mountain View or from Shoreline Park's Stevens Creek West Trail. From Highway 101, take the Shoreline Blvd. exit and drive north 0.9 miles to Crittenden Lane. Turn right on Crittenden Lane and drive 0.4 miles until the road ends. Walk past the sign for A&Z Tree Movers and up to the Stevens Creek levee to the paved trail on the west side of the creek. Cross the bridge to the east side of the creek and turn left to pass

# More Trail News . . .

Photo by Larry Wade/USFWS

## Newark Slough Trail is Closed Until 2010

The Newark Slough Trail at the Don Edwards San Francisco Bay National Wildlife Refuge is a levee that was originally constructed to contain the salt pond that Cargill Salt uses to produce salt. Winds and waves over the years have eroded the levees and it is time for maintenance.

For the past year, Cargill's wooden-hulled dredge the Mallard II could be seen scooping mud from the salt pond bottom and placing it atop the levee. The levee tops must be replenished periodically with native bay mud to prevent the levees from eroding away. The Mallard II has since departed to complete another levee maintenance project but the evidence that it once resided here remains. Thick, dark, goeey mud is piled on top of the Newark Slough Trail. It will take the mud several years to compact and dry before it can be leveled back into a trail. The trail is expected to reopen in 2010.

## Bair Island Restoration Underway

Habitat restoration is well-underway on Bair Island, a unit of the Don Edwards San Francisco Bay National Wildlife Refuge which lies in Redwood City. The restoration plan calls for strengthening the levees, raising the sunken floor of the former commercial salt evaporation pond to create tidal wetland habitat, and improving wildlife observation opportunities for the public.

One million cubic yards of clean fill is needed for the project. Since July, 200 per day have been streaming onto Inner Bair Island, dumping their loads of dirt. Large earthmovers, graders, and compactors, in addition to the trucks, are in constant motion. The area has turned into a veritable construction site. Understandably, construction schedules vary due to weather and unforeseen events. To ensure public safety, the U.S. Fish & Wildlife Service has had to close Inner Bair Island to all public access until further notice.

Bair Island, which consists of three "islands" totaling 1,400 acres, was diked in the late 1800s for grazing and was later converted into salt evaporation ponds. Inner Bair Island, the portion that contains



the public use trail, has subsided considerably over the years. The restoration plan calls for strengthening the levees and raising the sunken floor of the former salt pond; then breaching the levees at strategic locations to allow for natural tidal flows and restoring native salt marsh vegetation. The salt marsh vegetation will provide habitat for many species including the endangered California clapper rail and the salt marsh harvest mouse, two Federally-listed endangered species that can live only in the salt marshes of San Francisco Bay.

In addition to restoring Bair Island for endangered species and other wildlife, public access will be enhanced by universally accessible trails and wildlife observation platforms.

The restoration work is expected to last three to five years. People are encouraged to log on to [www.fws.gov/desfbay](http://www.fws.gov/desfbay) for updated construction and public access information. The restoration plan can be viewed on the South Bay Salt Pond Restoration Project website at <http://www.southbayrestoration.org/Bair-EIR-EIS-Final.html>

## New Trail Open this Spring

After five years of planning, the South Bay Salt Pond Restoration Project has entered into the implementation phase. In addition to restoring and enhancing a mix of wetland habitats and providing for flood management in the South Bay, one of the primary goals of the project is to provide wildlife-oriented public access and recreation. Later this year, possibly as early as May, a 2.5-mile section of levee trail behind NASA will be open to walkers and bicyclists for the first time. The trail section to be opened will connect the Stevens Creek Trail in Mountain View to the Bay Trail near the sewage treatment plant in Sunnyvale and will skirt the edge of refuge ponds A2E and A3W. Check the Don Edwards San Francisco Bay National Wildlife Refuge website at <http://www.fws.gov/desfbay> for news of the trail opening.



Map courtesy of South Bay Salt Pond Restoration Project



Don Edwards San Francisco Bay National Wildlife Refuge  
Environmental Education Center

# SOUTH BAY BIRD FEST

SATURDAY, APRIL 12  
11 a.m. • 3 p.m.

At the Don Edwards San Francisco Bay National Wildlife Refuge  
Environmental Education Center in Alviso  
Where San Jose meets the Bay!



Face Painting • Crafts • Hands-On Activities  
Story Time • Guided Bird Walks

**All Activities are Free!**

Visit our website for directions and more information at  
<http://www.fws.gov/desfbay> or call (408) 262-5513

South Bay Bird Fest is sponsored by: City of San Jose, San Francisco Bay Wildlife Society,  
Santa Clara Valley Urban Runoff Pollution Prevention Program, and U.S. Fish and Wildlife Service

# Refuge Acquires 444-acre Vernal Pool Preserve!

By Ivette Loreda

In January 2008, 444 acres of rare vernal pool habitat was added to the Don Edwards San Francisco Bay NWR. This habitat formerly known as Pacific Commons Preserve is located in South Fremont. These lands will be managed as part of the Warm Springs Unit for the protection and enhancement of vernal pool habitat and endangered species.

Vernal pools are seasonally flooded depressions found on soils with an impermeable layer such as a hardpan or claypan. These pools typically flood in the winter with the onset of the rainy season. The impermeable layer allows the pools to retain water much longer than the surrounding uplands; but the pools are shallow enough to dry up each season. Few plants and animals are adapted to this cycle of wetting and drying, making species that live in these types of habitat rare. Vernal pool habitat has also declined significantly with increasing urbanization. These pools support the endangered vernal pool tadpole shrimp, the endangered Contra Costa goldfield, and the threatened California tiger salamander. In addition, the uplands of the newly acquired lands provide habitat for the California burrowing owl, a state species of special concern.

Vernal pool tadpole shrimp have developed a special relationship with the vernal pool cycle of wetting and drying. Tadpole shrimp produces many drought resistant cysts (eggs) each winter that remain viable in the soil until hatching conditions are favorable. As the winter rains fill the pools, the cysts hatch and shrimp reach sexual maturity in as little as three weeks. In a dry year the cysts will not hatch. Tadpole shrimp cysts can remain dormant and viable for at least 10 years.

California tiger salamanders also take advantage of the unique cycle of vernal pools. These salamanders migrate to vernal pools to breed during the rainy season. Eggs take an average of 20 days to hatch and larvae require approximately three months to complete metamorphosis. California tiger salamanders breed only in pools that have long enough inundation periods to allow them to complete their aquatic life cycle. During the summer



USFWS photo



USFWS photo



Photo by David Munz

*The Contra Costa goldfield, California tiger salamander and tadpole shrimp are among the species that make Warm Springs their home.*

months, salamanders persist in open grasslands, using ground squirrel and pocket gopher burrows as non-breeding habitat.

The process of acquiring the 444-acre Pacific Commons Preserve unit began in 1997. Catellus Development Corp. (now ProLogis) was required to mitigate for developing a proposed business park with the construction of a vernal pool wetland preserve in Fremont, California. The preserve would then be transferred to the refuge when the constructed vernal pools met certain requirements. ProLogis, working closely with the refuge, transferred the property sooner than expected. In exchange for the early donation, ProLogis will include a larger permanent endowment to fund management of this area

in perpetuity. In addition, ProLogis has gone beyond their permit requirements by agreeing to construct interpretive signs along a planned public trail adjacent to this preserve. ProLogis will continue to manage the area until all permit requirements are met, likely a few years from now.

The refuge is excited to add this beautiful property to the Don Edwards SF Bay NWR. Vernal pool tours will be offered at Warm Springs in mid-April during the peak wildflower bloom. If you are interested in participating in a tour, please contact John Bradley at 510-792-0222.

*Ivette Loreda is the manager for the Don Edwards San Francisco Bay National*

# 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 October 19, 2007 and January 7, 2008. 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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Sue Ten Eyck and Chris Kitting

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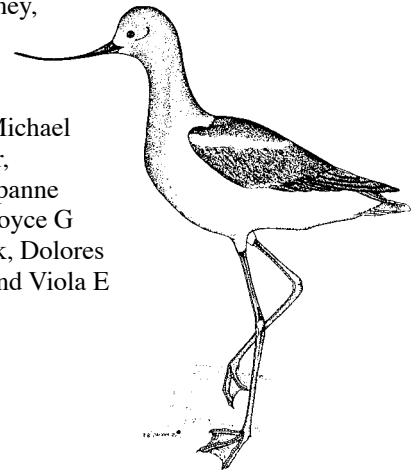
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## Help Us Help the Refuge

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 510-792-0222 ext. 40.

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     \$250 Sponsor     \$1,000 Leader
- \$35 Individual     \$75 Supporter     \$200 Corporation     \$500 Sustainer

Check     Visa or MasterCard # \_\_\_\_\_ Exp. Date \_\_\_\_\_

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Phone \_\_\_\_\_ *Thank you for your support!*



# Outdoor Art Brightens up the Environmental Education Center at the Don Edwards SF Bay National Wildlife Refuge

“It adds a touch of class to this place and has been a big hit with the children, teachers, and parents,” exclaims Genie Moore, the Environmental Education Center Director. “One child walked by the other day and shouted in delight, ‘It’s Salty the Mouse!’”

Overlooking the salt marsh habitat atop of New Chicago Marsh boardwalk at the Environmental Education Center in Alviso is a beautiful piece of outdoor art created by Maintenance Worker Juan Flores. Flores’ mosaic depicts the salt marsh harvest mouse, a Federally-listed endangered species and a much-loved refuge mascot, in a bed of native pickleweed.

In addition to the school groups that visit the Environmental Education Center and participate in field trip activities on weekdays, refuge trails are open daily and the public is invited to enjoy the Center and join in learning activities on Saturdays and Sundays. For more information and directions, please visit the refuge website: [www.fws.gov/desfbay/](http://www.fws.gov/desfbay/)



*Juan Flores with the Salt Marsh Harvest Mouse.*



• SAVE WATER • SAVE ENERGY • GROW NATIVE PLANTS • CREATE HABITAT •

Visit gardens at the Don Edwards San Francisco Bay National Wildlife Refuge Environmental Education Center in Alviso and other local gardens during the

## Sixth Annual Going Native Garden Tour

Sunday, April 20, 2008, 10 am-4 pm

A free, self-guided tour of over 40 gardens landscaped with California native plants • Locations throughout the Santa Clara Valley and Peninsula • Many private home gardens, some public native gardens • Visit as many as you like — for ideas, for photos, for inspiration.

Free admission • Registration required  
at [www.GoingNativeGardenTour.org](http://www.GoingNativeGardenTour.org)



• REDUCE CHEMICAL USE • PROTECT THE ENVIRONMENT •

• PROTECT THE ENVIRONMENT • GROW NATIVE PLANTS • SAVE MONEY •

# Spring Activity Schedule

## March

*Sunday, March 2*

### **Slough Whoop???**

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

Whoop...whoop...whoop did that owl eat? Bet you can find out! Come solve the mystery of who ate whom and know more about these nocturnal predators. We will start with a slide show, and then hike the habitats to search for owl clues. Dissect owl pellets to discover exactly who that owl ate! All ages welcome. Led by Paul Bridges. Reservations required. Call 408-262-5513.

*Saturday, March 8*

### **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.

### **\*Adult Beginning Birdwatching**

**Environmental Education Center, Alviso**  
10:00 a.m. – 11:30 a.m.

Can you tell an avocet from a black-necked stilt? If not, join birding enthusiast Ceal Craig for a beginning bird watching program and get to know the most common refuge visitors. Start with a slide show inside to learn how to recognize the regulars, then borrow a pair of binoculars and take a walk with Ceal to try your new skills. Program intended for adults. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

### **\*Beginning Bird Photography Workshop**

**Environmental Education Center, Alviso**  
2:30 p.m. - 5:00 p.m.

Come learn the basics in bird photography! Join us for tips on photography or for viewing commonly seen birds at the refuge. This beginning bird photography workshop will help you get the most out of your point-and-shoot camera. We will discuss ideal sighting and photo taking conditions, lighting, composition and equipment. We will also

have a slide show to familiarize you with some common birds at the refuge. Our discussion will be followed by an easy walk to different locations where we will take photos. Please bring your binoculars and/or digital or film camera. Warm clothing and comfortable walking shoes recommended. Space is limited. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

### **Twilight Marsh Walk**

**Visitor Center, Fremont**  
5:30 p.m. – 7:00 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 observation deck. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-792-0222 ext. 43. Led by Mary and Gene Bobik.

*Sunday, March 9*

### **Webelos Naturalist Program**

**Visitor Center, Fremont**  
10:00 a.m. – 12:00 p.m.

Attention Webelos! Earn your naturalist badge in just two hours. During this hike, learn about birds, flyways, food chains, and the importance of wetlands. Bring your binoculars, or borrow one of ours. Space is limited to 15 Webelos. Call 510-792-0222 ext. 43. Led by June Smith.

*Saturday, March 15*

### **\*Backyard Birds**

**Happy Hollow Park and Zoo, San Jose**  
8:30 a.m. – 10:00 a.m.

Want to know what kind of bird that is in your backyard? Come learn about wild birds that live at Happy Hollow Park and Zoo. Interpretive Specialist Lindy Nice takes "Children's Beginning Bird Watching" on the road. The wild birds at the zoo are common backyard birds. Program is free with park admission. Suitable for ages 5 and up. Reservations are required. Call Vanessa Rogier at 408-277-3065.

### **\*Bird Migration**

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

Why do they migrate? How far do they fly? Who flies the farthest? Come and learn about bird migration and some of the hazards birds encounter during their seasonal travels. Play a migration game. Led by volunteer Ed Kantack. Recommended for ages 7 and up. Reservations required. Call Lindy at 408-262-5513 ext 102.

*Sunday, March 16*

### **Native Species Scavenger Hunt**

**Environmental Education Center, Alviso**  
10:00 a.m. – 11:30 a.m.

The refuge is a mosaic of different habitats, each habitat supporting an array of California native wildlife. Come enjoy the outdoors as we embark on a scavenger hunt, exploring the refuge habitats and the creatures that call them home! We will get up close and personal with the salt marsh, sloughs, and salt ponds on our short and easy trek. Binoculars and I.D. charts in hand, we will identify native plants and animals. We will also learn how these wetland habitats are impacted by humans. All ages welcome. Reservations are required. Call 408-262-5513.

### **Edible Plants on 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, March 22*

### **\*Girl Scout Try it Eco-Explorer Patch**

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

Calling all Brownies of Santa Clara County! Anyone out there want to earn an Eco-Explorer patch? We've got the program just for you. Come to the wildlife refuge 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. Ratio of 1 adult for every 6 children recommended. Dress warmly. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

### **Family Bird Walk**

**Visitor Center, Fremont**  
10:00 a.m. - 12:00 p.m.

Let family walks become a shared time of nature learning. We'll begin by helping kids create their personal bird watching field guides, and then head out onto the trails to find those birds. Learn about the salt marsh habitat along the way. A limited number of binoculars are available to borrow. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Call 510-792-0222 ext. 43.

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

**Visitor Center, 1 Marshlands Road, Fremont – (510) 792-0222 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513**

# Spring Activity Schedule

*Saturday, March 22*

## **\*Webelos Naturalist Program**

**Environmental Education Center, Alviso**

**2:00 p.m. – 4:00 p.m.**

Calling all Webelos of Santa Clara County! Anyone out there need to earn a naturalist badge? We've got a program just for you. Learn about birds, migration, flyways, food chains, human impacts, and the importance of wetlands. Then take a walk and use our binoculars to spot birds in the wild. Ratio of 1 adult for every 6 children recommended. Space is limited. Program fills quickly. RESERVATIONS REQUIRED. **Calls for reservations begin Thursday, February 21 at 9:00 a.m.** Call Lindy at 408-262-5513 ext. 102.

*Saturday, March 29*

## **\*Discover Native Plants!**

**Environmental Education Center, Alviso**

**10:00 a.m. – 12:00 p.m.**

Want to know more about native plants? Here is the program for you! Learn all about them with an informative walk through our native plant demonstration garden. View plants that not only attract wildlife, but require little watering. Led by June Smith. Program intended for adults, but all ages welcome. RESERVATIONS REQUIRED. Call Lindy at (408) 262-5513 ext. 102.

## **Community Service**

**Environmental Education Center, Alviso**

**2:00 p.m. – 4:00 p.m.**

Do you need to fulfill community service requirements? Come help remove invasive non-native plants from our chemical-free demonstration gardens. Bring your own gloves or borrow a pair of ours. Tools provided. Dress in layers. Long pants are recommended. Be prepared to get dirty and wet. Recommended for ages 9 and up. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

*April*

*Saturday, April 5*

## **\*Habitat Hike**

**Environmental Education Center, Alviso**

**10:00 a.m. – 11:00 a.m.**

Join us for an enlightening hike around the Education Center. Find out what critters are enjoying the refuge during this time of year. Look for seasonal changes in our wetland habitats. We will observe and identify

the wildlife we see on this short and easy trek. Discover what your connection is to this thriving wetland and what you can do at home to protect it. Dress warmly. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

## **\*Drawbridge**

**Environmental Education Center, Alviso**

**2:00 p.m. – 3:00 p.m.**

There's a ghost town in 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? Enjoy a slide show led by Ceal Craig. Optional walk afterwards. RESERVATIONS ARE REQUIRED. Call Lindy at 408-262-5513 ext. 102.

## **Beginning Bird Photography Workshop**

**Visitor Center, Fremont**

**3:00 p.m. - 5:30 p.m.**

Come learn the basics in bird photography! Join us for tips on photography or for viewing commonly seen birds at the refuge. This beginning bird photography workshop will help you get the most out of your point-and-shoot camera. We will discuss ideal sighting and photo taking conditions, lighting, composition and equipment. We will also have a slide show to familiarize you with some common shorebirds at the refuge. Our discussion will be followed by an easy walk to different locations where we will take photos. Please bring your binoculars and/or digital or film camera. Warm clothing and comfortable walking shoes recommended. Space is limited. RESERVATIONS REQUIRED. Call 510-792-0222 ext. 43.

*Sunday, April 6*

## **\*Habitat Hike**

**Environmental Education Center, Alviso**

**10:00 a.m. – 11:00 a.m.**

Do you enjoy exploring nature? Do you find yourself curious about where mice sleep or how birds stay dry in the rain? If so, then come take a walk and explore the habitats at the refuge. Along the way we will learn about wetland and upland habitats that have been human-altered. We will observe and identify plants, birds, and whatever other animals we see on this short and easy trek. This program is wheelchair and stroller accessible. Recommended for all ages. Reservations required. Call 408-262-5513.

## **Webelos Naturalist Program**

**Visitor Center, Fremont**

**10:00 a.m. – 12:00 p.m.**

Attention Webelos! Earn your Naturalist Badge in just two hours. During this hike, learn about birds, flyways, food chains, and the importance of wetlands. Bring your binoculars, or borrow one of ours. Space is limited to 15 Webelos. Call 510-792-0222 ext. 43 for reservations. Led by June Smith.

*Saturday, April 12*

## **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.

## **Family Bird Walk**

**Visitor Center Auditorium, Fremont**

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

Let family walks become a shared time of nature learning. We'll begin by helping kids create their personal bird watching field guides, and then head out onto the trails to find those birds. Learn about the salt marsh habitat along the way. A limited number of binoculars are available to borrow. Led by Patricia Gerrity. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Call 510-792-0222 ext. 43.

## **\*South Bay Bird Fest!**

**Environmental Education Center, Alviso**

**11:00 a.m. – 3:00 p.m.**

Join us for a day of celebrating our feathered friends. Witness avian antics in a LIVE BIRD SHOW! Take a guided walk, play games, make crafts, and more. Don't miss this fun, feather-filled fiesta! All activities and crafts are FREE! No reservations necessary.

*Saturday, April 19*

## **\*Ohlone Uses of Plants**

**Environmental Education Center, Alviso**

**10:30 a.m. – 12:00 p.m.**

Explore the plants that were traditionally used by the Ohlone Indians. Then enjoy a guided walk in our native plant garden. Fun for the whole family. Recommended for ages 7 and up. Led by volunteer Pat Hartinger. Dress in layers. RESERVATIONS REQUIRED. Call Lindy 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) 792-0222 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513**

# Spring Activity Schedule

*Saturday, April 19*

## \*Springtime Stroll

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

It's springtime! Join us for a leisurely walk along the Mallard Slough trail. We can look for seasonal changes and perhaps see a few young chicks. Bring cameras and binoculars. Led by volunteer Ed Kantack. Open to all ages. Dress in layers. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

## 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. Meet at the observation deck. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-792-0222 ext. 43. Led by Mary and Gene Bobik.

*Saturday, April 26*

## Earth Day Cleanup

Environmental Education Center, Alviso  
8:30 a.m. – 12:00 p.m.

Join us for our annual Earth Day Cleanup and help protect wildlife. Bring a hat, sunscreen, and water. We'll supply gloves and trash bags. Be prepared to get dirty! RESERVATIONS ARE REQUIRED! Space is limited to the first 50 people. For more information, call 408-262-5513.

## \*Adult Beginning Bird Watching

Environmental Education Center, Alviso  
2:00 p.m. – 3:30 p.m.

Can you tell an avocet from a black-necked stilt? If not, join birding enthusiast Ceal Craig for a beginning bird watching program and get to know the most common refuge visitors. Start with a slide show, then borrow a pair of binoculars and take a walk with Ceal to try your new skills. Program intended for adults. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

*Sunday, April 27*

## Edible Plants on 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.

## Earth Day Planting

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

Find out what you can do at home to take care of our planet. Help keep pollution out of our waterways by working in our chemical-free gardens. Plant natives and make the refuge a better place for migratory birds and resident animals. Bring garden gloves and water. Garden tools provided. Great service project for scout groups, students who need to fulfill community service requirements, and home-schooled groups. Be prepared to get dirty and wet. Recommended for ages 8 and up. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

## Mud Marsh Mania

Environmental Education Center, Alviso  
2:00 p.m. – 4:00 p.m.

What's that wiggling and squiggling? Think that brown stuff is just mud? Think again!!! Come take a slough hike, collect some ooey, gooey mud, and discover which critters the birds find during a low-tide feast. During this program we will compare mud creatures from two different mud flat habitats. Through this comparison, we will discover how these creatures are species indicators of slough habitat. All ages welcome. Reservations are required. Call 408-262-5513.

*May*

*Saturday, May 3*

## Family Bird Walk

Visitor Center, Fremont  
10:00 a.m. - 12:00 p.m.

Let family walks become a shared time of nature learning. We'll begin by helping kids create their personal bird watching field guides, and then head out onto the trails to find those birds. Learn about the salt marsh habitat along the way. A limited number of binoculars are available to borrow. Led by Patricia Garrity. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Call 510-792-0222 ext. 43.

## \*Who Did the Owl Eat?

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

Come learn about owls and their adaptations that enable them to be superb hunters. Learn about food chains and the habitats that owls hunt in. Find out what they eat by dissecting an owl pellet. See if you can figure out the mystery of who the owl ate. Recommend for ages 4 and up. RESERVATIONS REQUIRED. Call 408-262-5513 ext. 102.

## \*Junior Girl Scout Wildlife Badge

Environmental Education Center, Alviso  
2:00 p.m. – 3:30 p.m.

Calling all junior girl scouts of Santa Clara County! Anyone out there want to earn a wildlife badge? We've got the program just for you. Come to the wildlife refuge and learn about the features of different creatures, how you can help wildlife, and much more. Then take a walk to explore the habitats at the southern end of the bay. Program covers badge requirements. Ratio of 1 adult for every 6 children recommended. Dress warmly. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext 102.

*Saturday, May 10*

## 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

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.

## \*Webelos Naturalist Program

Environmental Education Center, Alviso  
11:00 a.m. – 1:00 p.m.

Calling all Webelos of Santa Clara County! Anyone out there need to earn a naturalist badge? We've got a program just for you. 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. Ratio of 1 adult for every 6 children recommended. Space is limited. Program fills quickly. RESERVATIONS REQUIRED. **Calls for reservations begin Thursday, February 21st at 9:00 a.m.** Call Lindy 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) 792-0222 • Environmental Education Center, 1751 Grand Blvd, Alviso – (408) 262-5513

# Spring Activity Schedule

## **\*Beginning Bird Photography Workshop**

**Environmental Education Center, Alviso  
3:00 p.m. - 5:30 p.m.**

Come learn the basics in bird photography! Join us for tips on photography or for viewing commonly seen birds at the refuge. This beginning bird photography workshop will help you get the most out of your point-and-shoot camera. We will discuss ideal sighting and photo taking conditions, lighting, composition and equipment. We will also have a slide show to familiarize you with some common shorebirds at the refuge. Our discussion will be followed by an easy walk to different locations where we will take photos. Please bring your binoculars and/or digital or film camera. Warm clothing and comfortable walking shoes recommended. Space is limited. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

*Sunday, May 11*

## **\*Mother's Day Beginning Bird Watching**

**Environmental Education Center, Alviso  
10:00 a.m. - 11:30 a.m.**

Do something special with Mom. Take her to the wildlife refuge for a Mother's Day bird walk. Bring your own brunch to eat in our outdoor pavilion after the program. Join birding enthusiast Ceal Craig for a beginning bird watching program and get to know the most common refuge visitors. We'll start with a slide show inside to learn how to recognize the regulars, and then take a walk with Ceal to try your new skills. Fun for the whole family! RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

## **Edible Plants on 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, May 17*

## **\*About Butterflies**

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

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

## **Endangered Species Day**

**Visitor Center Auditorium, Fremont  
1:00 p.m. - 3:00 p.m.**

Come to the refuge and celebrate Endangered Species Day! Meet and greet artists from elementary schools in the Fremont, Newark, New Haven, and Raveswood School Districts who entered the 26th Annual Endangered Species Poster Contest. The artists' work will be on display in the Visitor Center Auditorium. Refreshments will be served.

## **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. Meet at the observation deck. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-792-0222 ext. 43. Led by Mary and Gene Bobik.

*Sunday, May 18*

## **\*Habitat Hike**

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

Do you enjoy exploring nature? Do you find yourself curious about where mice sleep or how birds stay dry in the rain? If so, come take a walk and explore the habitats at the refuge. Along the way we will learn about wetland and upland habitats that have been human-altered. We will observe and identify plants, birds, and other animals we see on this short and easy trek. This program is wheelchair and stroller accessible. Recommended for all ages. Reservations required. Call 408-262-5513.

*Sunday, May 25*

## **\*Wonderful Wildflowers**

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

Do you enjoy wildflowers, bugs, and butterflies? If so, this is the program for you. Come learn about native wildflowers and discover how insects play a major role in the life cycle of all flowers and fruits. Then take a walk through our native plant garden and enjoy a scavenger hunt. June Smith will be leading the walk. Come rain or shine. Recommended for all ages. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

## **\*Critter Café**

**Environmental Education Center, Alviso  
2:00 p.m. - 4:00 p.m.**

Water is pretty boring stuff, right? No way! Come take a closer look at some of the tiny, wiggly, squiggly creatures we'll find in San Francisco Bay slough water samples. Learn about macroinvertebrates and plankton -- the tasty treats that shorebirds are eating at our five-star marsh "cafes" at the refuge. Recommended for ages 6 and up. Reservations required. Call 408-262-5513.

*Saturday, May 31*

## **Community Service**

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

Do you need to fulfill community service requirements? Come help remove invasive non-native plants from our chemical-free demonstration gardens. Bring your own gloves or borrow a pair of ours. Tools provided. Dress in layers. Long pants recommended. Be prepared to get dirty and wet. Recommended for ages 9 and up. RESERVATIONS REQUIRED. Call Lindy at 408-262-5513 ext. 102.

## **Exploring Owls**

**Visitor Center Auditorium, Fremont  
1:00 p.m. - 3:00 p.m.**

Owls have captivated human imagination for centuries. Curious about how they hunt, how they see and hear, and what they eat? Come listen to a presentation, view owl body parts, listen to their calls, and dissect their pellets to see what they eat. Recommended for ages 7 and up. Led by Paul Bridges. Reservations required. Call 510-792-0222 ext. 43.

## **\*Reading at the Refuge**

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

Come to our Education Center auditorium to enjoy a story about wildlife followed by a guided exploration outside. Fun for the whole family. This program is geared for ages 4 and up. Led by volunteer Pat Hartinger. Come rain or shine. Dress in layers. RESERVATIONS REQUIRED. Call Lindy, at 408-262-5513 ext 102.

*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.*

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

**Visitor Center, 1 Marshlands Road, Fremont - (510) 792-0222 • Environmental Education Center, 1751 Grand Blvd, Alviso - (408) 262-5513**

# Field Trips to the Refuge

## General Field Trip Program Information

FREE field trip programs are offered at two sites at the Don Edwards San Francisco Bay National Wildlife Refuge. The Wetland Round-Up field trip program is offered at the Newark Slough Learning Center in Fremont. Wetland Round-Up and Slow the Flow 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 students. All programs have been correlated to the appropriate State

of California Education Standards.

Educators and adult leaders design and conduct their own field trips after attending a Field Trip Orientation Workshop. Adult volunteers must be recruited to lead the activities at the different learning stations and to chaperone the rotation of student groups. We provide easy to follow “scripts” for each station, but both “leaders” and “chaperones” are strongly encouraged to attend a workshop. It is our policy that lead educators must attend a workshop 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 Roundup

Investigate the creatures of the mud flats, collect plankton samples from the slough and explore the features of the salt marsh on a Wetland Roundup Field Trip. This program is designed for grades K-6, for up to 65 students. Wetland Roundup is offered Tuesday-Friday from February 5 - June 13, 2008.

*Reservations for spring field trips have begun. Call 510-792-0222 ex. 42 for more information or to make a reservation in Fremont.*

#### Field Trip Orientation Workshop Dates at the Learning Center in Fremont

Call the Environmental Education Intern at 510-792-0222 ext. 42 to attend an orientation.

**Wetland Round-Up 4:00 p.m. - 7:30 p.m.**

Thursday, March 13

Tuesday, April 8

### 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 program is designed for up to 65 students in grades K-6. Wetland Round-Up is offered Monday - Thursday from February 5th - June 13, 2008.

*Reservations for spring field trips have begun. Call 408-262-5513 to make a reservation in Alviso.*

For more information or to schedule a field trip a call the Environmental Education Intern at 408-262-5513 ext. 103.

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

Call the Environmental Education Intern at 408-262-5513 ext. 103 to attend an orientation.

**Wetland Round-Up 4:00 p.m. - 7:30 p.m.**

Thursday, March 6

Thursday, April 3

Monday, April 21

Wednesday, May 14

**Please note:** The cutoff date to make a workshop 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.

**5th and 6th Grades:** We offer a combined classroom presentation and an all day hands-on field trip at the refuge.

**7th - 12th Grades:** We offer classroom presentations and/or a field trip at the refuge.

Educators are encouraged to contact us to discuss options for customizing field trips and presentation activities and schedules. Slow the Flow Programs are available throughout the year in Alviso. **Reservations for the Slow the Flow program are on a first-come basis.** Call the Slow the Flow coordinator at 408-262-5513 ext. 104 for more information, or to schedule a field trip or presentation.

# Field Trips to the Refuge

## Free Discovery Packs available at the Visitor Center and Environmental Education Center!

Explore the salt marshes, salt ponds, and the birds of the refuge with your family or small youth group! The Discovery Pack includes an activity booklet, and equipment such as dip nets, magnifying lenses and bug boxes that you will need to take a close look at the salt marsh, plants, and the birds. The back pack is suitable for up to six people, ages kindergarten - adults. There are also group packs available for 12-24 people (only in Fremont). Please call in advance if you would like a group pack. You can check out the Discovery Packs free of charge at the Visitor Center in Fremont or at the Environmental Education Center in Alviso. The Visitor Center is open Tuesday-Sunday from 10:00 a.m. - 5:00 p.m. For questions or to reserve a group pack in Fremont, please call 510-792-0222. 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.



Photo by Carolyn Ramsay

### TIDELINE

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Editor: ..... Carmen Minch  
To receive *Tideline*, email [carmen\\_leong-minch@fws.gov](mailto: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

Founded in 1974 and administered by the U.S. Fish and Wildlife Service, Don Edwards San Francisco Bay National Wildlife Refuge exists to preserve wildlife habitat, protect threatened and endangered species, protect migratory birds, and provide opportunities for nature study. Six additional refuges are managed from the headquarters located in Fremont: San Pablo Bay NWR, Antioch Dunes NWR, Salinas River NWR, Ellicott Slough NWR, Marin Islands NWR, and Farallon NWR.

Project Leader:.....Mendel Stewart  
Deputy Project Leader: .....John Bradley  
Don Edwards Warm Springs Unit Manager: Ivette Loreda  
Don Edwards Refuge Operations Specialist:..... Eric Mruz  
Farallon Refuge Operations Specialist: ..... Zach Coffman  
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North Bay Wildlife Specialist:..... Louis Terrazas  
South Bay Refuges Manager: ..... Diane Kodama  
Refuge Planner: ..... Winnie Chan  
Chief of Visitor Services:.....Karla Tanner  
Outdoor Recreation Planner: ..... Carmen Minch  
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Law Enforcement Officers:..... Walter Duran  
Biologists: .....Joy Albertson, Giselle Downard,  
Rachel Hurt, Gerry McChesney, Susan Euing,  
Peter Kappes, Cheryl Strong  
Administrative Staff: ..... Lucinda Ballard, Ellen Tong,  
Patricia Compton  
Maintenance Staff: .....Larry Wade, Juan Flores,  
Michael Springman, James Griffin, Calvin Sahara

### 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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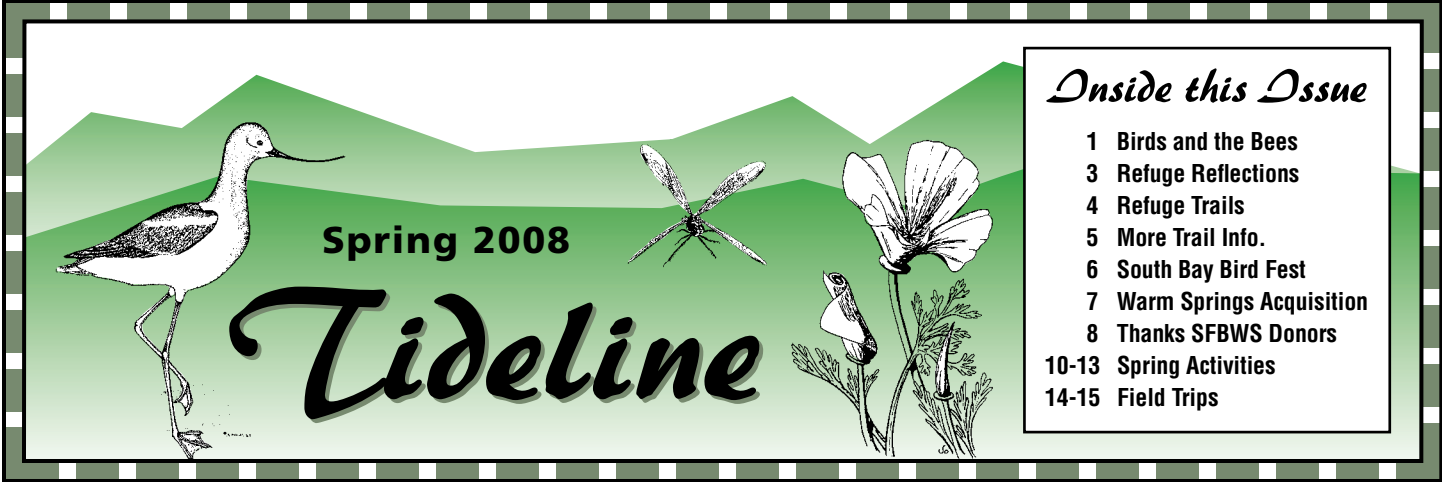
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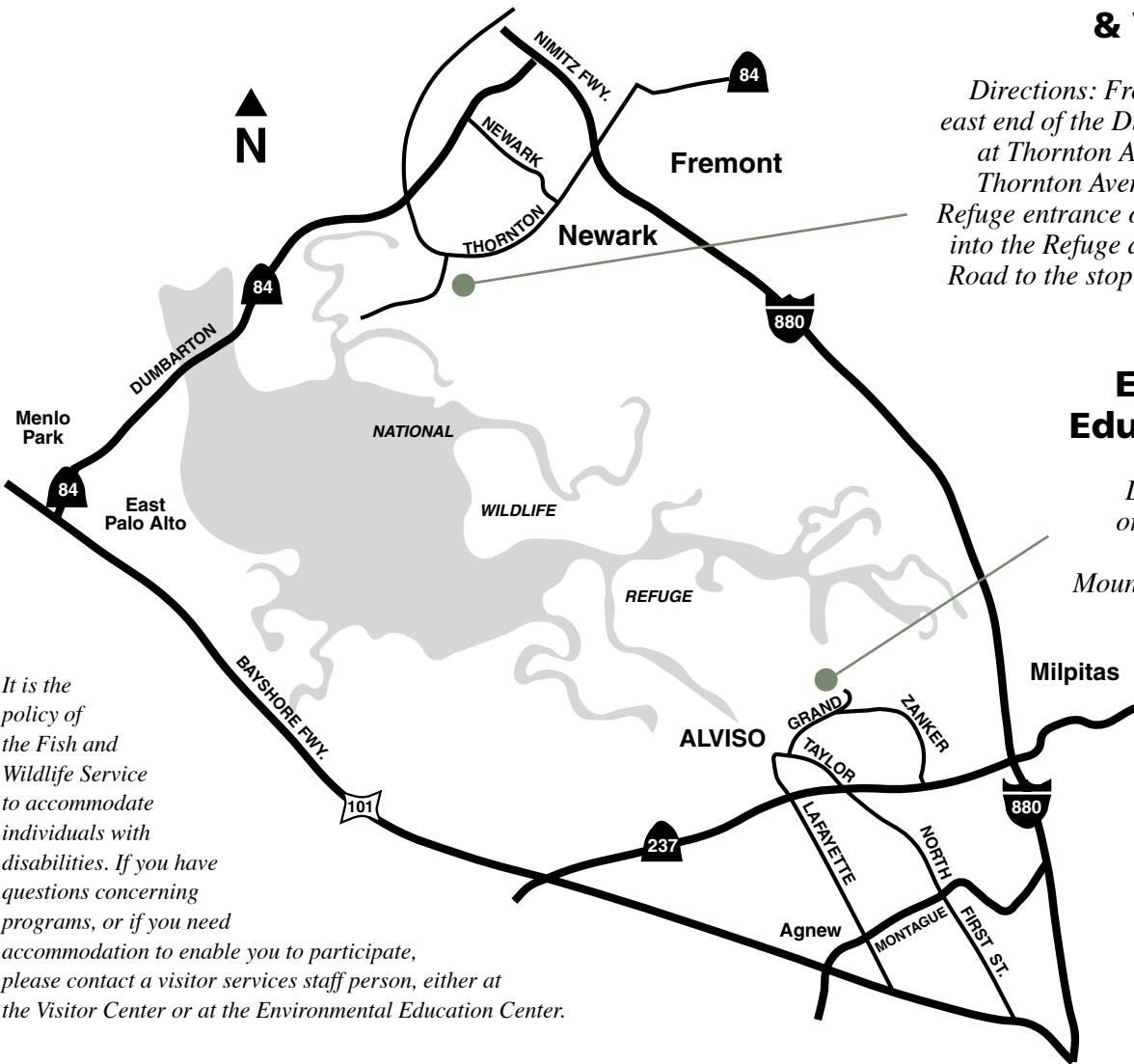
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**Headquarters  
 & Visitor Center**

(510) 792-0222  
*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.*