

Tideline



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

Ellicott Slough National Wildlife Refuge's Prospects are Looking Good

By Diane Kodama

The smell of neoprene and old rubber fills the nostrils as we stamp and maneuver our way into chest waders. Armed with dipnets, six surveyors make their way down to Prospect Pond, carefully navigating around the new plant life flourishing on the banks. I remain above with pencil in hand, ready to record the data that will answer the question that has been on everyone's minds.

"If you build it...will they really come?"

This survey is the culmination of a goal that was set over 15 years ago to design and create breeding habitat for the federally-endangered Santa Cruz long-toed salamander on Ellicott Slough National Wildlife Refuge.

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The Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*) was first discovered in 1954 in Valencia Lagoon and Ellicott Pond in 1956. Described as a black salamander with distinct orange patterning on the back and tail, it was recognized as a new long-toed subspecies. Due to its limited range and habitat threatened by development, the Santa Cruz long-toed was included alongside the iconic Bald Eagle on the first Endangered Species List in 1967.

The California Department of Fish and Wildlife purchased Ellicott Pond in 1973, and in 1975 the US Fish and Wildlife Service (USFWS) acquired the surrounding uplands, establishing the Ellicott Slough National Wildlife Refuge. Since its establishment, the refuge has grown to more than 315 acres and currently protects three additional sensitive species: the



Survey using dip net at Prospect Pond Photo: Shawn Milar/USFWS

federally-endangered Robust Spineflower and the federally-threatened California tiger salamander and California red-legged frog.

The number of breeding sites has also expanded, from the original two to over 20, found throughout Santa Cruz and northern Monterey Counties. The discovery of these sites has improved the outlook for the Santa Cruz long-toed, but biologists and managers still have much work ahead of them to ensure the continuation and protection of this unique salamander. The Santa Cruz long-toed depends upon the conservation of not just one, but two habitats to complete

its lifecycle.

Adult salamanders spend the hot summer months protected underground in small mammal burrows and along tree root systems, throughout oak woodland and chaparral uplands. As the winter storms slowly fill the ephemeral (temporary) ponds with water, the adults emerge from their shelters to migrate to the ponds. The Santa Cruz long-toed can travel up to a mile, during night-time rains, to reach its destination. This is no small feat for a critter

continued next page

with an average total length comparable to a ballpoint pen.

Upon reaching the pond, the salamanders slip into the water to court, breed and lay eggs on the submerged vegetation. By March, the adults have returned to the uplands, leaving the eggs to hatch and the larvae to forage for food and to grow. As summer progress and the ponds begin to draw down, the larvae undergo a transformation. Legs sprout, the feathery external gills shrink and disappear, and the head and body become defined. By late summer, the larvae have metamorphosed into juvenile salamanders, ready to breathe air and walk on land with the characteristic elongated toes.

The salamanders remain close by, waiting in the cracks of the dried out pond and in the surrounding willow and blackberry thickets for the first rains of the year. The damp ground is a signal to the salamander to make its inaugural migration out into

advance their invasion of the uplands if left unchecked. Roads pose a deadly hazard during migration and create barriers, isolating salamander populations. New threats, such as climate change and its effects on the ephemeral pond cycle have been identified and are being studied by researchers. Faced with these challenges, refuge personnel, volunteers and partners have met them head on and have been actively working to improve and restore existing habitats.

Upland habitat restoration was initiated on the refuge in the 1990s with the removal of eucalyptus. To date, with the help of partners such as the California Conservation Corps and Cal Fire, over 30 acres of eucalyptus have been removed by chainsaw and herbicide treatments. Using young plants grown by the San Francisco Bay National Wildlife Refuge Complex's native plant nursery from seeds and berries collected on the refuge, volunteers re-plant the cleared areas with natives. These acres are restored to stands of young coast live oaks and to hillsides covered with dark green

of the exciting prospect that salamanders and the California red-legged frog could move into this new habitat. This was an innovative concept at the time as very little was known about how to construct an ephemeral pond. A delicate balance has to be achieved between the wet and dry cycles for if the pond dries out too soon, larvae would fail to make it to metamorphosis. Conversely, if the pond becomes permanent, it risks the potential for bullfrog colonization.

The question was asked, "Would salamanders find and ultimately breed in a constructed pond?"

Ground was broken in 1997. The soil excavated to create the pond was molded into levees, and a large culvert was installed as a water control structure. A pipeline was entrenched between the pond and a nearby freshwater well to convey water as needed. With construction completed, a half-acre pond stood ready to receive the rain.

After the first several years passed, it became apparent that Prospect Pond would not hold water through late summer. Well water continued to be pumped, but the pond only retained enough water for tree frogs. Strides were made in the right direction, but it was time to take a step back and conduct more research on ephemeral ponds. Eventually, the willows surrounding the pond crept in and coyote brush followed, as Prospect Pond sat dormant until a new plan could be developed.

It was not until 2005 that funding was found for the redesign. Much had been learned during the intervening years about the construction of ponds for amphibians. A company was hired to assess the hydrology of the area and base the new design on the findings. Design plans in hand, refuge personnel continued to pursue project funds.

The opportunity came in 2011 with funding approved by the USFWS Pacific Southwest Office. Six years had passed since the design was drawn up and the refuge, along with the Ventura Fish and Wildlife Office responsible for the range-wide recovery of the Santa Cruz long-toed salamander, realized that new expertise was essential to guarantee pond success. Also raising the stakes was the fact that Prospect Pond could potentially become a breeding pond for the California tiger salamander and the California red-legged frog as well.

The fresh perspective was supplied by the Resource Conservation District (RCD)



Prospect Pond Photo: Christopher Caris/USFWS

the surrounding uplands. Should one of these essential habitats disappear or become degraded at a breeding site, the location's population would cease to exist.

Numerous threats to the salamander and its habitats continue to be hurdles that must be overcome. At many locations, the uplands and ephemeral ponds are coastal properties prime for development or conversion to agricultural fields. Non-native plant species such as eucalyptus and pampas grass

coffeeberry bushes and delicate orange buds of the sticky monkey-flower.

With upland restoration well underway by the mid-1990s, refuge personnel began strategizing ephemeral pond management. Recognizing that a second breeding pond was needed on the refuge to support the population, and to act as a backup should something happen to Ellicott Pond, biologists envisioned the construction of Prospect Pond. The pond was so named because



California Tiger Salamander Larva Photo: Shawn Milar/USFWS

of Santa Cruz County. With this partnership, momentum picked up speed and new partners joined the project. The USFWS Coastal Program contributed additional funds and expertise, and the RCD brought in engineering support from the Natural Resources Conservation Service (NRCS).

Using the 2005 designs as the starting point, the plans were revised by NRCS to include a clay liner, a rebuilt levee, a system to collect ground water and a reliable water control structure that could completely drain the pond. And with RCD providing project management and securing the required permits through their Restoration Permit Coordination Program, the project was ready to break ground by September 2012. Construction finished on time in October and once again, it was time wait for the rains with baited breath.

Throughout the winter, students replanted the project site with upland natives and refuge personnel worked on establishing the wetland vegetation needed by the salamander for egg laying and cover. By January of 2013, it was clear that Prospect Pond would hold enough water to last until summer. Even with the poor rainfall, at least four feet of silt-filled water continued to persist. But with no mature vegetation within the pond and no steady source of food this year, would salamanders find and use Prospect Pond as a breeding pond?

The detection of amphibian eggs, laid along the barren, shallow bank waters brought excitement to all involved with the project. But there was no way of knowing for certain if they were tree-frog or salamander until larvae surveys could be conducted in April.

* * * * *

As the surveyors move to space themselves evenly along the shoreline, a juvenile California red-legged frog leaps out of vegetation and takes cover in the water. The first sighting of a federally-listed species for Prospect Pond! There is the possibility that this migrating frog might stay and make Prospect Pond its home.

A palpable feel of expectancy is in the air, and the surveyors advance, reaching out with their dip nets to take the first sweeps in the pond. These sweeps yield nothing but heavy silt. On the third sweep, a pale flash in the mud alerts a surveyor that something is in the net. The wriggling body is carefully caught by hand and placed in a jar of clear water. Everyone gathers around to await the verdict.

Upon close examination, it is positively identified as a California tiger salamander larva! Large in size and with four legs sprouted, it is on track to make it out of the pond in another three months' time. By survey's end, my data sheet is filled with a grand total of 38, healthy California tiger salamander larvae. Two out of three federally-listed species were recorded during the survey. As wetland vegetation spreads and provides cover within the pond, it is anticipated that future dip net surveys will also yield Santa Cruz long-toed salamander larvae. Prospect Pond is deemed a success, and the goal has finally been achieved.

At the conclusion of over a decade of perseverance, we have the answer. "If you build it, they will come!"

Diane Kodama is the manager for Ellicott Slough and Salinas River National Wildlife Refuges.

Junior Refuge Manager Program Now Available

Maximize your time spent on the refuge and participate in our Junior Refuge Manager Program. The activity book will teach your children what a National Wildlife Refuge is and what it is like to be a refuge manager. Self-guided activities include:

- Puzzles
- Birdwatching
- Nature Journaling
- Stewardship Project

After completing the activities, you become a Junior Refuge Manager and receive your button. Great for individuals, girl scouts and boy scouts, and home-schooled groups. Pick up your activity book at the Visitor Center in Fremont, or download it from our website at http://www.fws.gov/refuge/don_edwards_san_francisco_bay beginning January 1, 2014.

Refuge Reflections by Anne Morkill will return in the Spring.

by Rachel Clarkin-Breslin,
Visitor Services Intern

From scientific research to surveys, from habitat restoration to visitor enhancements, the accomplishments and achievements of the San Francisco Bay National Wildlife Refuge Complex is too numerous to list in this two-page spread. Instead, here are the highlights:

Antioch Dunes NWR

When visiting Antioch Dunes National Wildlife Refuge for the first time, one is initially stricken with the strange beauty of this oasis surrounded by a city. The second thought? "I was told there would be dunes."

Antioch Dunes was not always duneless. In the early 20th century, the Holland Sandstone Brick Company chose Antioch for their 50-foot sand dunes of soft, fine sand to make sand-lime brick. A plant was built, and the dunes were steam-pressed down to form bricks. While this proved to be a lucrative private business, it was disastrous for the ecology of the area.

Antioch Dunes National Wildlife Refuge plans to rectify this loss by rebuilding the dunes. In conjunction with the Stockton Army Corps of Engineers, 10 acres of sand will be brought in, covering up non-native and invasive vegetation. Native plants will then be planted and native seeds will be collected in order to foster an environment similar to the one that may have been pres-

ent before the brick-mining took place.

In addition to the restoration of the sand dunes, 2014 will realize the culmination of several exciting projects at Antioch Dunes Refuge. One such example is the publication of the children's book, *Sardis and Stamm*, which is supported by the Friends of the San Pablo Bay National Wildlife Refuge. This book highlights all the endangered species at Antioch Dunes and the need to protect wildlife. Look for *Sardis and Stamm* in January 2014.

Don Edwards San Francisco Bay NWR

Monitoring of sensitive species continues on the Don Edwards Refuge. Biologists, staff and volunteers conducted airboat surveys at Bair Island in December 2012 and observed 54 endangered California Clapper Rails, 12 Virginia Rails and 73 Sora. There was a large increase in Clapper Rail and Sora numbers from the last airboat survey in 2007. There were 174 federally threatened Western Snowy Plover nests this year on the refuge. Of these 174 nests, 111 hatched (64%), 55 were depredated (32%) and six had "other" fate.

At the Warm Springs Unit - due to precipitation patterns, federally listed California tiger salamanders did not have a good recruitment year. Conversely, the endangered vernal pool tadpole shrimp, which have a shorter life cycle, did very

well. Numbers of the endangered plant, the Contra Costa goldfield, were average when compared to previous years.

The South Bay Salt Pond Restoration Project celebrates its 10th Anniversary in 2013 and progress continues to be made. Pond A17 in Alviso was opened to tidal action and Pond A16 was enhanced with nesting islands and a water control structure to manage for migrating waterbirds. The Mallard Slough Trail, which formerly circumnavigated Pond A17 and A16 had been realigned to offer visitors views of the nesting islands. An observation platform has been constructed to overlook Coyote Creek and a the few remaining structures of the ghost town Drawbridge.

In Redwood City, a portion of Inner Bair Island, including a new pedestrian bridge was reopened.

Farallon NWR

This year has been a significant one at the Farallon National Wildlife Refuge. Management continues to work on eradicating several pests from the island refuge through programs such as Team Spinach. This cheerfully-named plan for the elimination of the invasive New Zealand Spinach from the Islands is enacted annually in August in order to avoid nesting seabirds.

In addition to invasive plants, the Farallon National Wildlife Refuge has been busy working on a plan to eradicate non-native mice, the presence of which is impacting the native ecosystem. A draft of the eradication proposal has been release for public comment, and was discussed on August 29 in a public meeting. Based on comments received the plan has been revised and the refuge is seeking additional comments until December 9, 2013.

The collaboration continues with a graduate student from San Jose State University, who has visited the Farallones three times to investigate seasonal variation in the Islands' endemic cave cricket. Another current study surrounds the Farallones' own subspecies of the California arboreal salamander. To gain a greater understanding of island-wide abundance of the salamander, cover boards, made of recycled and weathered redwood, were placed in many locations around the refuge. Yet another project is based around Northern



Measuring Salt Marsh Harvest Mouse at Don Edwards Refuge Photo: FWS



Farallon Island Cave Cricket
Photo: Bryan White

Fur Seals, which began to recolonize the island in 1997 after being driven nearly to extinction by sealers. This recovery process is being monitored via aerial surveys, which help investigators to obtain a better count of the seal pups. The surveys will continue through 2014.

Marin Islands NWR

For Marin Islands National Wildlife Refuge, 2013 has been a year of exciting progress. Annual orchid surveys were once



Piperia elongata at Marin Islands
Photo: Kerry Wilcox

again conducted and almost 300 orchids were discovered, making it a spectacular year for these *Piperia* species. Marin Islands NWR is the only place where *Piperia michaelii*, *Piperia elongata* and *Piperia transversa* occur together naturally.

Between four and six pairs of Black Oystercatchers have nested for years on Marin Islands, but the refuge staff began an official annual breeding/nest success survey in 2012. While no chicks made it to fledging stage in 2012, one Black Oystercatcher chick fledged in 2013. Black Oystercatchers are considered a USFWS Bird of Conservation Concern, and are only known to nest at two locations in San Francisco Bay. To protect these sensitive species, the refuge will be installing large signs to deter potential trespassers. The reduction in disturbance may contribute to a higher nest success in 2014.

Another technique used to deter trespassers was the placement of a gate on the East Island dock. Two motion sensing cameras have also been placed on the island to record trespassing incidents and to help determine if the gate and signs are working to decrease trespassing. The refuge hopes that the continued reduction of disturbance will encourage birds to nest.

Salinas River NWR

For Salinas River National Wildlife Refuge, two notable scientific finds accompanied 2013. After years of uncertainty, butterfly specialist Dick Arnold confirmed the presence of the federally-endangered Smith's Blue Butterfly on the refuge. This coastal dune habitat is thought to be the northern most extent of their range along the coast. This exciting find has prompted planning for more extensive surveys in 2014.

In addition to this encouraging find, bee identification surveys were initiated in 2013 to study the pollinators found on the refuge. Funding and project oversight have been provided by Cathy Johnson, Pollinator Coordinator for Region 8. This study will give the refuge much needed information on pollinator and plant interactions, helping to guide future restoration and invasive plant control efforts.

San Pablo Bay NWR

San Pablo Bay National Wildlife



Smith's Blue Butterfly
Photo: Dale Hameister

Refuge has over 7,000 acres of restoration in the works. The Sears Point Restoration Project will restore tidal marsh and seasonal wetlands and will increase flood protection via the construction of a new 2.5-mile levee. Another restoration project in the planning phase is Skaggs Island, which will incorporate 4,400 acres

Other restoration and enhancement projects in various phases of implementation include; the Cullinan Ranch Restoration, the Sonoma Creek Enhancement Project, and the Sonoma Baylands and North Parcel Restorations which are currently still under private ownership, but will transfer to the refuge in the near future.

In the coming year, San Pablo Bay Refuge will continue to, as Refuge Manager Don Brubaker articulates, "hustle hard" for the necessary grants and funding needed to push the restoration projects forward. The refuge will continue to work with partners to implement interpretive and visitor programs to allow for public enjoyment of refuge lands.

Invasive species control continues to be a large focus at San Pablo Bay Refuge, where over 90% control of a 2,000 acre area infested with *Lepidium latifolium* was achieved between 2007 and 2013. The San Pablo Bay *Lepidium latifolium* control program serves to improve habitat for threatened and endangered species such as the Salt Marsh Harvest Mouse and the California Clapper Rail.

Wilderness Character and the Farallon Islands

By Nyssa Landres

Editor's Note: The Wilderness Act celebrates its 50th anniversary in September 3, 2014. Moreover, 2014 also marks the 40th anniversary of Farallon National Wildlife Refuge being designated as wilderness. Leading up to this historic event, Tideline will feature stories about these monumental milestones and how it has shaped conservation.

Rocky islands rising vertically out of the ocean do not usually come to mind when we think of wilderness. Yet, the Farallon Islands are congressionally designated as “wilderness,” giving the islands the highest level of protection from human impacts and effects of modern civilization. The entire Farallon National Wildlife Refuge, with the exception of Southeast Farallon Island, is designated wilderness.

Not all wild places are designated wilderness areas. As wilderness, the Farallon Islands have a unique “wilderness character.” In fact, all wilderness areas have a “wilderness character” that is unique to each place. In managing wilderness, the U.S. Fish and Wildlife Service must preserve this character. But what is wilderness character and



View of West End Island from Southeast Farallon Island.

human impacts, and physical resources such as air quality.

As a Wilderness Fellow, I was tasked with defining the wilderness character of the Farallon Islands and establishing a monitoring plan for the future. I spent three months immersing myself in the

refuge, discovering and identifying the physical qualities that caused Congress to designate the islands as wilderness. For the Farallon Islands, wilderness character is the wildlife, with the islands’ thriving seabird, seal, and sea lion populations whose cacophony echoes around the islands 24 hours a day, 365 days a year. There is no doubt that the ecosystems of the Farallon Islands are intact and thriving with Common Murres, Brandt’s Cormorants, Northern fur seals, and Steller sea lions.

Another aspect of the Farallons’ wilderness character is the lack of development and human presence on the islands. Wilderness areas are places “where man himself is a visitor who does not remain” (as defined by the Wilderness Act), which fits

the islands perfectly. Even the staffs of the refuge and Point Blue Conservation Science (formerly PRBO Conservation Science) only visit one wilderness island, West End Island, a few times per year. Wilderness areas are also places “affected primarily by the forces of nature” and “without permanent improvement or human habitation.” Again, the Farallon Wilderness has no permanent improvements and the islands are completely shaped by nature. The islands are literally untouched by human influence, and any previous impacts have been completely reclaimed by the islands.

My Fellowship at the Farallon Islands is part of national program to define the wilderness character of wilderness areas managed by U.S. Fish and Wildlife Service. After this year, only three refuges remain to complete their wilderness character baseline assessment and monitoring plan.

It’s been an incredible journey to be a part of and working with the Farallon Islands. It has been an amazing experience. Helping land managers understand and monitor the islands within the frame of wilderness will help preserve the unique character of the Farallon Wilderness. This way, the Farallon Wilderness can continue to be a haven for the seabirds and seals that depend on them and be preserved as iconic islands for their unique wilderness character.



Common murre

what does it mean for the Farallon Islands?

Wilderness character is a set of tangible measures that make a place unique and special; in many ways, wilderness character is like the personality of a place. Examples of wilderness character include the plants and animals that live there, the opportunities for solitude, the lack of development,

Get Involved! Become a Citizen Scientist!

Does science fascinate you? Do you want to make a difference and assist scientists, land managers and policy makers in decision making? Consider becoming a citizen scientist. The Don Edwards San Francisco Bay National Wildlife Refuge has three projects you can get involved with, ranging from recording bird use on a re-vegetated trail, uploading photographs of King Tide events, to helping document effects of climate change. These projects are ideal for individuals who come to the refuge regularly to hike, and for families and school groups who want to make a difference and take part in the scientific process. Join in one, or all of the projects listed below. No experience necessary.

Science of the Seasons

Phenology is the term used to study seasons. At the Don Edwards Refuge, two monitoring areas (Alviso and Fremont) have been chosen for those interested in observing plants and documenting how climate change may affect them. The timing of when plants leaf out, flower, and form fruit may have consequences for wildlife migrating through the area. Recording these changes over time can help refuge managers and others manage lands in a more effective manner. Training will be provided.

Training in Fremont

In Fremont, see a presentation about the importance of phenology, the plants chosen for data collection, and how to upload your findings onto Nature's Notebook on-line. Training is scheduled for Saturday, **December 21** from 11:00 a.m. – 12:30 p.m. Please go to <http://donedwardsphe-nology.eventbrite.com> to register, or call 510-792-0222 ext. 362.

Training in Alviso

In Alviso, coupled with the training, you will also help restore habitat! Bring your own gloves or borrow a pair of ours –

tools are provided. Dress in layers and bring water and sunscreen. Be prepared to get dirty! This is geared toward ages 9 and up. Participants under 18 must be accompanied by an adult. Contact Julie Kahrnoff at 408-262-5513 ext. 104 or julie.kahrnoff@sfbws.com for more information. Scheduled dates are:

December 7; December 21; January 11; January 25; February 8; and February 22.

All trainings and community service work are 10:00 a.m. - 1:00 p.m.



Bird Use Monitoring at the Environmental Education Center in Alviso

In 2008, the Don Edwards San Francisco Bay National Wildlife Refuge received several grants to restore the upland areas along the Marsh View Trail at the Environmental Education Center in Alviso. The restoration project involved hundreds of hours of non-native vegetation removal by staff and volunteers, and the planting of native grasses and forbs.

We would like to gather data on what birds use this habitat. The data collected will provide managers with valuable information on what species use this restored habitat. The data could also show changes in bird use over time, and may provide insight into why this may be the case.

The San Francisco Bay Bird Observatory has developed a bird monitoring protocol for the data col-

lection. Individuals will submit their observations on-line to <http://www.eBird.org> from home. Or, if you have a smart phone, you can enter the data from the refuge by using the Wi-Fi service offered by the San Francisco Bay Wildlife Society. Directions on where and how to make your observations, and instructions on how to upload the information can be picked up at the Environmental Education Center, or downloaded from our website at http://www.fws.gov/refuge/Don_Edwards_San_Francisco_Bay/GetInvolved.html

California King Tides Initiative

This initiative encourages the public to take and upload photos of coastal areas during king tide events. In the simplest terms, king tides are the highest tides of the season. Photographs can help planners and coastal managers identify at-risk areas of flooding and aid them in future planning. For the national wildlife refuges, this can help with wetland restoration planning. Upcoming dates for King Tides are December 30-31, January

1-2, and January 29-31. Take a photograph of refuge lands on the Tidelands Trail overlooking Newark Slough in Fremont or on top of the hill at Bedwell Bayfront Park in the City of Menlo Park overlooking the Don Edwards Refuge's Greco Island. Upload your photographs through the California King Tides Initiative website at <http://www.californiakingtides.org>. You can also email them, with the date and time, to Carmen_leong-minch@fws.gov

Take your pictures from these coordinates:

Tidelands Trail Coordinates from Google Earth: 37° 31' 54.04N, 122° 4' 27.40W

Bedwell Bayfront Park Coordinates from Google Earth: 37° 29' 42.11N, 122° 10' 8.70W

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 July 1, 2013 and September 30, 2013. 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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Dexter Barker, Joyce E Barlett, Phyllis Browning, Jeannette D Jensen, Martha A Johnson, Marge Kolar, Laurel Przybylski, and Douglas Sprague

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Help Us Help the Refuge

**Mail your donation to: San Francisco Bay Wildlife Society, P.O. Box 234, Newark, CA 94560.
You may also become a member at www.sfbws.com.**

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

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

YES! I want to support San Francisco Bay Wildlife Society and its programs with my membership. My dues include a subscription to *Tideline* and 15% discount at the Don Edwards SF Bay National Wildlife Refuge bookstore. Enclosed is my contribution of:

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U.S. Fish and Wildlife Service
Don Edwards San Francisco Bay National Wildlife Refuge
Volunteer Opportunities: Winter 2013-14
Environmental Education Center (Alviso, California)

If you have an interest in wildlife and their conservation, enjoy working with people, and are enthusiastic and dependable, the Environmental Education Center's Volunteer Program is for you! As a volunteer, you'll receive on-the-job training from staff and other volunteers in the project area you choose.

Requirements for volunteering at the refuge at the Environmental Education Center include: attending a volunteer orientation; attending scheduled trainings; and meeting the age requirements for the program. Volunteer applications will be provided at the orientation. Contact Julie Kahrnoff at 408-262-5513 ext. 104 or julie.kahrnoff@sfbws.com for more information.

Volunteer Orientations

Orientations are from 11:00 a.m. to noon. No reservations necessary. We will meet in the auditorium.

Tuesday, January 7

Saturday, January 25

Tuesday, February 4

Saturday, February 22

Volunteer Positions:

Restoration Project Volunteers: Volunteers are needed to work on the EEC's ecotone habitat restoration project. In the fall and winter, volunteers plant natives and in the spring and summer volunteers pull invasive species to ensure that the native plants have a chance to thrive!

Training: Volunteer orientation and on-the-job training

Additional Requirements: Individuals and groups of all ages must be physically able to do the work. Work is primarily outdoors.

Hours: Tuesdays from 9:30 a.m. - 2:00 p.m.

Weekend Information Desk Volunteers: Volunteers are needed to answer visitor questions, answer phones, sell bookstore items, and check out discovery packs and binoculars to interested visitors.

Training: Volunteer orientation and a 1 hour information desk training

Additional Requirements: Two half days per month for a six-month commitment

Hours: Shifts are from 10:00 a.m. - 1:30 p.m. and 1:30 p.m. - 5:00 p.m. on Saturdays and Sundays as needed.

Interpretive Program Volunteers: Come help out with Saturday and Sunday interpretive programs, or present one of your very own. We offer a wide variety of programs (see the Activity Pages in this issue) and are always looking for new ideas and faces to share our mission of wildlife conservation and pollution prevention.

Training: Volunteer orientation, attend three weekend programs of your choice, and attend one interpretive guide training with the refuge.

Additional Requirements: One shift per quarter for a one year commitment

Hours: Weekends

Field Trip Docents: The EEC offers two environmental education programs: Wetland Round-Up (1st-5th) and Living Wetlands (5th-12th). Docents will gain experience in environmental education and public speaking, and will be responsible for managing and leading groups of students through educational activities.

Training: Volunteer orientation and 4-week training course, one half day per week

Additional Requirements: Field Trip season is from September to mid-June. Two full days per month for a 6-month commitment

Hours: Programs are generally Monday-Thursday, 9:30 a.m. - 1:30 p.m. on an as-needed basis.

Contact Julie Kahrnoff at 408-262-5513 ext. 104 or julie.kahrnoff@sfbws.com for more information.

Winter Activity Schedule

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

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

December

Saturday, December 7



*Nature Walk for Health

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

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

Team Citizen Scientists! – Community Service

Environmental Education Center, Alviso
10:00 a.m. – 1:00 p.m.

Become a citizen scientist! Are you interested in plants? Learn native plant monitoring and habitat restoration. Bring your own gloves or borrow a pair of ours – tools are provided. Dress in layers and bring water and sunscreen. Be prepared to get dirty! Ages 9 and up. Participants 18 and under must be accompanied by a chaperone. Call Julie for reservations at 408-262-5513 ext. 104.

Sunday, December 8

*Tiny Drifters

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

There's plankton in our Bay! Learn about the different characteristics of plankton and how they have adapted to survive. We will be collecting plankton from the slough using a special net. This will be followed by observing and identifying these incredible organisms under a microscope. Best suited for ages 7 and up. Please call the Living Wetlands Coordinator at 408-262-5513 ext. 102 for reservations.

Story Hunters

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

Discover what stories lie hidden on the Don Edwards Refuge in this series by Art Garibaldi. Coordinates will lead you to landmarks that embody the rich human history that helped shaped refuge lands. We'll begin with a brief introduction on how to use our GPS units. GPS units are available for loan. Go to <http://donedwardsstory.eventbrite.com> or call 510-792-0222 ext. 362 for reservations.

Saturday, December 14

Nature Drawing for Families and Adults

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

Increase your confidence in drawing while exploring natural objects from the refuge and beyond. We will carefully observe all manner of cool objects and learn skills to translate these observations into realistic drawings. Appropriate for ages 8 to adult. Children, please bring an adult with you who would like to participate. Adults without children are welcome as well. Bring a sketch pad and pencil or use ours. All skill levels welcome. Led by Kathy Kleinsteiber. Call Julie at 408-262-5513 ext. 104 for reservations.

*Water Critter Adventure

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

Who knows what lurks in the water or hides in the marshes? Come join us to find out! We will be scientists for the day: taking a hike through the salt marsh, collecting water samples and using microscopes to make some fascinating discoveries. Call Julie for reservations at 408-262-5513 ext. 104.

Twilight Marsh Walk

Visitor Center, Fremont
4:00 p.m. – 5:30 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (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. Go to <https://donedwardstwilight.eventbrite.com> or call 510-792-0222 ext 362. Led by Mary and Gene Bobik.

Sunday, December 15

Oliver Salt Works Hike

Eden Landing Ecological Reserve, Hayward
9:00 a.m. – 11:00 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 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 two miles on unimproved levees. Reservations required. Call 510-792-0222 ext. 141. Led by Roy Sasai.

*Living Wetlands

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

Our refuge consists of salt marshes, salt ponds, tidal and non-tidal sloughs. How do humans and wildlife depend on our wetlands? Come enjoy a slideshow depicting the life and death struggles of our marsh inhabitants, followed by a walk through the wetlands. Best suited for ages 8 and up. Call the Living Wetlands Coordinator at 408-262-5513 ext. 102 for reservations.

*Salt Marsh Walk

Visitor Center, Fremont
10:30 a.m. – 12:00 p.m.

Take a walk with docent Gregg Aronson around the wetlands of the wildlife refuge and learn about their history. See examples of salt collection ponds and learn what is being done to convert them back to their original, natural salt marsh state. Hear how

wildlife is affected by the two types of habitat, and why it is important to control the rate of conversion from salt ponds back to the salt marshes. Binoculars and/or a camera are recommended. Register at <https://donedwardssaltmarsh.eventbrite.com> or call 510-792-0222 ext. 362.

Introduced Invertebrates

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

Alien mud creatures are invading our bay! They have no spine and no legs. How did they get here? How have these exotic aquatic creatures impacted on our ecosystem? Come learn about the non-native invertebrates living in the San Francisco Bay through a slideshow presentation and even touch a few. Suitable for ages 7 and up. Register at 408-262-5513 ext. 104 by December 12.

Saturday, December 21

Team Citizen Scientists! – Community Service

Environmental Education Center, Alviso
10:00 a.m. – 1:00 p.m.

Become a citizen scientist! Are you interested in plants? Learn native plant monitoring and habitat restoration. Bring your own gloves or borrow a pair of ours – tools are provided. Dress in layers and bring water and sunscreen. Be prepared to get dirty! Ages 9 and up. Participants 18 and under must be accompanied by a chaperone. Call Julie for reservations at 408-262-5513 ext. 104.

The Science of Seasons – Help Document Climate Change!

Visitor Center, Fremont
11:00 a.m. – 12:30 p.m.

Become part of the scientific community and help scientists gather data on how the climate is changing. A presentation will be given by Kathy Kleinsteiber about the importance of gathering data, how plants can be an indicator of climate change, and how to take measurements of Don Edwards Refuge plants to be uploaded onto the Nature's Notebook website. Over time, the information you provide can be used by refuge managers to manage land more effectively. To register for this free workshop, go to <https://donedwardsphenology.eventbrite.com> or call 510-792-0222 ext. 362.

*The Basics of Salt Pond Restoration

Environmental Education Center, Alviso
1:00 p.m. – 2:30 p.m.

Learn about the Salt Pond Restoration Project with Jose Garcia. This ambitious project seeks to restore 15,100 acres of former industrial salt ponds to a mix of wetland habitats. An interactive talk will be in the auditorium and if weather permits, a walk on the 0.25-mile boardwalk trail to view the progress thus far. For questions, contact Jose at 510-792-0222 ext. 141.

*Family Bird Walk

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

Let family walks become a shared time of nature learning. We'll begin by helping kids create their personal bird watching field guides, and then head out onto the trails to find those birds. A limited number of binoculars are available to borrow. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Go to <https://donedwardsfamilybird.eventbrite.com> or call 510-792-0222 ext. 362.

Sunday, December 22

*Bird Watching for Beginners

Visitor Center, Fremont

10:30 a.m. – 12:30 p.m.

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

Saturday, December 28

5 Tools You Can Use to Find the Elusive Gray Fox

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

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

January

Saturday, January 4

*Nature Walk for Health

Visitor Center, Fremont

10:30 a.m. – 11:30 a.m.



HEALTHY
PARKS
HEALTHY
PEOPLE
BAY AREA

Take a break from your busy schedule and refresh your spirit with nature at the refuge.

Take a guided nature walk on the Tidelands Trail and hear what makes this National Wildlife Refuge unique. The 1 1/3 mile walk traverses through endangered species habitat and offers great views of south San Francisco Bay. Meet in front of the Visitor Center.

Butterfly Garden Scavenger Hunt

Environmental Education Center, Alviso

11:00 a.m. – 12:30 p.m.

Do you have an eye like a hawk? Do you have a nose like a fox? If you want to know how you compare, come and see if you can find the wonders of nature in the hunt of a lifetime. Prove your naturalist skills as you use your newfound tools to make a craft. RESERVATIONS RECOMMENDED – All ages are welcome. Call Julie at 408-262-5513 ext. 104 for reservations.

Night Sky Party!

Environmental Education Center, Alviso

6:30 p.m. – 8:00 p.m.

Meet the stars of winter! Join our amateur astronomers as we learn about constellations. Make a star chart and then venture outside to view the night sky through a telescope. Afterwards, warm up with some hot chocolate. Bring your own binoculars or spotting scopes if you have them. Dress warmly as it gets cold in the evening. Fun for the whole family. Program will go on sprinkling rain or shine. Program will be canceled only if it is pouring rain. RESERVATIONS REQUIRED by January 2. Call Julie at 408-262-5513 ext. 104.

Saturday, January 11

Team Citizen Scientists!

– Community Service

Environmental Education Center, Alviso

10:00 a.m. – 1:00 p.m.

Become a citizen scientist! Are you interested in plants? Learn native plant monitoring and habitat restoration. Bring your own gloves or borrow a pair of ours – tools are provided. Dress in layers and bring water and sunscreen. Be prepared to get dirty! Ages 9 and up. Participants 18 and under must be accompanied by a chaperone. Call Julie for reservations at 408-262-5513 ext. 104.

*Going Green, the Restoration of the South Bay Salt Ponds

Environmental Education Center, Alviso

10:00 a.m. – 11:00 a.m.

Join an interpretive walk to photograph the wildlife and wetlands in the South Bay Salt Pond Restoration Project. Knowing the area will both increase your appreciation for the baylands and the ability to see them in a whole new way. Discover plants and animals in its habitat and the best time to see them. Led by Joseph Garcia. Call 510-792-0222 ext. 141 for reservations.

Sunday, January 12

*Salt Marsh Walk

Visitor Center, Fremont

10:30 a.m. – 12:00 p.m.

Take a walk with docent Gregg Aronson around the wetlands of the wildlife refuge and learn about their history. See examples of salt collection ponds and learn what is being done to convert them back to their original, natural salt marsh state. Hear how wildlife is affected by the two types of habitat, and why it is important to control the rate of conversion from salt ponds back to the salt marshes. Binoculars and/or a camera are recommended. Register at <https://donedwardssaltmarsh.eventbrite.com> or call 510-792-0222 ext. 362.

*Tiny Drifters

Environmental Education Center, Alviso

1:00 p.m. – 2:00 p.m.

There's plankton in our Bay! Learn about the different characteristics of plankton and how they have adapted to survive. We will be collecting plankton from the slough using a special net. This will be followed by observing and identifying these incredible organisms under a microscope. Best suited for ages 7 and up. Call the Living Wetlands Coordinator at 408-262-5513 ext. 102 for reservations.

Geology Walk of the Coyote Hills

Visitor Center, Fremont

2:00 p.m. – 3:00 p.m.

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

Saturday, January 18

Twilight Marsh Walk

Visitor Center, Fremont

4:00 p.m. – 5:30 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1.3 miles) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the refuge as night descends. Not suitable for young children. RESERVATIONS REQUIRED. Go to <https://donedwardstwilight.eventbrite.com> or call 510-792-0222 ext 362. Led by Mary and Gene Bobik.

Sunday, January 19

*Ohlone in the Marshes

Environmental Education Center, Alviso

1:00 p.m. – 2:30 p.m.

Did people live here 10,000 years ago? How did they survive without stores? Come learn about the Ohlone Native Americans and how they lived off the land. Take a walk through the marsh and go shopping in the Ohlone "grocery store." Taste an Ohlone pickle and learn how to make rope. Best suited for ages 8 and up. Register at 408-262-5513 ext. 102 by January 16.

Story Hunters

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

Discover what stories lie hidden on the Don Edwards Refuge in this series by Art Garibaldi. New coordinates will lead you to two new landmarks that embody the rich human history that helped shaped refuge lands. We'll begin with a brief introduction on how to use our GPS units. GPS units are available for loan. Go to <http://donedwardsstory.eventbrite.com> or call 510-792-0222 ext. 362 for reservations.

Saturday, January 25

Team Citizen Scientists!

– Community Service

Environmental Education Center, Alviso

10:00 a.m. – 1:00 p.m.

Become a citizen scientist! Are you interested in plants? Learn native plant monitoring and habitat restoration. Bring your own gloves or borrow a pair of ours – tools are provided. Dress in layers and bring water and sunscreen. Be prepared to get dirty! Ages 9 and up. Participants 18 and under must be accompanied by a chaperone. Call Julie for reservations at 408-262-5513 ext. 104.

Beginning Bird Drawing for Families and Adults

Environmental Education Center, Alviso

11:00 a.m. – 12:30 p.m.

Come if you want to learn how to draw birds! Increase your confidence in drawing and learn some skills to help you draw what you see. We will have a variety of mounted birds available for drawing and for observing bird anatomy. We will practice techniques for making life-like bird drawings and for getting the proportions right. Appropriate for ages 8 to adult. Children, please bring an adult with you who would like to participate. Adults without children are also welcome. Bring a sketch pad and pencil or use ours. All skill levels welcome. Call Julie at 408-262-5513 ext. 104 for reservations by January 22.

Winter Activity Schedule

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

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

Saturday, January 25 cont.

Intermediate Bird Drawing

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Learn techniques to help your bird drawings come to life! This class will be a continuation of the morning class or can be taken independently. The morning class will emphasize quick sketches and basic shapes, while this class will emphasize the 3-dimensional form of the bird and will provide more advanced techniques and longer drawings. Appropriate for ages 8 to adult. Children, please bring an adult with you who would like to participate. Adults without children are also welcome. Bring a sketch pad and pencil or use ours. All skill levels welcome. Please make reservations by January 22. Call Julie at 408-262-5513 ext. 104.

5 Tools You Can Use to Find the Elusive Gray Fox

Visitor Center, Fremont

2:00 p.m. – 3:30 p.m.

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

Sunday, January 26

*Duck Walk

Visitor Center, Fremont

10:00 a.m. – 11:30 a.m.

Thousands of ducks winter in the San Francisco Bay every year. Hear a short lecture on duck identification. Then we'll head out on the trail to try your new skills. A limited number of binoculars are available to borrow. Dress warmly. Heavy rain cancels. Led by Carmen Minch.



February

Saturday, February 1

Drawbridge: A History Revealed

Environmental Education Center, Alviso

10:00 a.m. – 11:00 a.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. Learn all about this amazing place in a slideshow. Program is suitable for adults. Note: this program does not include the Drawbridge Van Tour. Call Julie at 262-5513 ext. 104 for reservations.



*Nature Walk for Health

Visitor Center, Fremont

10:30 a.m. – 11:30 p.m.

Take a break from your busy schedule and refresh your spirit with nature at the refuge. Take a guided nature walk on the Tidelands Trail and hear what makes this National Wildlife Refuge unique. The 1 1/3 mile walk traverses through endangered species habitat and offers great views of south San Francisco Bay. Meet in front of the Visitor Center.

*The Basics of Salt Pond Restoration

Environmental Education Center, Alviso

2:00 p.m. – 3:30 p.m.

Learn about the Salt Pond Restoration Project with Jose Garcia. This ambitious project seeks to restore 15,100 acres of former industrial salt ponds to a mix of wetland habitats. An interactive talk will be in the auditorium and if weather permits, a walk on the 0.25-mile boardwalk trail to view the progress thus far. For questions, contact Jose at 510-792-0222 ext. 141.

Sunday, February 2

*Living Wetlands

Environmental Education Center, Alviso

10:30 a.m. – 12:00 p.m.

Our refuge consists of salt marshes, salt ponds, tidal and non-tidal sloughs. How do humans and wildlife depend on our wetlands? Come enjoy a slideshow depicting the life and death struggles of our marsh inhabitants, followed by a walk through the wetlands. Best suited for ages 8 and up. Call the Living Wetlands Coordinator at 408-262-5513 ext. 102 for reservations.

Saturday, February 8

Team Citizen Scientists! – Community Service

Environmental Education Center, Alviso

10:00 a.m. – 1:00 p.m.

Become a citizen scientist! Are you interested in plants? Learn native plant monitoring and habitat restoration. Bring your own gloves or borrow a pair of ours – tools are provided. Dress in layers and bring water and sunscreen. Be prepared to get dirty! Ages 9 and up. Participants 18 and under must be accompanied by a chaperone. Call Julie for reservations at 408-262-5513 ext. 104.

All About Owls

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Learn all that you've ever wanted to learn about owls here at the refuge! Where do owls eat? How do we not hear them when they flap their wings? Are owls the brainiacs of the bird world? Through an interactive presentation and owl pellet dissection, we'll find the answers to all these questions. Led by Paul Bridges. Call Julie at 408-262-5513 ext. 104 for reservations.

Twilight Marsh Walk

Visitor Center, Fremont

4:30 p.m. – 6:00 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1.3 miles) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the refuge as night descends. Not suitable for young children. RESERVATIONS REQUIRED. Go to <https://donedwardstwilight.eventbrite.com> or call 510-792-0222 ext 362. Led by Mary and Gene Bobik.

Sunday, February 9

Oliver Salt Works Hike

Eden Landing Ecological Reserve, Hayward

9:00 a.m. – 11:00 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 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 two miles on unimproved levees. Reservations required. Call 510-792-0222 ext. 141. Led by Roy Sasai.

*Salt Marsh Walk

Visitor Center, Fremont

10:30 a.m. – 12:00 p.m.

Take a walk with docent Gregg Aronson around the wetlands of the wildlife refuge and learn about their history. See examples of salt collection ponds and learn what is being done to convert them back to their original, natural salt marsh state. Hear how wildlife is affected by the two types of habitat, and why it is important to control the rate of conversion from salt ponds back to the salt marshes. Binoculars and/or a camera are recommended. Register at <https://donedwardssaltmarsh.eventbrite.com> or call 510-792-0222 ext. 362.

Silent Fliers

Environmental Education Center, Alviso

11:00 a.m. – 12:00 p.m.

Owls can turn their heads completely backwards. How do they do that? What does it mean to fly silently? What kinds of owls live here? Come to the refuge to learn about owls and their adaptations. Dissect an owl pellet and take home an owl's dinner! All ages are welcome. Call the Living Wetlands Coordinator at 408-262-5513 ext. 102 for reservations.

*Chompers and Stompers

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Ever wondered why birds come in so many shapes, sizes, and colors? Come and find out why some birds exhibit strange behaviors. We will examine bird specimens collected over the years to see how they have adapted to their habitats. Then take a guided walk around the refuge to see these marvelous creatures in action. Suitable for all ages. Call the Living Wetlands Coordinator at 408-262-5513 ext. 102 for reservations.

Geology Walk of the Coyote Hills

Visitor Center, Fremont

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

Ever wonder what the dirt on the trail is made of, what the rocks are by the shore, and how wetlands are created? Join Park Ranger Jose Garcia at Coyote Hills as he deconstructs the area around you and explains how geology influences the landscape. Discover how knowledge of geology helps rebuild wildlife habitat and provides flood protection for us all. Camera's welcome. Trail is 1.3 miles and family friendly. Call 510-792-0222 ext. 141 for more information.

Saturday, February 15

*Family Bird Walk

Visitor Center, Fremont

2:00 p.m. - 4:00 p.m.

Let family walks become a shared time of nature learning. We'll begin by helping kids create their personal bird watching field guides, and then head out onto the trails to find those birds. A limited number of binoculars are available to borrow. Recommended for children ages 5-10. RESERVATIONS REQUIRED. Go to <https://donedwardsfamilybird.eventbrite.com> or call 510-792-0222 ext. 362.

Sunday, February 16

Story Hunters

Visitor Center, Fremont

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

Discover what stories lie hidden on the Don Edwards Refuge in this series by Art Garibaldi. New coordinates

will lead you to two new landmarks that embody the rich human history that helped shaped refuge lands. We'll begin with a brief introduction on how to use our GPS units. GPS units are available for loan. Go to <http://donedwardsstory.eventbrite.com> or call 510-792-0222 ext. 362 for reservations.

Saturday, February 22

Team Citizen Scientists!

- Community Service

Environmental Education Center, Alviso

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

Become a citizen scientist! Are you interested in plants? Learn native plant monitoring and habitat restoration. Bring your own gloves or borrow a pair of ours - tools are provided. Dress in layers and bring water and sunscreen. Be prepared to get dirty! Ages 9 and up. Participants 18 and under must be accompanied by a chaperone. Call Julie for reservations at 408-262-5513 ext. 104.

5 Tools You Can Use to Find the Elusive Gray Fox

Visitor Center, Fremont

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

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

identify the presence of foxes in any area that you are in. Bring a hat, binoculars, and good walking shoes. Led by Bill Leikam.

Sunday, February 23

*Bird Watching for Beginners

Visitor Center, Fremont

9:30 a.m. - 11:30 a.m.

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

Introduced Invertebrates

Environmental Education Center, Alviso

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

Alien mud creatures are invading our bay! They have no spine and no legs. How did they get here? How have these exotic aquatic creatures impacted on our ecosystem? Come learn about the non-native invertebrates living in the San Francisco Bay through a slideshow presentation and even touch a few. Suitable for ages 7 and up. Please register by February 20. Call 408-262-5513 ext. 102.

Scout and Youth Group Programs

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

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

Youth Group Programs at the Environmental Education Center in Alviso

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

*Webelos Naturalist Badge

Saturday, December 21 10:00 a.m. - 12:00 p.m.

Saturday, January 4 3:00 p.m. - 4:30 p.m.

Saturday, February 1 2:00 p.m. - 3:30 p.m.

Anyone out there need to earn a Naturalist badge? We've got the program that's right for Webelos! Learn about birds, migration, flyways, food chains, human impact, and the importance of wetlands. Then take a walk and use our binoculars to spot birds in the wild. Call 408-262-5513 ext. 104 for reservations.

*WOW! Wonders of Water Brownie Girl Scout Journey

Saturday, December 7 3:00 p.m. - 4:30 p.m.

Saturday, January 11 3:00 p.m. - 4:30 p.m.

Life can't exist without water, neither can rainbows! Water does so much for you! Can you return the favor? On this journey you will take action by discovering how to love water, save water, and share water. Call 408-262-5513 ext. 104 for reservations.

*Get Moving! Jr. Girl Scouts Journey

Saturday, December 14 10:30 a.m. - 12:00 p.m.

Saturday, January 25 3:00 p.m. - 4:30 p.m.

Are you prepared to use your energy to save the planet? On this Journey, you'll find out how to reduce your energy use, make buildings energy efficient, and create a plan to fix an energy problem in your community. Call 408-262-5513 ext. 104 for reservations.

Girl Scouts World Thinking Day

Saturday, February 22 3:00 p.m. - 4:00 p.m.

Be part of the global community! World Thinking Day is on February 22 every year. On this day, girls honor their sister Girl Guides and Girl Scouts by taking time to give thanks for their international friendships and to remember that Girl Scouts of the USA is part of a global community. The theme for World Thinking Day 2014 is "Education opens doors for all girls and boys." It is especially focused on making sure girls get an education. Come out to the refuge for a guided discussion about how education has changed over time, why it is important for everyone, and our goals for education in the future.

Youth Group Programs at the Refuge Headquarters in Fremont

The Refuge Headquarters offer Webelos programs for up to 15 Webelos. To register, call 510-792-0222 ext. 362 or at <https://donedwardswebelos.eventbrite.com>. All programs are led by June Smith.

Webelos Naturalist Program

Saturdays, December 14 & February 15

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

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

Field Trips to the Refuge

General Education Program Information

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

Educators and adult leaders conduct their own field trips after attending a Field Trip Workshop. The workshops allow you to design and conduct your own field trip. In addition, adult volunteers must be recruited to lead the activities at the different learning stations and to chaperone the rotation groups of students.

We provide easy to follow “scripts” for each station, but both “leaders” and “chaperones” are strongly encouraged to attend a Field Trip Workshop. New teachers must attend a Field Trip Workshop. Location of activities and trail conditions may vary. Please call for accessibility information.

Field Trips at the Learning Center in Fremont

The **Wetland Round-Up Field Trip** program in Fremont will resume in Spring 2014. The field trip is designed for grades K-6, for up to 65 students. Mail-in reservations will begin on November 19, 2013. All registration forms received will be opened on December 5, 2013.

Mail-in reservation procedures for Fremont can be found on our website at http://www.fws.gov/refuge/Don_Edwards_San_Francisco_Bay/WetlandRoundUp_Fremont.html

Contact the Environmental Education Staff at Fremont:

Office: (510) 792-0222 x 475 Cell: (510) 377-7269

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

Field Trip Workshop dates will be listed on our website at http://www.fws.gov/refuge/Don_Edwards_San_Francisco_Bay/WetlandRoundUp_Fremont.html on November 19, 2013.

Field Trips at the Environmental Education Center in Alviso

Wetland Round-Up Field Trips - 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** will be offered Spring 2014. Mail-in reservations will begin on November 19, 2013. All registration forms received will be opened on December 5, 2013.

NEW! MAIL-IN REGISTRATION for Alviso!!

Mail-in registration for Spring 2014 (March - May) will begin on November 19, 2013. Here's how it works:

- Registration Forms will be available on-line at http://www.fws.gov/refuge/Don_Edwards_San_Francisco_Bay/WetlandRoundUp_Alviso.html
- You will be able to choose from a list of available dates and indicate your 1st, 2nd and 3rd choices on the form. Please make sure ALL these dates are good ones as availability may be more limited this year. If your school is requesting multiple field trip dates, you must submit up to 6 date preferences so that we can accommodate your group.
- PLEASE NOTE! Completed field trip registration forms should be mailed to our office in the following manner:
U.S. Fish and Wildlife Service
P.O. Box 411
Alviso, CA, 95002
WRFT Registration/ EE attn: Genie
- You may also FAX your request to: (408) 262-2867, attention Genie. We will not be accepting electronic versions of the forms at this time.
- All forms received will be opened on December 5, 2013.
- Every effort will be made to accommodate your requests. However, we may need to offer alternative dates if we cannot assign you your preferred dates.
- Selections will be made in a timely fashion. You will be notified by your preferred method as indicated on your form.
- We will continue to take requests after December 5, 2013 until all available dates for the Spring season (March - May) have been filled.
- Details about Fall 2014 registration will be in the Summer issue of *Tideline* and also posted on our website at http://www.fws.gov/refuge/Don_Edwards_San_Francisco_Bay/WetlandRoundUp_Alviso.html

Wetland Round-Up Field Trip Training Workshops

New Teachers who have not yet attended a field trip orientation must attend the training. The workshops are offered from 4 p.m. – 6:45 p.m. on select weekdays in the spring.

We highly recommend that returning **Teachers accompany Parent Leaders and Chaperones** to a workshop prior to your field trip. The workshops are offered from 4 p.m. – 6 p.m. on select weekdays in the spring.

The workshop dates will be announced on-line with the Field Trip Registration information (see above). For more information call the Environmental Education Staff at Alviso:

Office: 408-262-5513 ext 100

Email: genie_moore@fws.gov

Living Wetlands Education Program

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

Living Wetlands Program Offerings:

Integrated Field Trip Program (5th – 12th grades): This program incorporates multiple activities related to wetlands and watershed health. Participating classes will receive one pre-classroom presentation from Living Wetlands educators, a field trip to the Don Edwards Refuge, and one post-classroom presentation. All include hands-on activities and demonstrations. For the Integrated Program, participating classes must be from the following cities: San Jose, Alviso, Milpitas, Santa Clara, Saratoga, Monte Sereno, Los Gatos, Campbell, and Cupertino. There is a limitation to 60 students per field trip, and a 1:10 chaperone to student ratio is required.

Classroom Presentations (5th – 12th grades): Presentations include an in-depth look at the habitats of the south bay along with the pathways of indoor and outdoor water use. Students will have a better understanding of the role they play in the health of their watershed and what personal actions they can take to help. The presentation takes approximately one hour. Please contact us for specific classroom presentation needs.

Field Trip and Guided Tours for other Schools, Colleges, Universities, and related organizations: General presentations and



guided tours are available and are generally 1.5 hours in length.

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

Interns Wanted!

The Living Wetlands and Watershed Watchers programs are offering internships for 2014. To inquire, please e-mail livingwetlands@sfbws.com or watershedwatchers@sfbws.com.

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Editor: Carmen Minch

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

San Francisco Bay National Wildlife Refuge Complex

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

Project Leader: Anne Morkill
 Don Edwards Refuge Manager: Eric Mruz
 Don Edwards Wildlife Specialist: Melisa Amato
 Don Edwards Warm Springs Unit Manager: .. Ivette Loreda
 Farallon Refuge Manager: Gerry McChesney
 Farallon Wildlife Specialist: Jonathon Shore
 North Bay Refuges Manager: Don Brubaker
 North Bay Wildlife Specialist: Louis Terrazas
 South Bay Refuges Manager: Diane Kodama
 Public Affairs Officer: Doug Cordell
 Refuge Planner: Winnie Chan
 Chief of Visitor Services: Jennifer Heroux
 Park Ranger/Outdoor Recreation Planners: Joseph Garcia and Carmen Minch
 Environmental Education Specialists: Tia Glagolev and Genie Moore
 Volunteer Coordinator: Paul Mueller
 Law Enforcement Officers: Jared Klein, Jesse Navarro and Chris Wilson
 Biologists: Joy Albertson, Christopher Caris, Susan Euing, Allison Fuller, Meg Marriott, Cheryl Strong, and Rachel Tertes
 Administrative Staff: Lucinda Ballard, Patricia Compton, and Ellen Tong
 Maintenance Staff: Juan Flores, James Griffin, Calvin Sahara, Michael Springman, and Ed Van Til

San Francisco Bay Wildlife Society

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

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WINTER 2014
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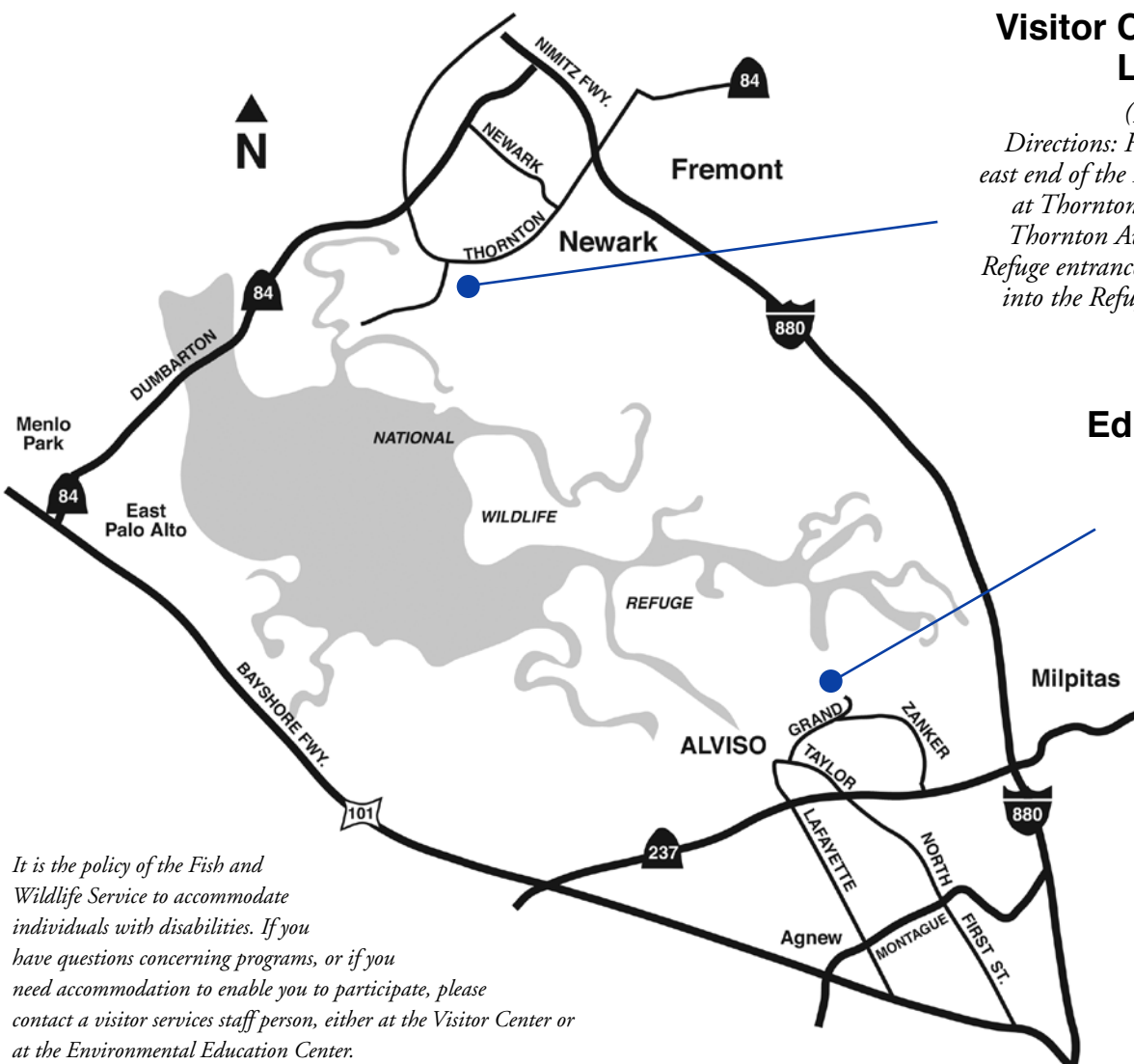
Tideline



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



Visitor Center, Fremont Learning Center

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

Environmental Education Center, Alviso

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

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