

SUMMER 2014

Volume 37, Number 2

Tideline



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

Squeak, Quack, Splash!

(**translation**) Happy 40th Birthday San Pablo Bay National Wildlife Refuge!

By Francesca Demgen

Located 22 miles north of the Golden Gate, San Pablo Bay National Wildlife Refuge sits like a crescent-shaped cap across the top of the bay between the Petaluma and Napa Rivers. Vast stretches of pickleweed marsh, great rafts of ducks and open bay waters have always embodied this refuge. Yet, recent land acquisitions, a dedicated community, and strong partnerships are creating new and exciting opportunities for habitat restoration, wildlife protection, and wildlife-oriented recreation.

The refuge's story begins in 1974 when it was established to preserve, protect and enhance wetlands for migratory birds, waterfowl, and wildlife. During the past 40 years the refuge has grown from its natal 185 acres (Figuera's Tract located at the northwest tip of Mare Island) to more than 20,000 acres, restoring a vast San Pablo Bay wetland ecosystem that yields benefits not only to wildlife and ecosystem functions, but to the entire community of the North Bay and beyond. The transformation from oat hay ranching and salt production to wetland is being accomplished in concert with many partners, most especially with sister agency the California Department of Fish and Wildlife.

This huge habitat success story was made possible when 20 citizens from the city of Vallejo could not imagine the development proposed to replace Cullinan Ranch's oat hay fields. In the 1980s, these same citizens initiated a call for action to stop the development and the people from around the bay responded. In the winter, the oat hay fields provided seasonal wetland

habitat for waterfowl migrating on the Pacific Flyway. In the 1980s, approximately 80% of the canvasback duck population stopped to feed and rest in San Pablo Bay and its wetlands. It was the largest wintering site for this species on the west coast.

Cullinan Ranch, a geographically

extended across to the river's western side, a development domino effect between Vallejo and Novato would have ensued.

Instead the community made their voices heard by local government, raising concerns with the Planning Commission, the City Council, the County Supervisors



Aric Crab/East Bay News Group

pivotal 1,585 acres stretching for three miles along Highway 37 west of the Napa River, nearly became 3,000 single family homes, 1,500 apartments and condominiums, 1,700 boat slips and 60 acres of commercial facilities. The group "Citizen's for Cost Efficient Growth" wanted Vallejo's development confined inside city limits east of the Napa River because they knew that if city services such as water and sewers were

and Local Agency Formation Commission; all to no avail. The development was to move forward. Only one alternative remained, to file a lawsuit based on inadequacies in the Environmental Impact Report (EIR). The successful lawsuit cost the group over forty thousand dollars raised from donations contributed by organizations such

continued next page

as Save the Bay and people from far and wide. Even though attorney Clem Schute won the lawsuit, winning merely meant that the City and the developer could fix the EIR and move forward.

The group realized that the only way to protect Cullinan Ranch from development was to purchase it from the Japanese corporation that owned it. The group turned to then Congresswoman, now Senator Barbara Boxer, who secured seven million dollars in Land and Water Conservation funds for the purchase of the 1,585 acre Cullinan Ranch. In 1991 the U.S. Fish and Wildlife Service accepted the ranch as an addition to the San Pablo Bay National Wildlife Refuge.

Habitat restoration at Cullinan Ranch is a slow, but steady transformation from agriculture to seasonal wetland, with a goal of restoring tidal marsh on the former ranch. Buildings were demolished and materials removed, a non-native eucalyptus grove was cut down, and the oat hay cultivation, which had continued for some years after the title transfer, was finally terminated when the pumps were “unplugged.” Soon afterwards, seasonal wetlands grew where the oat hay had been.

Passive restoration was followed by earthmoving in 2012 (www.restorecullinan.info). To accelerate habitat diversity and revegetation, dredged material was imported and placed at the eastern end of the site to counteract subsidence caused by decades of pumping to drain the soils for agriculture. The dredged material is good for growing pickleweed as habitat for the salt marsh harvest mouse.

In addition to creating habitat, construction included a 3,900 foot-long levee to keep State Route 37 from flooding and recreational features. Recreational facilities were constructed to facilitate public enjoyment of the spectacular views and wildlife, such as water access on a universal access fishing pier, a kayak launch dock, and a mile-long hiking trail.

The final step in Cullinan Ranch’s transition, from seasonal wetland to tidal action is planned for 2014 when four breaches up to 240-foot wide will be cut through the levee between Cullinan and Dutchman Slough, returning tidal ebb and flow for the first time in more than a hundred years.

San Pablo Bay National Wildlife Refuge has nearly doubled in size since the addition of Cullinan. The refuge’s land acquisition and habitat restoration are targeted towards replacing habitat for the salt marsh harvest mouse and California



Restoration at Cullinan Ranch. Photo: Don Brubaker

clapper rail which became endangered due to a loss of 85% of San Francisco Bay’s wetlands. Monitoring data collected by refuge biologists suggest wildlife species have benefitted. Small mammal monitoring at 11 refuge sites between 2003 and 2013 suggest refuge lands support a sustainable salt marsh harvest mouse population. Monitoring for clapper rail, black rail, Virginia rail, and sora has shown that although rail populations fluctuate through the years, on average they have remained stable. In addition there is an indication that restoration construction in 2009 may have improved rail habitat at the Tolay/Tubbs enhancement site because the number of rails observed during monitoring has been similar to, or greater than, unrestored control sites.

San Pablo Bay National Wildlife Refuge’s wetland restoration sites continue to evolve. As former diked lands begin to receive tidal flow, raw materials such as sediment, water, and an assortment of plants enter the restoration site. However, the tides are non-selective, floating in both native and non-native intertidal wetland plants which can propagate via seed, roots and rhizomes and by division (broken off plant pieces). Biologists have tackled the problem of non-native plant species establishment on multiple fronts, including invasive plant removal and propagating and planting native plants.

Lepidium latifolium, also known as pepperweed, chokes out native vegetation, effectively reducing or destroying habitat for threatened and endangered species. Eradication began in 2004 with an innovative mapping process performed by a

team of refuge biologists and volunteers. San Pablo Bay NWR initiated the largest invasive species eradication program in the San Francisco Bay National Wildlife Refuge Complex, achieving 86% *Lepidium* eradication on more than 2,000 acres!

Habitat restoration would not be as successful or as cost-efficient without a local place to propagate native plants. A greenhouse was built by volunteer Lowell Sykes to grow ecotone plants (where the wetland transitions to upland) and other native plants to combat the spread of invasives, and to provide additional habitat for wildlife. Ecotone plants are important because this area is particularly prone to invasion by non-native plants. The ecotones provide high tide refugia critical to the survival of marsh-dwelling wildlife, including the rail and mouse. A partnership with STRAW (Students and Teachers Restoring a Watershed) provided staff to operate the greenhouse to propagate, grow, plant and maintain over 2,000 plants of 12 species. STRAW also recruited classrooms to aid in the planting of native plants on the refuge.

If Cullinan was the cornerstone of the north bay wetland restoration, the recently acquired 4,300+ acres comprising Skaggs Island and Haire Ranch are the central core of the north bay wetland restoration. Skaggs Island, a former naval facility, came available via the Base Realignment and Closure process in 2012; its acquisition facilitated by the long standing efforts of Representative Lynn Woolsey and unflagging citizen support organized by local Audubon chapters.

Skaggs Island is known for its diverse raptor community. Surveys note nesting

Swainson's hawks on Skaggs Island in 2012 for the first time in Sonoma County since the 1970s. In addition red-tailed hawks, American kestrels, northern harriers and great horned owls also nest at Skaggs. Short-eared owls use the island for foraging during migration. Not to be out-shined by birds, there is a steelhead run in Sonoma Creek that flows around the western side of Skaggs Island. The refuge is exploring numerous possibilities to determine the best way to improve, maintain, and showcase what Skaggs Island can become for wildlife and their habitats.

One reason for the refuge's success is the practice of maximizing partnership synergy with numerous groups including the small but solid Friends of San Pablo Bay National Wildlife Refuge (www.pickleweed.org). Established in 2003, the Friends support the refuge by assisting with grant management and through outreach. The Friends unique contribution to environmental education is the publication of two children's books: *A Home for Salty*, about the endangered salt marsh harvest mouse and *Sardis and Stamm*, about the endangered Lange's metalmark butterfly that only lives at Antioch Dunes NWR. Both stories describe iconic species, endangered due to habitat loss associated with human

impacts and for which there is active habitat restoration.

San Pablo Bay's estuarine location where the river's fresh water mixes with salt water from the Pacific is key to its ecosystem value and human wrought change. Over a century and a half ago sediment washed out of the Napa and Sonoma valleys and Sierra Nevada Mountains by gold miners decreased water depth and increase wetland area. It was followed by wetland diking and draining for agriculture and salt production. San Pablo Bay National Wildlife Refuge's first 40 years has been spent building a world class National Wildlife Refuge anchored in partnerships among agencies, Friends groups, and a plethora of supporting non-governmental organizations. Together we have re-established an ecosystem with the connectedness required to support and sustain healthy vegetation communities and robust wildlife in preparation for the 21st century, enabling them to navigate sea level rise and other landscape changes in the largest estuary on the west coast of North America.

Interested in learning more about activities and volunteer opportunities at San Pablo Bay NWR? Contact the refuge at (707) 769-4200.



*Great horned owl at Skaggs Island.
Photo: Jared Klein*

Francesca Demgen is a 37-year veteran wetland biologist who started volunteering for the USFWS in 1984 by counting birds at two Napa River sites for the Diked Baylands Wildlife Study. She is the founder and current president of the Friends of San Pablo Bay National Wildlife Refuge.

Celebrating 50 Years of Wilderness

Before dawn, our ship drops anchor off a dark silhouette of an island as waves break along an unbroken stretch of empty beach and cliffs soar upward into the fog. As the engines go silent, I instantly hear a



cacophony of murre and kittiwake cries. Rafts of puffins materialize on the water and a swirl nearby reveals a sea lion. We arrived at St. Matthew Island!

Located in the center of the Bering Sea, 200 miles from the nearest Alaskan village, it is one of the most remote and isolated spots in America. St. Matthew Island was established as a wildlife refuge in 1909 and later designated wilderness under the Wilderness Act of 1964. For the next 10 days, I was one of only six souls on the 138 square mile island experiencing its primeval character, natural condition, and solitude

that the Wilderness Act was enacted to preserve. It is still one of my most memorable journeys.

I've been fortunate to work in other refuge wildernesses, from the vast open spaces of the Mollie Beattie Wilderness (Arctic NWR) to the small mangrove islands of the Florida Keys Wilderness (Key West NWR), and now here, the rugged islets of the Farallon Wilderness (Farallon NWR). These special places represent a few of the 75 wilderness areas in the National Wildlife Refuge System – about one-fifth of all the designated wilderness acres in the United States. While each of these places have a long history of human occupation from Native Americans to military installations, and the number and variety of wildlife have changed over time, most still embody many of the Wilderness Act's characteristics.

This year marks the 50th anniversary of the Wilderness Act and also the 40th anniversary of the Farallon Wilderness.

We will be hosting special activities and participating in several interagency events commemorating the Wilderness Act, including boat tours around the Farallon National Wildlife Refuge in June and July, and the Visions of the Wild festival in Vallejo in September. I hope you will take a



Refuge Reflections

*by Anne Morkill,
Project Leader*

moment to recall a special wild place where you experienced the solitude of camping out under a canopy of stars, watched the ancient ritual of thousands of migrating caribou trotting over a ridge, or marveled at a weary salmon pushing upstream to its natal birthplace, and thus in your own way, celebrate wilderness!

Salinas River NWR Renames Beach Trail in Honor of Ricky and John Warriner

By Diane Kodama
Salinas River NWR Manager

Last winter, at the annual Western Snowy Plover Recovery meeting for plovers in the Point Reyes to Big Sur coastline, one special agenda item was saved until the end. A hush descended upon the room, and all eyes turned expectantly towards Ricky Warriner, sitting quietly at the table. Unbeknownst to her, it was time for the Salinas River National Wildlife Refuge (Refuge) and her peers to recognize Ricky and her late husband, John Warriner, for their contributions to the conservation science of the Western snowy plover. This dedication has spanned a lifetime and continues to present day.

It all began in the 1970s, when Ricky and John spotted several small, well-camouflaged birds foraging on the ocean beach and dry river flats just outside their home in Watsonville. Intrigued, they wanted to learn more about this federally-listed plover. In 1977, Ricky and John joined forces with Point Blue Conservation Science (Point Blue) and Gary Page, Co-Director of the Wetlands Division as volunteers to study plover nesting at the Pajaro River mouth. This detailed study lasted over six years, culminating in an award-winning paper published in the *Wilson Bulletin*.

The Warriners expanded their nest monitoring and banding efforts with occasional visits to the Salinas River National Wildlife Refuge in 1978. By 1984, the project started by the Warriners and Gary had grown to include additional personnel, with the goal of tracking the fate of every snowy plover nest and chick throughout the entire Monterey Bay area.



John and Ricky Warriner

For the next 18 years, Ricky and John were responsible for intensively monitoring multiple locations, including the Refuge. During this time-frame, Ricky and John found and monitored a remarkable total of 1,480 nests, the Refuge alone accounting for 530 of the total. Database records also show that John banded a conservative total of 1,500 chicks and 230 adults, as well as contributed an estimated 6,600 re-sightings of color-banded plovers.

The leap from scientific study to applying the results towards active conservation management took place in 1993 when Ricky and John hosted the first Recovery meeting inside their home. This initial meeting ultimately forged a lasting partnership between Federal and State agencies and Point Blue, combining knowledge and resources for the protection and recovery of

the snowy plover. Over the past years, the Warriners have generously continued to host the meetings (now in the meeting room inside their condominium) and provide a delicious lunch, even as the meetings have expanded from the initial 10 participants to well over 30.

On the 20th anniversary of the inaugural meeting, a map of the Salinas River National Wildlife Refuge was presented to Ricky, commemorating a new trail name, the "Warriner Beach Trail." We will draw inspiration from this name when we follow their footsteps to the beach, remembering the thousands of times that Ricky and John tirelessly traversed the same pathway, at all hours from dawn to dusk, committed to making a difference for the survival of the Western snowy plover.

Volunteer Opportunities: Summer 2014

Don Edwards San Francisco Bay National Wildlife Refuge 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. Project areas are: restoration projects, information desk on weekends, interpretive programs, school field trips, and citizen science/community service.

Upcoming Volunteer Orientations for Summer

11 a.m. to Noon. Volunteer orientations will meet in the auditorium of the Environmental Education Center in Alviso.

Tuesday, May 6

Wednesday, June 11

Wednesday, July 9

Saturday, August 9

Saturday, May 31

Sunday, June 29

Saturday, July 26

Volunteer Requirements: You must attend a volunteer orientation. You must attend the scheduled trainings. You must meet the age requirements for the program. Volunteer Applications provided at Orientation.



Farallon National Wildlife Refuge Celebrates 50 Years of the Wilderness Act

Take a boat tour this summer with refuge staff and view “California’s Galapagos”

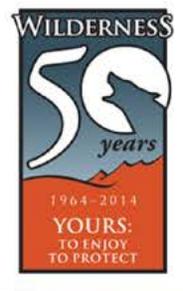
Farallon National Wildlife Refuge, Oceanic Society and San Francisco Whale Tours have teamed up to offer discounted boat tours of the Farallon Islands to view their rugged beauty, breeding seabirds, seals, and sea lions, and perhaps some whales. Each tour will feature narration by Farallon National Wildlife Refuge staff about the islands, the wilderness, and the abundant wildlife. Celebrate the 50th Anniversary of the Wilderness Act, and help us commemorate the 40th Anniversary of Farallon Islands’ designation as Wilderness. Cost: \$65 per person*

June 28 Go to <http://farallonwilderness.eventbrite.com>
Tickets purchased through San Francisco Bay Wildlife Society
Boat leaves from Sausalito, CA at 8 a.m.

July 11 Go to www.sanfranciscowhaletours.com
Boat leaves from San Francisco’s Pier 39 at 8 a.m. Choose July 11 for the date and enter discount code **Farallon65**.

July 12 Call Oceanic Society at 415-256-9604
Boat leaves from Sausalito, CA at 8 a.m. Must purchase tickets by **June 12** .
Prices will increase thereafter. Request the July 12 date.
For more information about their tours go to www.oceanicsociety.org

Hurry! Discounted Tickets are Limited!



*Fees and special conditions apply. Specific information will be on the respective websites or given at the time of purchase. Departure times may change slightly. Tickets are non-refundable unless tour is cancelled due to inclement ocean conditions. Check with individual tour operators. Call 510/792-0222 ext. 476 for more information.

Let's Go Outside!

The Benefits of Outdoor Spaces

Editor's note: This story was originally printed in the Summer 2008 issue of Tideline.

Everybody needs beauty as well as bread, places to play and pray in, where Nature may heal and cheer and give strength to body and soul alike.

John Muir

John Muir, one of our country's foremost conservationists, spent most of his life advocating the preservation of wilderness. He, among other great thinkers and writers, recognized not only the intrinsic value of wild places, but also the benefits they provide for the human mind and body. He believed nature can play an important role in teaching life-long lessons about ourselves and the world we live in.

Although many adults may not be able to articulate how nature, or the outdoors, shaped them developmentally, or helped create their value system, most adults will tell you that as a child, they played outside - in the woods, a creek, a backyard, or an empty lot.

Can younger adults, teens, and children say the same? Something began to change during the last 30 years. The once common sight of kids playing makeshift games outside shifted to kids playing indoors. Competition with media, perceived dangers of strangers, and lack of available outdoor spaces all contributed to this gradual change in our culture. This shift away from outdoor play and subsequent disconnect from nature may have consequences for our children's health as well as for the future of conservation.

Studies have shown that playing in the outdoors has helped children physically and psychologically. For instance, recreating outside may help combat the rising epidemic of childhood obesity. Those who play in the outdoors are physically more active because outdoor spaces are usually more varied and less structured than indoor spaces. Being outside also sets the stage

for childhood "discoveries" of the natural world which have more lasting impressions than learning about nature in a classroom. Children are more likely to develop a sense of place and a sense of imagination. And finally, children taking part in a week-long, residential outdoor recreation program were found to have increased confidence and self esteem.

In addition to the benefits of physical activity, a study conducted by the University of Illinois discovered that children with Attention-Deficit Hyperactivity Disorder (ADHD) have fewer symptoms after playing in the outdoors than when they focus on indoor play activities such as television or video games. This study also found ADHD kids were better able to concentrate, complete tasks, and follow directions better after being outside.

Although the focus here is children, adults benefit from natural settings as well. Howard Frumkin, M.D., the director of the National Center for Environmental Health/Agency for Toxic Substances and Disease Registry at the U.S. Centers for Disease Control and Prevention, has found evidence that healthy adults who partake in wilderness experiences such as hiking, fishing, and camping make healthier lifestyle choices. Similar activities are often used to relieve psychological disorders and developmental disabilities. Other studies show that those who exercise outside where there are trees and grass are often less stressed and depressed than those who exercise inside a gym. It would appear that spending time outside is beneficial to everyone.

The rising evidence which shows the many health benefits of the outdoors prompted The U.S. Fish and Wildlife Service to launch a campaign to get kids outdoors and have fun. Check out the Children and Nature website at <http://www.fws.gov/children/index> for more information. The California Roundtable on Recreation, Parks and Tourism has also developed the California Children's Outdoor Bill of Rights. The Children's Outdoor Bill of Rights list 10 activities that each child should have the opportunity to experience before entering high school. These rights were endorsed by Governor



HEALTHY
PARKS
HEALTHY
PEOPLE
BAY AREA

Arnold Schwarzenegger in 2007. Log on to http://calroundtable.org/Copy_of_cobor.htm to see this list.

Many partnerships developed with other like-minded organizations to encourage the use of outdoor spaces. Two years ago, 30 parks, community, and health organizations from all nine San Francisco Bay Area counties formed Healthy Parks Healthy People Bay Area. This collaborative provides a coordinated effort throughout the Bay Area to offer outdoor programs the first Saturday of every month at various parks and refuges. To see a list of these programs go to <http://instituteatgoldengate.org/regional>.

And, as always, you are invited to join us for one of the weekend activities listed in *Tideline*.

So what are you waiting for? Let's go outside!

Other links:

<http://www.cincbayarea.org/>

<http://www.cnaturenet.org>

<http://www.childrensnatureinstitute.org/>

<http://www.greenhour.org/>

<http://www.naturerocks.org>



National Fishing & Boating Week • June 1-8

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

Saturday, June 7

9:00 a.m. – noon

This event is free!

Space is limited to 50 people. All equipment will be provided. Please come on time.

**Register at <http://donedwardsfishing.eventbrite.com>
or call 510-792-0222 ext. 476 for reservations.**

For more information, see page 10.

2014 Marsh-In Summer Day Camp

A **FREE** summer camp filled with fun activities, games, crafts, and adventures.

August 4-8, 2014

**Monday - Wednesday:
Grades 1-6, 9:15 - 1:30 p.m.**

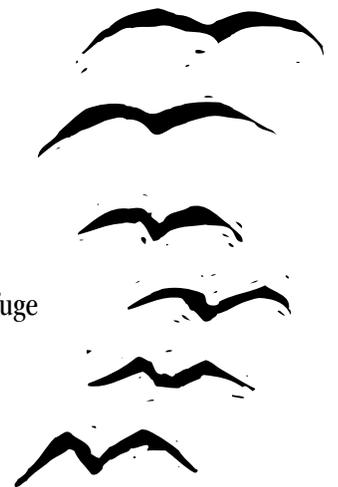
**Overnight: Grades 4-6 only
6:00 p.m. Thursday
- 9:00 a.m. Friday**

Location:

Don Edwards San Francisco Bay National Wildlife Refuge
Environmental Education Center
1751 Grand Blvd, Alviso, CA 95002

Requirements:

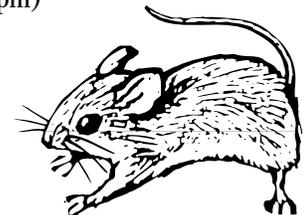
- Campers must be entering grades 1-6 in Fall 2014.
- Campers must provide their own transportation to and from camp.
- Campers must attend ALL days of camp.



To Apply:

- Applications can be found online: http://www.fws.gov/refuge/don_edwards_san_francisco_bay
- Or picked up at the Environmental Education Center (Saturday/Sunday 10 am – 5 pm)
- Selections will be made by lottery.
- Applicants will be notified of their status by mail or email on July 7th.
- Applications due by June 30th.

Questions? Call or email (408) 262-5513 x100 or genie_moore@fws.gov



Thank you San Francisco Bay Wildlife Society Donors!

We gratefully acknowledge the following donors who have made gifts to the San Francisco Bay Wildlife Society between January 1, 2014 and March 31, 2014. 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.

Employer Matching Gift Program

Schwab Charitable Fund
Tru1st
Cisco

Sponsor

Lyle P Bickley and Marge Callow

Participant

John F Atwood, Mary & Gene Bobik, Terry & Zeo Coddington, Frank Delfino, Norman & Marcia Houseworth, Mark Jackson, Gloria Laird, Cindy Lockhart, David Paradise, Rita Poppenk, Veron Smith, and Mark A & Kathleen Soulard

Supporter

Alvin Dockter and Tanis Walters

Family

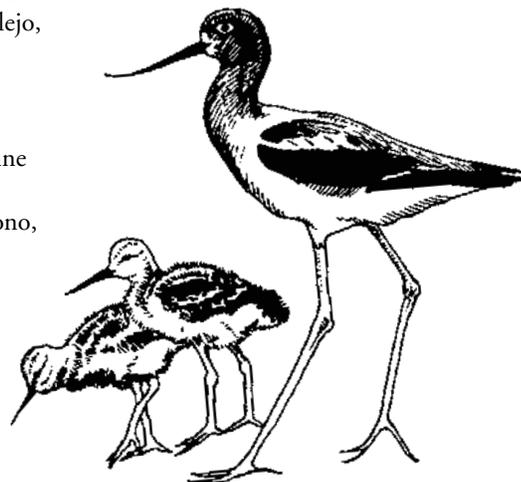
Elizabeth & William Bacchi, Brenda & Sheldon Baker, Susan Jane Boddy, George & Beatrice Castro, Bill Delameter, James Kellenberg, Bruce Kelly, Douglas & Beckie Kinghorn, Robert W Kirby Jr, Frederic H & Kirsten Nichols, Karen Natoli Maxwell, Donna H Olsen, Margaret Panton, Dale & Diane Schouten, Taj Singh el all, David & Karen Stein, Jean Takekawa, Phillip Vallejo, and Linda L Vetter

Individual

John B Bowers, EdwardF Dowling, Lynne Fitzjarrell, Cathie Guernsey, Theresa McGovern, David Riensche, S Jane Ryono, Karen L Scriven, Marilyn J Walter, and Rose Wright

Senior/Student

Charmon Ashby, Diane L Ciucci, Walter R Ems, Ron Felzer, Susan Hampton, Lynn P Hunwick, Johnson & Johnson, Roman Kendzior, Thomas H Konno, June M Ladd, Bernice Lowney, Eugene I Majerowicz, Paula Mortensen, Ruth E Mundy, Clark Nakamura, Carland Nicholson, Connie Simone, and Jean E Toonen



Help Us Help the Refuge

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

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

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

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

- \$20 Student/Senior \$50 Family \$100 Participant \$200 Corporation \$500 Sustainer
 \$35 Individual \$75 Supporter \$250 Sponsor \$1,000 Leader

Check Visa or MasterCard # _____ Exp. Date _____

Signature _____

Name _____

Address _____ City _____ State _____ Zip _____

Phone _____ *Thank you for your support!*

Don Edwards San Francisco Bay National Wildlife Refuge
and REI Outdoor School present

The Amazing Refuge Race

2 Marshlands Rd, Fremont

August 23, 2014 • 10:30 a.m. – 12:00 p.m.

Armed with GPS units, you and your team will “race” against other teams by attempting to complete required tasks on the refuge first. Teams will be given a set of coordinates where they must try to locate using a GPS unit. Once at that location, teams must work together to complete a task. When that task is completed, teams will receive the next set of coordinates.

Those who complete all tasks and arrive at the finish first wins!

Intrigued? Log on to <http://www.fws.gov/desfbay> or call Carmen at 510-792-0222 ext. 476 for additional information and rules. Don't have a GPS unit? Borrow one from REI Outdoor School the day of the race at the refuge.

Registration is required! You may register up to 5 people for your team. A minimum of 2 people per team. The refuge may place individuals on teams containing fewer than 5 people to ensure maximum participation. Registration deadline is August 20. Go to <http://amazingrefugerace.eventbrite.com> or call 510-792-0222 ext. 476.

There is no cost to enter.

Introduction to GPS Workshop

REI Outdoor School's Steve Wood will demonstrate how to use hand-held Global Positioning Units and will have limited number of units to practice on.

No reservations necessary.



When: August 23, 2013

Where: Visitor Center

Marshlands Rd, Fremont, CA

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

Cost: FREE!

No reservations necessary.

Summer 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.

June

Sunday, June 1

*Bird Watching for Beginners

Visitor Center, Fremont

8:30 a.m. – 10:30 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. A limited number of binoculars are available to borrow. Led by Carmen Minch.

Saturday, June 7

Connections to Pier Fishing

Dumbarton Fishing Pier, Fremont

9:00 a.m. – 12:00 p.m.

Have you ever wanted to try fishing but didn't know how to begin? Learn the fundamental basics of catch-and-release fishing at the Dumbarton fishing pier! Discover the types of wildlife living in the San Francisco Bay, learn the safety and ethics of fishing, and then try your luck out on the pier with our fishing poles. All participants receive free box with tackle. No fishing license needed. Space is limited to the first 50 people. You must arrive at 9 a.m. to participate. REGISTRATION REQUIRED. Register at <http://donedwardsfishing.eventbrite.com> or call 510-792-0222 ext. 476.

A Trip Back in Time

Visitor Center, Fremont

10:30 a.m. – 12:00 p.m.

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

Docent Training

Environmental Education Center, Alviso

1:00 p.m. – 2:00 p.m.

Want to become a volunteer, or update your training? Come to a Salt Pond Restoration Docent Volunteer Training class where Park Ranger Joseph Garcia will teach you the volunteer process and what new changes are taking place within the refuge. Registration required. Call 510 792-0222 ext 141.

Sunday, June 8

Water is Wonderful

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Seventy-one percent of the Earth is covered in water, yet California is having a water shortage. The average American uses about 100 gallons of fresh water every day. Learn the simple things you can do to conserve water. You'll be able to put your math and chemistry skills to use as you calculate your daily water usage, conduct simple monitoring tests, and learn how to protect and keep your local watershed clean. Register at <http://eecwateriswonderful.eventbrite.com> or call 408-262-5513 ext. 102.

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. After a brief introduction on how to use our GPS units, we'll give you a set of coordinates that will lead you to the landmarks that embody the rich human history that helped shaped refuge lands. GPS units are available for loan. Register at <http://donedwardsstory.eventbrite.com> or call 510-792-0222 ext. 362.

Saturday, June 14

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. Learn and be part of history of the wetlands restoration. Knowing the area will both increase your appreciation for the baylands and the ability to see them in whole new way. Discover plants and animals in its habitat and the best time to see them. Digital or film welcome. Led by Joseph Garcia. Call 510-792-0222 ext. 141 for more information.

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.

Twilight Marsh Walk

Visitor Center, Fremont

7:30 p.m. – 9:00 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1.3 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://donedwardstwiilight.eventbrite.com> or call 510-792-0222 ext 362. Led by Mary and Gene Bobik.

Saturday, June 21

Community Service

Visitor Center, Fremont

9:30 a.m. – 12:00 p.m.

If you are interested in improving the refuge for visitors and for wildlife alike, join us at the Visitor Center for a community service project. We will do either a trash cleanup or a planting/weeding project. Dress appropriately for the task and for the weather. We will have gloves to lend and will provide the tools. Bring your own water bottle. Meet in the parking lot at the Visitor Center. Driving an additional 2.5 miles may be required since the project may be at a different location. For more information, or to make reservations, call 510-792-0222 ext. 361.

Bay Bike Ride

Meet at the Visitor Center, Fremont

10:30 a.m.

Go on an 11-mile bike ride with docent Gregg Aronson along Marshlands Road and on the Shoreline Trail to observe birds and the occasional leopard shark! Pass through several habitat types along the way including salt marsh, salt pond, and the bay. The paved and dirt trails are almost flat and trail and hybrid bicycles highly recommended. Helmets are required. Recommended for more experienced bicyclists. Program cancels if it rains the day before and the day of due to mud. Register at <https://donedwardsbike.eventbrite.com> or call 510-792-0222 ext. 362 for reservations.

Water, Water, Everywhere

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

How much water is there and where does it come from? Where does it go? How much of the Earth's water supply can we use? Learn about the water cycle and watersheds. Build a model of a watershed and see if you can predict where the water will go. Open to all ages but best suited to third grade and up. Led by Ed Kantack. RESERVATIONS REQUIRED. Go to <http://eecwater.eventbrite.com> Questions? Call Julie at 408-262-5513 ext. 104.

Sunday, June 22

Nature Yoga

Visitor Center, Fremont

10:00 a.m. – 11:30 a.m.

Enjoy the benefits of Yoga outdoors with great views of the salt marsh. Through story and postures, learn what attracted people and wildlife to the Bay. There will be a short hike to the site from the Visitor Center. Bring a yoga mat. A limited number of mats are available to borrow. Wear comfortable clothing. Consult with your doctor before participating. All ages and abilities welcome. Reservations are required. Rain cancels. Go to <https://donedwardsyoga.eventbrite.com> or call 510-792-0222 ext. 362. Led by Carmen Minch.

* Tiny Drifters

Environmental Education Center, Alviso

1:30 p.m. – 2:30 p.m.

There's plankton in our Bay! Learn about the different characteristics of plankton and how they have adapted to survive. We will become planktologists for a day, collect water samples and identify these incredible organisms under a microscope. All ages are welcome. Register at <http://eectinydrifters.eventbrite.com> or call 408-262-5513 ext. 102 for reservations.

Saturday, June 28

**Farallon National Wildlife Refuge
Wilderness Boat Tour**

Sausalito, CA

8:00 a.m. – 4:00 p.m.

See page 5.

***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, June 29

Web of Life

Environmental Education Center, Alviso

1:00 p.m. – 2:00 p.m.

Everything is connected! Come learn about how all living things each get their energy from one another and how energy starts from one source - the sun. We will be coloring and drawing all types of wildlife while learning about the energy pyramid. Finally, we will do a group activity with string to learn about the web of life. Best suited for ages 7 and up. Register at <http://eecweboflife.eventbrite.com> or call 408-262-5513 ext. 102.

JULY

Saturday, July 5

**Habitat Under Construction Bike
Ride EEC**

Environmental Education Center, Alviso

10:00 a.m.

The South Bay Salt Pond Restoration Project is engaged in an effort to convert former salt ponds into lands for wildlife habitat, wildlife-oriented recreation, and natural flood protection. Join Jose Garcia in this bike ride and learn about the structure of several different habitats which make up the bay front. Helmets required. Water and other safety gear recommended. PowerPoint will be substituted in case of inclement weather. Call 510-792-0222 ext. 141 for more information.



***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.

Sunday, July 6

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. After a brief introduction on how to use our GPS units, we'll give you a new set of coordinates that will lead you to the landmarks that embody the rich human history that helped shaped refuge lands. GPS units are available for loan. Register at <http://donedwardsstory.eventbrite.com> or call 510-792-0222 ext. 362.

Friday, July 11

**Farallon National Wildlife Refuge
Wilderness Boat Tour**

San Francisco, CA

8:00 a.m. – 4:00 p.m.

See page 5.

Saturday, July 12

**Farallon National Wildlife Refuge
Wilderness Boat Tour**

Sausalito, CA

8:00 a.m. – 4:00 p.m.

See page 5.

Bike the Levees

Environmental Education Center, Alviso

9:30 a.m. – 11:00 a.m.

Join Ed Kantack for an easy 5-6 mile bike ride along the levees. We will go where ever the mood suits us! Due to restoration work, we do not know exactly what the route will be but it will be interesting. Helmets are required and knobby tires are recommended. Open to all ages. RESERVATIONS REQUIRED. Go to <http://eebike.eventbrite.com>. Questions? Call Julie at 408-262-5513 ext.104.

Community Service

Visitor Center, Fremont

9:30 a.m. – 12:00 p.m.

If you are interested in improving the refuge for visitors and for wildlife alike, join us at the Visitor Center for a community service project. We will do either a trash cleanup or a planting/weeding project. Dress appropriately for the task and for the weather. We will have gloves to lend and will provide the tools. Bring your own water bottle. Meet in the parking lot at the Visitor Center. Driving an additional 2.5 miles may be required since the project may be a different location. For more information, or to make reservations, call 510-792-0222 ext. 361.

Sunday, July 13

Insect Exploration

Environmental Education Center, Alviso

11:00 a.m. – 12:30 p.m.

Insects have been on this Earth for hundreds of millions of years. Come learn about the many different insects that call the San Francisco Bay Area their home. We will examine insects and learn how they've adapted to survive. Join us as we dig in the dirt and crawl through the plants in search of our six-legged friends. Be prepared to get dirty. All ages are welcome. Register at <http://eecinsect.eventbrite.com> or call 408-262-5513 ext. 102.

**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 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. Led by Carmen Minch.

Saturday, July 19

A Trip Back in Time

Visitor Center, Fremont

10:30 a.m. – 12:00 p.m.

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

Jr. Refuge Manager Program

Visitor Center, Fremont

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

Become a honorary Jr. Refuge Manager by completing activities on the refuge. Tyler Wood will guide you in a some of the activities that will help you earn the Refuge Manager Badge. The rest of the activities can be completed on your own. Those who complete the activities in the booklet for your age group will receive a Jr Refuge Manager button. More information about the Jr. Refuge Manager program in Fremont can be found at <http://go.usa.gov/khTh>

***Why Tides Matter**

Environmental Education Center, Alviso

2:00 p.m. – 3:00 p.m.

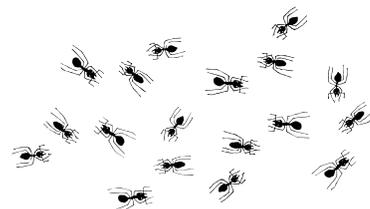
Docent Laurel Stell will talk and walk you through all things tides. What are they? How do they affect wildlife? How have humans reshaped the Bay's tidal lands? Program starts indoors but will move outside for an easy 0.5-mile walk. All are welcome.

Twilight Marsh Walk

Visitor Center, Fremont

7:30 p.m. –9:00 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1.3 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.



Summer 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.

Sunday, July 20

Ravenswood Hike: 4 to 6 miles

Meet at the Trailhead in Menlo Park.

Directions Below

9:00 a.m.

Join Paul Salemme on another walk at the Ravenswood Trail in Menlo Park. This flat, dirt levee trail circumnavigates a former salt pond slated for restoration. It offers great views of the bay. If we're lucky, you may see some young American avocet chicks. Hats, water, and sunscreen are strongly recommended. This is a great group walk to complete the Refuge Rambler Challenge. Register at <http://donedwardsravenswood.eventbrite.com>. Directions: Ravenswood Trail is on the west side of the Dumbarton Bridge. From the East Bay, cross over the Dumbarton Bridge and exit at the Ravenswood Unit sign. Drive east 0.3 miles on the frontage road until you see a brown metal gate and the Ravenswood Trail Sign. From Menlo Park, drive Hwy 84 toward the Dumbarton Bridge. Exit at the Ravenswood Unit sign and drive east on the frontage road. Cross under the bridge and back west 0.6 miles until you see the brown metal gate and refuge sign.

Nature Yoga

Visitor Center, Fremont

10:00 a.m. – 11:30 a.m.

Enjoy the benefits of Yoga outdoors with great views of the salt marsh. Through story and postures, learn what attracted people and wildlife to the Bay. There will be a short hike to the site from the Visitor Center. Bring a yoga mat. A limited number of mats are available to borrow. Wear comfortable clothing. Consult with your doctor before participating. All ages and abilities welcome. Reservations are required. Rain cancels. Go to <https://donedwardsyoga.eventbrite.com> or call 510-792-0222 ext. 362. Led by Carmen Minch.

* Living Wetlands Walking Tour

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 0.5 mile walk through the wetlands. Open to all ages, but best suited for ages 7 and up. Register at <http://eecwetlandstour.eventbrite.com> or call 408-262-5513 ext. 102.

Saturday, July 26

Team Citizen Scientists! – Community Service

Environmental Education Center, Alviso

10:00 a.m. – 12:00 p.m.

Become a citizen scientist! Are you interested in plants? Volunteer and 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.

Bay Bike Ride

Meet at the Visitor Center, Fremont

10:30 a.m.

Go on an 11-mile bike ride with docent Gregg Aronson along Marshlands Road and on the Shoreline Trail to observe birds and the occasional leopard shark! Pass through several habitat types along the way including salt marsh, salt pond, and the bay. The paved and dirt trails are almost flat and trail and hybrid bicycles highly recommended. Helmets are required. Recommended for more experienced bicyclists. Program cancels if it rains the day before and the day of due to mud. Register at <https://donedwardsbike.eventbrite.com> or call 510-792-0222 ext. 362 for reservations.

*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.

Drawbridge Van Excursion

Environmental Education Center, Alviso

2:00 p.m. - 4:30 p.m.

An abandoned 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. We'll start with a slideshow, and then take a short van excursion to view Drawbridge across Coyote Creek. Program will be of most interest to adults interested in history or nature; children 13 and over with an adult are welcome. RESERVATIONS REQUIRED. Go to <http://eecdrawbridge.eventbrite.com>. Space is very limited. Questions? Call Julie at 408-262-5513 ext. 104. (Note: we do not visit the town itself – we go to the closest spot that one can legally view Drawbridge.)

Sunday, July 27

Geology Walk of Don Edward Refuge

Visitor Center, Fremont

1:00 p.m. – 2:00 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 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 more information.

AUGUST

Saturday, August 2



*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.

Fossils and Flumes

Environmental Education Center, Alviso

11:00 a.m. – 12:30 p.m.

Fossils and flumes are used to teach children about the South Bay Salt Pond Restoration Project. Park Ranger Jose Garcia brings fossils from Triassic wetlands he collected in eastern Montana to show the similarities to today's wetlands, and to explain their function in nature. Interactive flumes allow for a hands-on experience of how wetlands protect the surrounding area from flooding. Children must be accompanied by an adult. Call 510-792-0222 ext. 141 for reservations.

Sunday, August 3

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. After a brief introduction on how to use our GPS units, we'll give you a new set of coordinates that will lead you to the landmarks that embody the rich human history that helped shaped refuge lands. GPS units are available for loan. Register at <http://donedwardsstory.eventbrite.com> or call 510-792-0222 ext. 362

Saturday, August 9

Bay Bike Ride

Meet at the Visitor Center, Fremont

10:30 a.m.

Go on an 11-mile bike ride with docent Gregg Aronson along Marshlands Road and on the Shoreline Trail to observe birds and the occasional leopard shark! Pass through several habitat types along the way including salt marsh, salt pond, and the bay. The paved and dirt trails are almost flat and trail and hybrid bicycles highly recommended. Helmets are required. Recommended for more experienced bicyclists. Program cancels if it rains the day before and the day of due to mud. Register at <https://donedwardsbike.eventbrite.com> or call 510-792-0222 ext. 363 for reservations.

Jr. Refuge Manager Program

Visitor Center, Fremont

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

Become a honorary Jr. Refuge Manager by completing activities on the refuge. Tyler Wood will guide you in a some of the activities that will help you earn the Refuge Manager Badge. The rest of the activities can

be completed on your own. Those who complete the activities in the booklet for your age group will receive a Jr Refuge Manager button. More information about the Jr. Refuge Manager program in Fremont can be found at <http://go.usa.gov/khTh>

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 (1.3 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, August 10

***Bird Watching for Beginners**

Visitor Center, Fremont

8:30 a.m. – 10:30 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. A limited number of binoculars are available to borrow. Hat, sunscreen, and water are recommended. Led by Carmen Minch.

Saturday, August 16

Wetland Safari

Environmental Education Center, Alviso

9:30 a.m. – 11:00 a.m.

Take a one-hour van tour around our former salt ponds. Bird life is generally more abundant the farther away from the parking lot. We will make several stops for better viewing and photography (if desired). Plus, we'll take a look at what is left of Drawbridge. RESERVATIONS REQUIRED. Go to <http://eecvan.eventbrite.com>. Questions? Call Julie 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.

Learn how to draw birds! Increase your confidence in drawing and learn 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. RESERVATIONS REQUIRED. Go to <http://eecbegbird.eventbrite.com>. Questions? Call Julie at 408-262-5513 ext. 104.

Intermediate Bird Drawing

Environmental Education Center, Alviso

1:30 p.m. – 3:00 p.m.

Learn techniques to help your bird drawings come to life. This class will be a continuation of the morning class or can be taken independently. This class will emphasize the 3-dimensional form of the bird and will provide more advanced techniques. Appropriate for ages 8 to adult. Children, please bring an adult 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. RESERVATIONS REQUIRED. Go to <http://eecintbird.eventbrite.com>. Questions? Call Julie at 408-262-5513 ext. 104.

***Family Bird Walk**

Visitor Center, Fremont

2:00 a.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.

Saturday, August 23

Drawbridge Van Excursion

Environmental Education Center, Alviso

9:30 a.m. – 12:00 p.m.

An abandoned 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. We'll start with a slideshow, and then take a short van excursion to view Drawbridge across Coyote Creek. Program will be of most interest to adults interested in history or nature; children 13 and over with an adult are welcome. Space is very limited. RESERVATIONS REQUIRED. Go to <http://eecdrawbridge2.eventbrite.com> Questions? Call Julie at 408-262-5513 ext. 104. (Note: we do not visit the town itself – we go to the closest spot that one can legally view Drawbridge.)

REI Outdoor School Presents:

Introduction to GPS Workshop

Visitor Center, Fremont

10:00 a.m. – 10:30 a.m.

The San Francisco Bay National Wildlife Refuge Complex and REI Outdoor School has teamed up once again to bring an Introduction to Global Positioning System (GPS) demonstration to the refuge. Learn how to use a hand-held GPS unit. REI Outdoor School will have a limited number of units to practice. No reservations necessary.

Amazing Refuge Race

Visitor Center, Fremont

10:30 a.m. – about 12:00 p.m.

Sign up to participate in the Amazing Refuge Race! Using a GPS unit, teams of five will "race" to the coordinates given and perform specific tasks. Once the tasks are completed, teams will be given another set of coordinates. First team to the finish line wins! Prizes will be awarded. Teams may use their own GPS unit, or borrow one from REI Outdoor School at the refuge. Form your own teams or one can be assigned to you. Reservations are required! Go to <http://amazingrefugerace.eventbrite.com> or call 510-792-0222 ext. 476.

Jr. Refuge Ranger Program

Environmental Education Center, Alviso

1:00 p.m. - 2:30 p.m.

Become a Jr. Refuge Ranger! Our Jr. Refuge Ranger program is an introduction to the Don Edwards SF Bay National Wildlife Refuge from its wildlife to its plants. Jr. Refuge Rangers will participate in several fun hands-on activities to earn their badge at the end of the program. Dress in layers—we'll be going on a nature walk with volunteer Lynnea Shuck. Best suited for ages 8-11. Go to <http://refugeranger.eventbrite.com>. Questions? Call Julie at 408-262-5513 ext. 104.

Sunday, August 24

Nature Yoga

Visitor Center, Fremont

10:00 a.m. – 11:30 a.m.

Enjoy the benefits of Yoga outdoors with great views of the salt marsh. Through story and postures, learn what attracted people and wildlife to the Bay. There will be a short hike to the site from the Visitor Center. Bring a yoga mat. A limited number of mats are available to borrow. Wear comfortable clothing. Consult with your doctor before participating. All ages and abilities welcome. Reservations are required. Rain cancels. Go to <https://donedwardsyoga.eventbrite.com> or call 510-792-0222 ext. 362. Led by Carmen Minch.

*** Tiny Drifters**

Environmental Education Center, Alviso

1:30 p.m. – 2:30 p.m.

There's plankton in our Bay! Learn about the different characteristics of plankton and how they have adapted to survive. We will become planktologists for a day, collect water samples and identify these incredible organisms under a microscope. All ages are welcome. Register at <http://eectinydrifters.eventbrite.com> or call 408-262-5513 ext. 102 for reservations.

Saturday, August 30

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.



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 and Restoration Education 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

Information about Fall field trips will be posted on our website at the end of August. Visit http://www.fws.gov/refuge/Don_Edwards_San_Francisco_Bay/Field_trip_Programs.html

Contact the Environmental Education Staff at Fremont:

Office: 510-792-0222 ext. 475 Cell: 510-377-7269

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

Field 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. Information about Fall field trips will be posted on our website at the end of August. Visit http://www.fws.gov/refuge/Don_Edwards_San_Francisco_Bay/Field_trip_Programs.html Our field trip program is fully booked for spring.

Contact the Environmental Education Staff in Alviso:

Office: 408-262-5513 ext. 100

E-mail: genie_moore@fws.gov

Fall 2014 field trip dates will be posted on-line at the end of August 2014.

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.

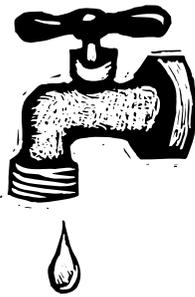
Educators are encouraged to contact us to discuss options for customizing field trips and classroom presentations. Reservations for the Living Wetlands program are on a first-come basis. **Call Aja Yee, the Living Wetlands Program Coordinator at 408-262-5513 ext. 102 or email at livingwetlands@sfbws.com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



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

The Environmental Education Center offers three types of youth programs which are listed below. Call Julie at 408-262-5513 ext. 104 to schedule a date, and to customize your visit. **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

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.

*Get Moving! Jr. Girl Scouts Journey

Are you prepared to use your energy to save the planet? On this journey, learn ways to reduce your energy use, make buildings energy efficient, and create a plan to fix an energy problem in your community.

*WOW! Wonders of Water Brownie Girl Scout Journey

Without water, we cannot exist. Can you return the favor? On this journey, take action by discovering how to love water, save water, and share water. Space is limited to 20 people.

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>. Program is led by June Smith.

Webelos Naturalist Program

Sunday, June 22

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.



TIDELINE

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

Volume 37, Number 2

Editor: Carmen Minch

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

Board of Directors

President: Ceal Craig
 Vice President: Terry Smith
 Treasurer: David Holden
 Secretary: Cheryl Davis
 Directors: John Bradley, David Holden,
 Christopher Kitting, Karen Natoli-Maxwell,
 Sue Ten Eyck, David Riensche, and Varon Smith

Staff

Interpretive Specialist: Julie Kahrnoff
 Education Specialist: Aja Yee
 Program Administrator: Sue Ten Eyck

Tideline is On-Line

Visit our web sites at

http://www.fws.gov/refuge/antioch_dunes

http://www.fws.gov/refuge/don_edwards_san_francisco_bay

http://www.fws.gov/refuge/ellicott_slough

<http://www.fws.gov/refuge/farallon>

http://www.fws.gov/refuge/marin_islands

http://www.fws.gov/refuge/salinas_river

http://www.fws.gov/refuge/san_pablo_bay



Follow us on Facebook:
 San Francisco Bay NWR Complex

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 FISH AND WILDLIFE SERVICE
 DON EDWARDS SAN FRANCISCO BAY
 NATIONAL WILDLIFE REFUGE
 1 Marshlands Road
 Fremont, CA 94555

OFFICIAL BUSINESS
 PENALTY FOR PRIVATE USE, \$300

FIRST-CLASS MAIL
 POSTAGE & FEES PAID
 U.S. Fish & Wildlife Service
 Permit No. G-77

SAN FRANCISCO BAY NATIONAL WILDLIFE REFUGE COMPLEX

SUMMER 2014
 Volume 37, Number 2

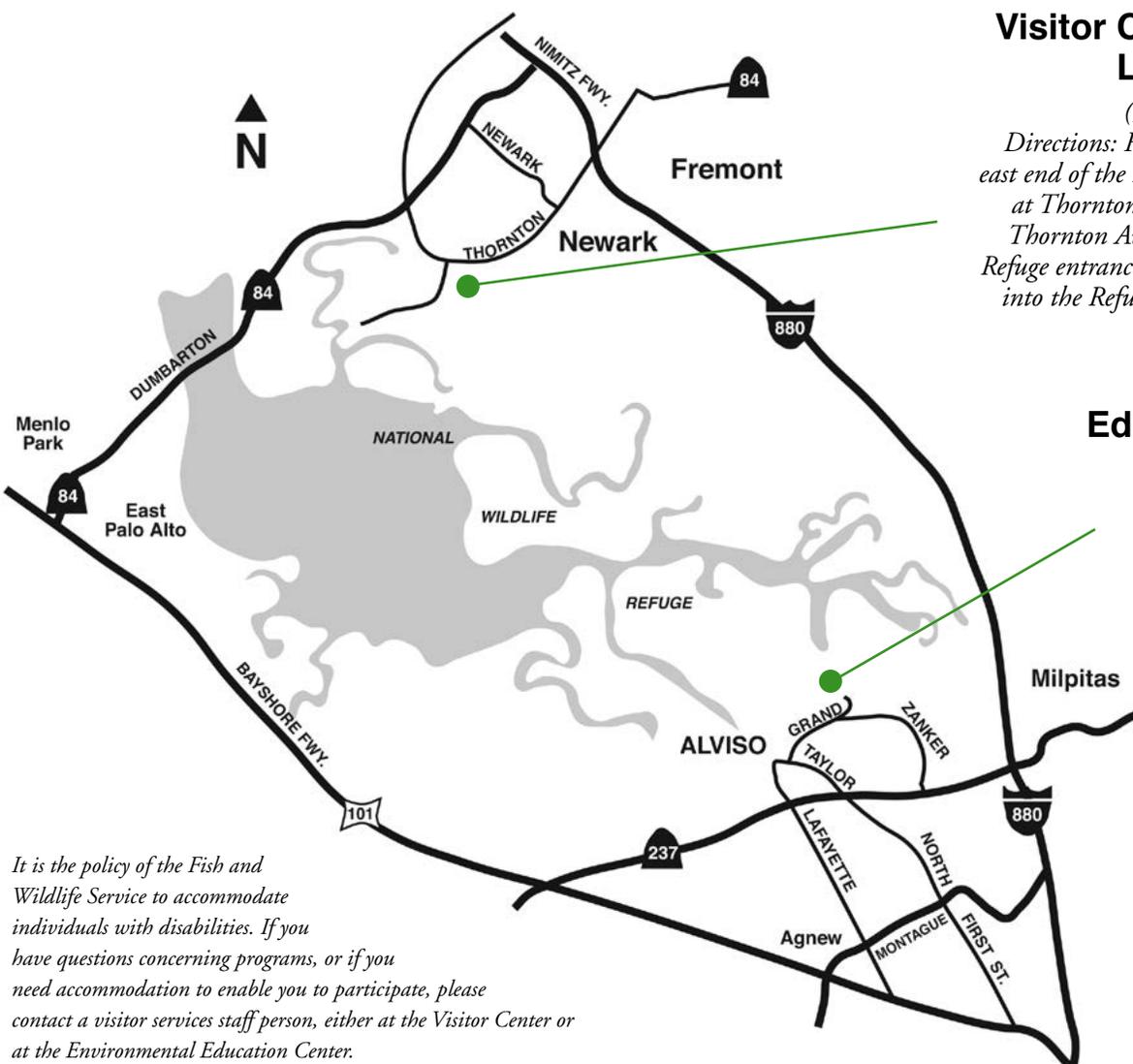
Tideline



Inside This Issue

- 1-3 **Happy Birthday
San Pablo Bay NWR!**
- 4 **Beach Trail Renamed**
- 5 **Farallon Wilderness Tour**
- 6 **Let's Go Outside**
- 9 **Amazing Refuge Race**
- 10-13 **Summer Activities**
- 14-15 **Field Trips to the Refuge**

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.