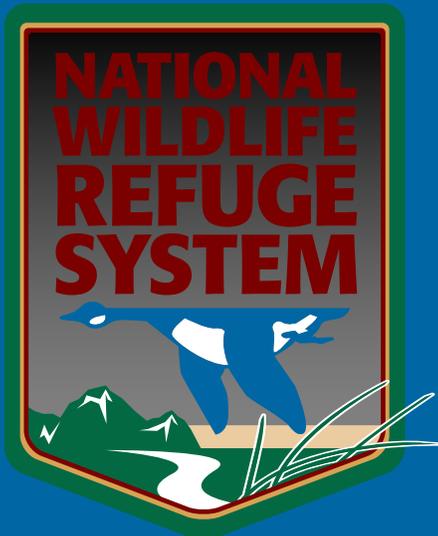


TideLine

San Francisco Bay National
Wildlife Refuge Complex



Centennial Issue

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CELEBRATING A CENTURY of CONSERVATION 1903-2003

National Wildlife Refuges – Our Past, Present, and Future

by Sandy Spakoff

As you walk from the terminal toward your airliner, you notice a man on a ladder busily prying rivets out of its wing. Somewhat concerned, you saunter over to the rivet popper and ask him just what the hell he's doing.

"I work for the airline – Growthmania Intercontinental," the man informs you, "and the airline has discovered that it can sell these rivets for two dollars apiece."

"But how do you know you won't fatally weaken the wing doing that?" you inquire.

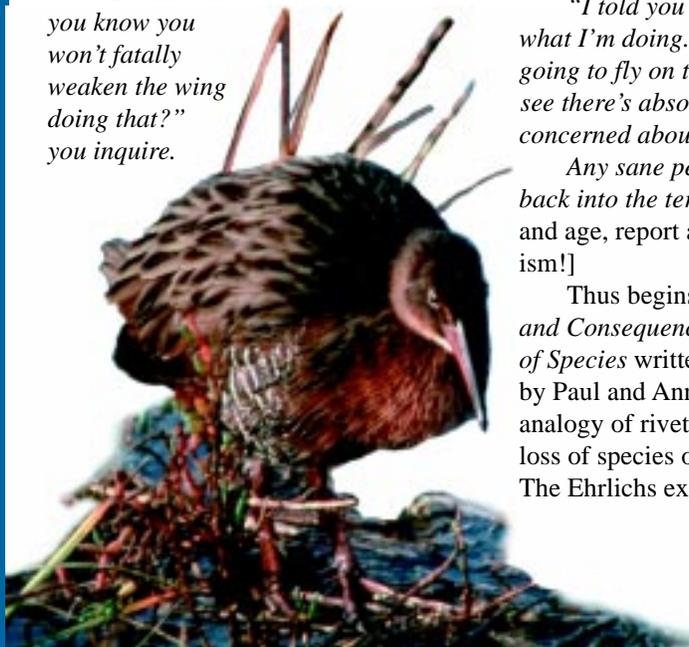
"Don't worry," he assures you. "I'm certain the manufacturer made this plane much stronger than it needs to be, so no harm's done. Besides, I've taken lots of rivets from this wing and it hasn't fallen off yet. Growthmania Airlines needs the money; if we didn't pop the rivets, Growthmania wouldn't be able to continue expanding. And I need the commission they pay me – fifty cents a rivet!"

"You must be out of your mind!"

"I told you not to worry; I know what I'm doing. As a matter of fact, I'm going to fly on this flight also, so you can see there's absolutely nothing to be concerned about."

Any sane person would, of course, go back into the terminal, ...[and, in this day and age, report a potential act of terrorism!]

Thus begins *Extinction: The Causes and Consequences of the Disappearance of Species* written, over two decades ago, by Paul and Anne Ehrlich who use the analogy of rivet-popping to describe the loss of species on "Spaceship Earth". The Ehrlichs explain: "The natural



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ecological systems of Earth . . . are analogous to the parts of an airplane that make it a suitable vehicle for human beings. But ecosystems are much more complex than wings or engines. . . . A dozen rivets, or a dozen species, might never be missed. On the other hand, a thirteenth rivet popped from a wing flap, or the extinction of a key species involved in the cycling of nitrogen, could lead to a serious accident.”

Perhaps the best-known account of the loss of a species is the astonishing extinction of the passenger pigeon. With numbers approaching 5 billion birds at the time Europeans discovered America in 1492, not one wild passenger

pigeon could be found by the early 1900s. The passenger pigeon’s survival had depended on its living in huge flocks. This species, as all species, depended on a secure homeland that provided for its specific needs. For the passenger pigeon, the massive mixed hardwood forests of central and eastern North America were home. By the late 1800s, many of the huge forests that had provided habitat for the enormous flocks of wild pigeon were cleared and lost to farming. The extinction of this species is popularly attributed to massive slaughter by professional hunters who sold the birds in city markets for human consumption. However, it’s possible that the

massive killing of birds only accelerated their extinction; habitat loss may have eventually fated the species. Regardless of the exact cause of their extinction, the fact remains that we as a nation were responsible for their loss.

According to the Center for Biological Diversity, as of June 2001, 631 North American species were identified as being lost to extinction since 1642. Unfortunately the study is not complete and the CBD expects to identify well over 1,000 extinct species at the conclusion of its research. U.S. federally-listed endangered and threatened species (1262 species as of December 2002) include mammals, birds, reptiles, amphibians, fishes, clams, snails, insects, arachnids (e.g., spiders), crustaceans (e.g., shrimp), and plants.

All tolled, that’s a lot of popped and loose rivets and, for nonhuman species, these numbers would indicate a need for increased “homeland security”.

Degradation and loss of habitat is one of the primary reasons many species have become endangered or gone extinct in North America.

Consider the history of wetlands in the contiguous United States. In the early 1600s the land that was to become the “lower 48” boasted of sustaining more than 220 million acres of wetlands. As this “new land” was explored and inhabited by European settlers, wetlands suffered much from the events, innovations, and attitudes of the times. Beginning in the 1700s and lasting into the last

half of the 20th century, most of society viewed wetlands as wastelands that bred disease and presented obstacles to development: these lands “needed to be reclaimed for useful purposes.” Prior to the 1700s and continuing for more than two centuries, enormous wetland areas were drained and transformed into fertile agricultural fields; between 1849 and 1860 Congress passed the *Swamp Lands Acts* which granted all swamp lands in 15 states to their respective state for “reclamation”, implying that the Federal Government promoted wetland drainage and reclamation (fill) for development; by the 1940s the Federal Government was sharing the cost of wetland drainage projects; and with the arrival of the 1960s numerous political, financial and institutional incentives to reclaim wetlands were in place. By the mid-1980s less than half of the original wetlands (approximately 103 million acres) remained in the contiguous United States. It’s unclear as to exactly how many rivets were loosened by this loss of valuable habitat.

Fortunately for our corner of Spaceship Earth, while some actions were causing rivets to loosen, mechanisms were being set in place for others to be maintained. As the mixed hardwood forests diminished and the population of passenger pigeons severely declined, and while society and the Federal Government were supporting the reclamation of wetlands, groundbreaking efforts by conservation-minded presidents began to have a balancing impact. The earliest effort to set aside an area of Federally-owned land specifi-

Right: Senator Dianne Feinstein and Governor Gray Davis (FWS photo). Below: The extinct passenger pigeon (FWS photo). Cover: the endangered California clapper rail (FWS photo).



Our Past, Present, and Future

cally for wildlife occurred in 1868 when President Ulysses S. Grant took action to protect the Pribilof Islands in Alaska as a reserve for the northern fur seal, with Congress formally enacting the legislation in 1869. Under provisions of the *Forest Reservation Creation Act* of March 3, 1881, President Benjamin Harrison created, by an Executive Order, the Afognak Island Forest and Fish Culture Reserve in Alaska, creating the first prototype refuge. On March 14, 1903, President Theodore Roosevelt established the first refuge for birds on Pelican Island along Florida's central Atlantic coast, giving birth to the National Wildlife Refuge System.

On March 14, 2003 the National Wildlife Refuge System – a key caretaker of our nation's nonhuman species – celebrates a century of conservation. The National Wildlife Refuge System has grown from a 3-mile island cared for by one man with his boat to 95 million acres encompassed by more than 535 wildlife refuges cared for by hundreds of women and men in administrative, maintenance, law enforcement, visitor services, engineering, biology, and management positions on refuges and in Regional and Washington offices.

Today's National Wildlife Refuge System is regarded as the largest and most outstanding wildlife conservation program in the world. Administered by the U.S. Fish and Wildlife Service, and working with the division of Ecological Services, the National Wildlife Refuge System provides security for our nation's nonhuman species. A unique combination of factors contribute to the System's ability to successfully conserve our nation's fish, wildlife, and plants: recent legislative history, land acquisition that provides habitat for nonhuman species, and unparalleled partnerships with countless numbers of individuals and organizations.

Legislation supporting broad conservation efforts began in the mid-1960s and expanded periodically thereafter. In 1966 Congress passed the *Endangered Species Preservation Act*; Section 4 formally established the National Wildlife Refuge System. This law authorized the Secretary of the Interior to permit the public use of refuges only when it is determined that such a use is compatible with the purpose for which the refuge was established. Seven years later, the *Endangered Species Act* of 1973 was passed, consolidating and strengthening previous provisions, and redirecting emphasis on some refuges to focus on recovering species. More

than 55 refuges have been established to protect threatened and endangered species and in 1980 Antioch Dunes NWR was the first National Wildlife Refuge established solely to protect endangered plants and an insect. On October 9, 1997, President William Clinton signed the *National Wildlife Refuge Improvement Act* of 1997. Contained within President Clinton's statement are some of the factors that distinguish National Wildlife Refuges from all other land managers:

“ . . . Wildlife conservation is the purpose of the refuges. . . . all refuge uses must be compatible with the primary purpose or purposes for which the refuge was established. . . . in order to ensure that wildlife needs come first, existing refuge lands and waters are closed to public uses until they are specifically opened for such uses. . . .” Combined with prior legislation, these laws provide an essential bastion for securing nonhuman species and their habitats.

Land acquisition was another tool for protecting species and their habitat, and the National Wildlife Refuge System has benefitted from the farsightedness of numerous individuals both within and outside of the program. Under the direction of John Clark Salyer II, who has come to be known as the “Father of the National Wildlife Refuge System”, refuge land holdings rose from 1.5 million acres in the mid-1930s to nearly 29 million acres upon his retirement in 1961. After nearly a decade of untiring effort by a local citizen's group and the support of Congressman Don Edwards, Congress passed legislation in 1972 to create the first urban national wildlife refuge - Don Edwards San Francisco Bay National Wildlife Refuge.

A landmark agreement, championed by U.S. Senator Dianne Feinstein (D-Calif.), that will allow the transfer of 9,000 acres of salt ponds and associated salt-making rights to this refuge was finalized on December 16, 2002, significantly augmenting the holdings of the refuge and consequently its ability to have a positive impact on native species. In a joint announcement with Governor Gray Davis and Interior Secretary Gale Norton, Senator Feinstein stated that “This historic agreement sets in motion the largest wetlands restoration undertaken in California history.” Governor Davis noted that, “This project offers Californians an unprecedented opportunity to improve the physical, biological and chemical health of the San Francisco Bay.” And Secretary Norton added, “The restored marshes will ... benefit hundreds of species of fish and wildlife, including

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“ . . .perhaps the ultimate purpose of our Refuge System is as a harbinger of what our country can once again be, . . . ”

Senator

*Barbara Boxer,
1997*

National Wildlife Refuges – Our Past, Present, and Future

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endangered and threatened species such as the California clapper rail, the salt marsh harvest mouse, the California least tern, and the western snowy plover.” Upon their restoration, wetlands once thought lost forever will again be a haven for wildlife.

Eclectic partnerships with both individuals and groups further enhance the Refuge System’s ability to protect species and their habitats. Thousands of individuals (about 30,000 which is more than ten times the number of the actual workforce!) volunteer their time and expertise to support this magnificent network of lands and the species that depend on them. On the national level, the Coop-

Committee to Complete the Refuge, one of the oldest and largest refuge community coalitions, serving as a national model for a Service-wide initiative to establish such partnerships at other national wildlife refuges. In 1997 this group was recognized for its grass-roots advocacy leading to establishment of Don Edwards San Francisco Bay National Wildlife Refuge.

In addition to its partners and volunteers, the National Wildlife Refuge System has been fortunate to have the support of numerous elected officials. In 1997 U.S. Senator Barbara Boxer (D-Calif.) said of the Refuge System “. . . perhaps the ultimate purpose of our Refuge System is as a harbinger of what our country can once again be, with thoughtful leaders and the perseverance of all people who hold wild things dear and important. I hope that for the sake of future generations of Americans, this ultimate purpose will someday be realized.”

Throughout the history of our nation there have always been debates on how to “best use” our natural resources. As our population grows and the need for human habitat increases, it is unlikely that these debates will end. Societal views and legislative actions may, as was true historically, be contradictory when applied to protecting the best interest of all species. Entering its next century, the National Wildlife Refuge System will continue to be charged with “administering a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.” The greatest challenge will be found in maintaining a balance between the growing need for human consumption of natural resources and adequately providing for the specific needs of individual species. In facing this challenge, it is appropriate to strive to realize the ultimate purpose of our Refuge System as described by U.S. Senator Barbara Boxer “a harbinger of what our country can once again be.”

As we look to the future of the National Wildlife Refuge System, it is our hope that on the eve of the bicentennial our successors will be able say with pride, “we’ve fastened a lot of rivets and preserved a homeland worth securing.”

Sandy Spakoff is the Chief of Visitor Services at the San Francisco Bay National Wildlife Refuge Complex.

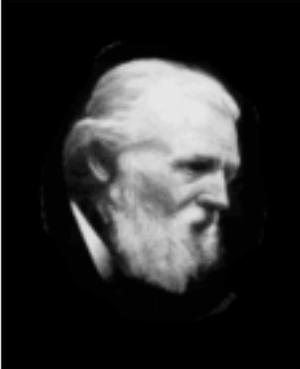


San Francisco Bay National Wildlife Refuge (photo by J. and K. Hollingsworth).

erative Alliance for Refuge Enhancement (CARE) was formed in 1995 by a handful of disparate conservation organizations debating on how the Refuge System should be managed. Today this diverse coalition is comprised of 20 non-government conservation and recreation organizations working to secure increased federal funding for refuges. In 2001 Interior Secretary Norton applauded CARE for its support of the Refuge System and said, “These groups would not agree with each other on many issues, but they are all in agreement about working for the refuge system. The Bush Administration joins them in this goal.”

Over the last several years National Wildlife Refuges across the nation have formed a multitude of partnerships with individuals, nonprofit organizations and other government agencies from the Federal to the local level. The refuges of the San Francisco Bay National Wildlife Refuge Complex are privileged to have a host of partners who support its efforts to preserve the homeland of nonhuman species. Of special note is the Citizen’s

THE SAN FRANCISCO BAY NATIONAL WILDLIFE REFUGE COMPLEX PRESENTS



Lee Stetson's
**THE
TRAMP
AND THE
ROUGH RIDER**



A historical discussion between President Theodore Roosevelt and naturalist John Muir.

Join the National Wildlife Refuge System in celebrating 100 years of conservation!

Be a part of this historic event as we unfold the events leading up to the creation of the Refuge System through *The Tramp and the Roughrider*, a two-man play that reenacts the historic discussion between President Theodore Roosevelt and California naturalist John Muir, setting the stage for years of conservation to come. View the contents of our time capsule, one of several hundred that will commemorate the 100th anniversary of the National Wildlife Refuge System across the country.

FRIDAY, MARCH 14, 2003 Evening Program

Gary Soren Smith Center, Ohlone College, Fremont

Reception and Time Capsule Viewing - 7 p.m.

8 p.m. performance, with Master of Ceremonies

Doug McConnell, host of *Bay Area Backroads*

Tickets: \$12 adults, \$8 seniors and students*

SATURDAY, MARCH 15, 2003 Matinee Program

Gary Soren Smith Center, Ohlone College, Fremont

Time Capsule Dedication Ceremony - 1 p.m.

Performance - 2 p.m.

Tickets: \$10 adults, \$6 seniors and students*

Tickets on Sale Now!

The Box Office at Refuge Visitor Center, 1 Marshlands Rd, Fremont, is open Tuesday-Sunday from 10 a.m. - 5 p.m.

To purchase tickets by phone, call 510-792-0222 and ask for the Visitor Center Desk.

**These special performances, which bring to life two of the most influential men in the history of conservation, are most appropriate for audiences age 15 and older.*

Sponsored by

The Mercury News

The Newspaper of Silicon Valley
MercuryNews.com



NATIONAL WILDLIFE REFUGE SYSTEM 1903 - 2003

Spring Activities Schedule

at Don Edwards San Francisco Bay National Wildlife Refuge

March

Watershed Diorama Demonstrations

Sundays in March, April and May
1:00 p.m. - 4:00 p.m.

Been thinking about stopping by the Center for an activity but the scheduling never works out? Well, drop in any Sunday afternoon this fall for a hands-on demonstration of our amazingly detailed and functioning South Bay watershed diorama. It is sure to dazzle and educate visitors of all ages. Learn what a watershed is and see how important our actions are towards maintaining healthy south bay habitats! All ages are welcome.

Saturday, March 1

Gardening for the Birds

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

Spring is just about here! And that means many of our fine feathered friends who flew south for the winter are back! What exactly do those birds like to eat? How can you play a role in providing habitat for migrating birds? Take a look at some good plants for Bay Area gardens that not only attract birds, but do not require watering and will add beauty to your garden. Geared for Adults. Led by Sharon Miyako.

Sunday, March 2

Watershed Watcher Clean-Up

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

Come find out what you can do at home to take care of our planet. Keep pollution out of our waterways, stencil a storm drain, and find out how we connect to the coasts. After working hard to protect the watershed, return to the Center to make your very own Watershed Watcher t-shirt. Bring your gloves and water. Trash bags provided. Come ready to work and learn! This is a great service project for Scout groups or home-school groups. CALL SHARON MIYAKO FOR RESERVATIONS AT 408-262-5513 ext. 102.

Thursday, March 6

Gosling Honks

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

Come out and quack like a duck or honk like a goose on the Refuge trails. Touch, taste, and smell the salt marsh on this short boardwalk hike. Stroller friendly! Geared for ages 3-5. Led by Sharon Miyako

Saturday, March 8

Children's Beginning Birdwatching

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

Learn about the feathered flyers found in the habitats of the San Francisco Bay. Join us and create a personalized bird identification booklet to use along the salt marsh. Great for children 5 and older. Bring binoculars or borrow a pair of ours. If you like, bring a bag lunch to eat at our picnic tables afterwards. Led by Peg Bernucci.

Sunday, March 9

Slough Whoop???

Environmental Education Center, Alviso
3:00 p.m. - 4:00 p.m.

Whoop...whoop...whoop did that owl eat? Bet you can find out! Come solve the mystery of who ate whom and learn a bit about these nocturnal predators. We will hike the habitats, search for owl clues, and get a chance to dissect owl pellets, discovering exactly who that owl ate! Ages 7 and up. RESERVATIONS REQUIRED. Please call Sara Polgar at 408-262-5513 x104 to reserve your spot! *

Sunday, March 16

Salt Marsh Histories

Environmental Education Center, Alviso
9:30 a.m. - 10:30 a.m.

Take a leisurely stroll and learn about human activity from the late 1800's up to the present. "Meet" three unique friends from salt marsh history during the walk, and gain a different perspective on the lands of the Refuge. Geared for adults. Led by Sharon Miyako.

Gardening for the Birds

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

Spring is just about here! And that means many of our fine feathered friends who flew south for the winter are back! What exactly do those birds like to eat? How can you play a role in providing habitat for migrating birds? Take a look at some good plants for Bay Area gardens that not only attract birds, but do not require watering and will add beauty to your garden. Geared for Adults. Led by Sharon Lee.

*The *Slow the Flow* Program is sponsored by a grant from the City of San Jose.

Friday and Saturday, March 14 and 15

Celebrate the National Wildlife Refuge System's 100th Birthday!

See the Tramp & the Roughrider
Gary Soren Smith Center, Ohlone College
See Page 8 for more details

Friday, March 21

Gosling Honks

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

Come out and quack like a duck or honk like a goose on the Refuge trails. Touch, taste, and smell the salt marsh on this short boardwalk hike. Stroller friendly! Geared for ages 3-5. Led by Sharon Miyako

Saturday, March 22

Watershed Watcher Clean-Up

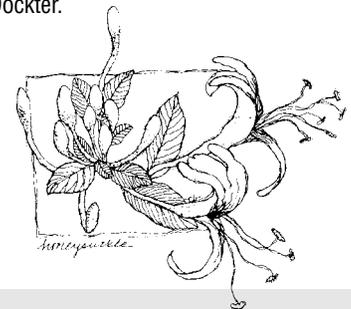
Environmental Education Center, Alviso
2:00 p.m. - 4:00 p.m.

Come find out what you can do at home to take care of our planet. Keep pollution out of our waterways, stencil a storm drain, and find out how we connect to the coasts. After working hard to protect the watershed, return to the Center to make your very own Watershed Watcher t-shirt. Bring your gloves and water. Trash bags provided. Come ready to work and learn! This is a great service project for Scout groups or home-school groups. CALL SHARON MIYAKO FOR RESERVATIONS AT 408-262-5513 ext. 102.

Botanical Wanderings

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

Discover the diverse spring habitats from the hill-tops to the marsh. Use our free plant list to help identify the great variety of plants that thrive in this unique urban refuge. Bring binoculars to get a better look at birds and animals we may encounter on the trail, or borrow a pair of ours. Led by Alvin Dockter.



<http://desfbay.fws.gov>

For information and reservations, phone between 10:00 am and 5:00 pm. For directions, see page 16

Visitor Center, 1 Marshlands Road, Fremont (510) 792-0222

Environmental Education Center, 1751 Grand Blvd., Alviso, (408) 262-5513

Spring Activities Schedule

at Don Edwards San Francisco Bay National Wildlife Refuge

Twilight Marsh Walk

Visitor Center, Fremont
5:00 p.m. - 6:30 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1 1/3 mile) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the Refuge as night descends. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-792-0222. Led by Mary and Gene Bobik.

Sunday, March 23

Making Tracks with the Blue Goose

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

Where is the Blue Goose? Does it really exist? Follow the animal tracks wherever they may lead (find out what animals left the tracks), and put together all the clues they leave behind. If you can solve the mystery, you'll discover who the Blue Goose is, and you might even catch a glimpse of one. After the chase is over, remember all the tracks you learned by making a track scarf to take home with you. Geared for children ages 7 - 10. Minimum of 5 children needed. RESERVATIONS REQUIRED. Call Sara Polgar 408-262-5513 x104. *

Saturday, March 29

Family Bird Walk

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

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

Water Art

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

Create different crafts related to water to take home for your own, or give to a friend for a gift. Make a shark print, or a crayon resist underwater scene. Optional half hour trail exploration at 3:00 p.m. Call Sharon Miyako at 408-262-5513 for Reservations.

*The *Slow the Flow* Program is sponsored by a grant from the City of San Jose.

April

Saturday, April 5

Beginning Birdwatching for Kids

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

Learn about the feathered flyers found in the habitats of the San Francisco Bay. Join us and create a personalized bird identification booklet to use along the salt marsh. Why so early on a Saturday? That's when the birds are up and about! Great for children 5 and older. Bring binoculars or borrow a pair of ours. If you like, bring a bag lunch to eat at our picnic tables afterwards.

Community Service Day

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

Calling all high schoolers looking to fulfill community service requirements, Scout groups looking to earn a service badge, and anyone else who just wants to pitch in at a one time Refuge project. Come out to fight non-native plants in the EEC's habitats. Bring gardening gloves if possible. A few pairs are available for loan. Long pants and long sleeve shirts are recommended but not required. Recommended for ages 9 and up. RESERVATIONS REQUIRED with Sharon Miyako at 408-262-5513.

What are the Parts that Make a Marsh?

Visitor Center Auditorium, Fremont
1:00 p.m. - 2:00 p.m.

Join us for a puppet show and find out what are the parts that make a marsh! Afterwards, we'll take a short walk on the trail to find those parts and view plankton through hand lenses and microscope. Recommended for ages 3-6. Led by Bryan Lapine.

Sunday, April 6

A Ghost Town in San Francisco Bay?

Visitor Center, Fremont
2:00 p.m. - 3:00 p.m.

That's right! On Station Island nestled in the salt marshes of south San Francisco Bay, the town of Drawbridge once boomed. Was it a quiet, peaceful community of nature lovers, or a rip-roaring gang of two-fisted rowdies? Excellent slide show and presentation. Led by Pat Anthony.

Puzzling Pipes

Environmental Education Center, Alviso
3:00 p.m. - 4:30 p.m.

Care to climb down your drain pipes? Well, maybe not! Instead, come out to the Refuge and jump into our fun maze of puzzling pipes. Bring your creativity because we will be learning where all of our water goes by designing our very own drain pipe system. Next, you'll get to design and decorate your own, unique household water-saver pail from recycled materials. Finally, while you wait for your newly crafted pail to dry, we'll trek the trails. Geared for ages 7 and up. No reservations required. This program led by Sara Polgar.

Saturday, April 12

Botanical Wanderings

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

Discover the diverse spring habitats from the hill-tops to the marsh. Use our free plant list to help identify the great variety of plants that thrive in this unique urban refuge. Bring binoculars to get a better look at birds and animals we may encounter on the trail, or borrow a pair of ours. Led by Alvin Dockter.

Sunday, April 13

Water Wizards

Environmental Education Center, Alviso
3:00 p.m. - 4:00 p.m.

Come play with the magic water jar! Or how about water fireworks displays? Water does some WEIRD things! Come find out why as you play and experiment with water games that will dazzle your friends. Geared for ages 7 and up. Space is limited. RESERVATIONS REQUIRED with Sharon Miyako at 408-262-5513.

Thursday, April 17

Quacky's Puppet Show

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

Take a quick walk around the EEC's trails. Return to the building, and check out Quacky's Quirky Adventure Puppet show. Better yet, bring a bag lunch to eat before the show at our picnic tables! Call Sharon Miyako for RESERVATIONS at 408-262-5513.

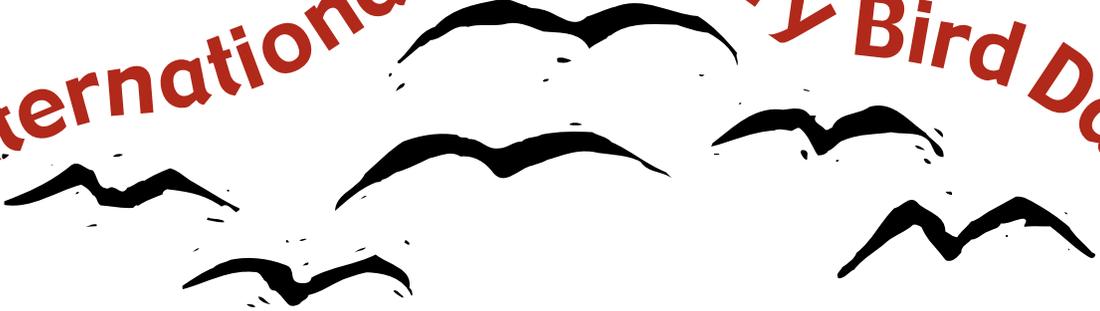
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For information and reservations, phone between 10:00 am and 5:00 pm. For directions, see page 16

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Environmental Education Center, 1751 Grand Blvd., Alviso, (408) 262-5513

International Migratory Bird Day



May 9th Pre-Event 6:00 – 9:30 p.m.

This is a special evening planned specifically for adults. We encourage families to participate on May 10th in the many planned activities. Come for all or part of this evening.

View environmental works of local Bay Area photographer John Cang and wildlife artist Monica Lundy. Sample shade grown coffee and other drinks while snacking on light hors d'oeuvres. Then join us for one of our two talks by San Francisco Bay Bird Observatory biologists or a twilight bird walk led by Refuge manager Clyde Morris.

6:00 - 7:00 p.m. Art Display/Reception

7:00 - 8:00 p.m. Talk: topic TBA

7:00 - 8:15 p.m. Twilight Bird Walk led by Clyde Morris

8:30 - 9:30 p.m. Mercury Contamination and South Bay Terns:
Cheryl Strong SFBBO biologist

*IMBD 2003 is sponsored by the Fish and Wildlife Service, San Francisco Bay Wildlife Society, Santa Clara Valley Urban Runoff Pollution Prevention Program, City of San Jose, San Francisco Bay Bird Observatory, and Santa Clara Valley Audubon Society.

Children must be accompanied by an adult.

Environmental Education Center, Alviso

May 10th Main Event 10:00 a.m. – 4:00 p.m.

Native Plant Nursery Sale, 10am–3pm

Planting California native plants in your yard can help provide shelter and food resources for migrating birds, as well as add beauty to your garden. Here's your chance to view and purchase plants beneficial to birds and butterflies as well.

Scheduled Walks/Field Trips

Bird Banding Station Field Trip

7:00 -8:30 a.m., 8:00 - 9:30 a.m.

Long Field Trip (ages 16 and up) RESERVATIONS REQUIRED PRIOR to May 10th

9:00 - 10:00 a.m., 10:00 - 11:00 a.m.

Short Field Trip (ages 5 and up) RESERVATIONS TAKEN ON MAY 10TH at Welcome Table.

Take a shuttle drive to the San Francisco Bay Bird Observatory's field station. What's a mist net? Why do people want to band birds? Find out the answer to these questions, and maybe even see a bird up close and personal on this field trip led by IMBD sponsor, the San Francisco Bay Bird Observatory.

Early Morning Adult Birdwalk: 8:00 - 9:30 a.m.:

Whether you're a beginning or advanced adult birder, join San Francisco Bay Bird Observatory biologists and volunteers on this walk around Refuge trails. Please, no participants under the age of 16. RESERVATIONS REQUIRED with Sharon Miyako at 408-262-5513 ext 102.

Children's Beginning Birdwatching (for ages 6 and up)
10:30 - 11:30 a.m., 1:30 - 2:30 p.m. in Classroom 1. Make

your very own bird book to take home. Then take an easy stroll around the Refuge. This class is limited to 15 children. Reservations taken at Welcome Table on May 10th.



Gosling Walk (for ages 5 and under)

10:15 - 10:45 a.m., 12:15 - 12:45 p.m. Meet on Back Deck. Take a short stroll on the Refuge's boardwalk to see, smell, and taste the salt marsh. This walk is limited to 10 children. Reservations taken at the Welcome Table on May 10th.

Scheduled Talks and Presentations

Wildlife Photography Workshop: Learn about techniques for taking the best pictures of Bay Area wildlife. Led by John Cang, a wildlife photographer who has done extensive work around the Bay Area's salt marshes and salt ponds. 9:00 - 10:00 a.m., and 1:00 - 1:45 p.m.

Caring for Wildlife: Ever wonder who takes care of injured wildlife? What should you do if you come across a chick on it's own? Come find out at this presentation by the Wildlife Center of Silicon Valley. Find out what you can do to help out injured and abandoned wildlife you may come across. 10:30 a.m. -11:30 a.m.

POSTER CONTEST AWARD CEREMONY

This is it! Come see the winners and artwork of the 11th IMBD poster contest. Interested in entering the contest? Check out the entry form on page 14 or call Sharon Miyako at 408-262-5513 ext. 102. Ceremony time: 12:00 - 12:45 p.m.



Gardening for the Birds: 9:30-10:00 a.m., 1:30 -2:00 p.m. Take a brief tour of the Refuge's chemical-free gardens and view some California native plants that are great for birds and the food birds love. Pick up some introductory information about how to set up a garden for attracting birds. Geared for adults.

Live Bird Presentation: 2:00 -2:30 p.m., and 2:45 - 3:15 p.m. Join Sulphur Creek Nature Center and see some Bay Area feathered friends up close and personal. Space is limited for this presentation for the safety and comfort of the birds. Sign-ups will be taken on IMBD May 10th beginning at 10:00 a.m. at the Welcome Table.

On-Going Activities

Want to dig through some marsh mud? How about looking at it through a microscope? This is just one of the many on-going activities available at IMBD 2003. Check out the Santa Clara Valley Audubon Society and all of their on-going activities across from the main building. Then walk over to the Guadalupe River Park and Gardens table to plant a bird-friendly plant to take home! Drop by anytime from 10:00 a.m. - 3:30 p.m. for these on-going activities.

Other Participating Organizations

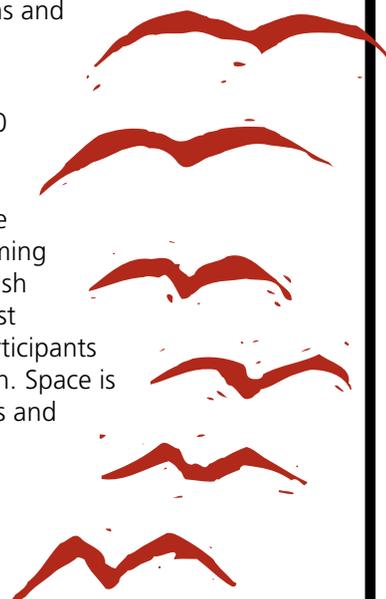
- Check out IMBD's special guests and friends to find out what you can do to protect Bay Area's wildlife at your home, or by stepping out to volunteer.
- San Francisco Bay Bird Observatory *
- Santa Clara Valley Audubon Society *
- The Watershed Watch
- Wildlife Center of Silicon Valley: Wildlife Rehabilitation Center
- Guadalupe River Park and Gardens
- Household Hazardous Waste Disposal
- Aquatic Outreach Institute

Off-site Field Trips

These field trips will meet at their respective sites, **NOT** at the main IMBD event in Alviso. Reservations are **REQUIRED** for off-site field trips. Call Sharon Miyako at 408-262-5513 ext. 102. Directions to the sites will be provided at the time of reservations.

San Pablo Bay National Wildlife Refuge: 9:00 a.m. - 12:00 p.m. Explore Tolay Creek and Tubbs Island with Fish and Wildlife Service biologist Giselle Downard. This will be a 2.65 mile walk along the Bay shoreline and salt marshes. The walk itself will be 2 hours plus one hour travel time from the parking lot. Space is limited. Call for reservations and directions.

Salinas National Wildlife Refuge: 10:00 a.m. - 12:30 p.m. Check out a variety of habitats including river, grasslands, saline pond, and beach for birds that are coming in for the nesting season. Fish and Wildlife Service biologist Diane Kodama will lead participants on this two hour bird search. Space is limited. Call for reservations and directions.



Spring Activities Schedule

at Don Edwards San Francisco Bay National Wildlife Refuge

Saturday, April 19

Earth Day Cleanup!

Visitor Center, Fremont

8:30 a.m. - 12:00 p.m.

Join us for the annual Earth Day Cleanup as we wipe out trash from the trails and Marshlands Road. Bring a hat, sunscreen, water, any gloves you may have, and your enthusiasm! We'll provide the bags. For more information, call Carmen at 510-792-0222.

Habitat Gardening

Environmental Education Center, Alviso

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

Take a tour of the habitat gardens surrounding the EEC. Get a look at native California plants that are drought-resistant and attract wildlife such as birds and butterflies. Also learn what small things you can add to your garden to attract more wildlife. Geared for adults. Led by Sharon Miyako.

Sun Watching

Environmental Education Center, Alviso

12:00 p.m. - 1:00 p.m.

Get up close and personal with the one star you can see all day, every day! Do a sun activity or two, and then gaze through a special telescope that allows you to look at the sun safely. DROP IN ANYTIME between 12 and 1pm. Bring a lunch and eat at our picnic tables after sun gazing. Led by Ralph Libby. Subject to weather conditions.

Watershed Watcher's Clean-Up

Environmental Education Center, Alviso

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

It's Earth Day weekend! What better time to have a storm drain stenciling party! Come help spread the word about saving our rivers and salt marshes by painting "No Dumping Flows to Bay" on storm drains close to the Refuge. After working hard to protect the watershed, return to the Center to make your very own Watershed Watcher t-shirt. Bring gloves and water. Trash bags provided. Come ready to work and learn! This is a great service project for Scouts, home school groups, or high schoolers with community service requirements. Recommended for ages 10 and up. Call Sharon Miyako for reservations at 408-262-5513.

Sunday, April 20

Avian Antics

Environmental Education Center, Alviso

11:00 a.m. - 12:00 p.m. & 2:00 - 3:00 p.m.

Join us at the Refuge as we explore the trails and catch glimpses of our resident avian friends in action. Learn a little bird trivia along the way, like why some birds eat their own feathers or which

Refuge bird finds a mate for life? Bring your own binoculars, or borrow a pair of ours! Ages 7 and up. Call Sara Polgar to let her know that you are coming; 408-262-5513 x104.*

Saturday, April 26

Twilight Marsh Walk

Visitor Center, Fremont

6:00 p.m. - 7:30 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1 1/3 mile) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the Refuge as night descends. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-792-0222. Led by Mary and Gene Bobik.

Sunday, April 27

Don Edwards San Francisco Bay National Wildlife Refuge Slide Show Orientation

Visitor Center Auditorium, Fremont

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

Discover why this National Wildlife Refuge was created, and what makes it unique from a park. Learn about some of the common wildlife that can be found on the refuge and the different types of outdoor recreation available. Presented by Carmen Minch.

May

Thursday, May 1

Gosling Honks

Environmental Education Center, Alviso

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

Come out and quack like a duck or honk like a goose in this song and story time out on Refuge trails. Touch, taste, and smell the salt marsh on this short boardwalk hike. Stroller friendly! Geared for ages 3-5. Led by Sharon Miyako

Saturday, May 3

Community Service Day

Environmental Education Center, Alviso

9:00 a.m. - 11:00 a.m.

Calling all Refuge fans and volunteers! The Spring sunshine and rain are feeding native and non-native vegetation alike. Help us keep the mustard and other non-natives down. A weed free EEC means better field trips and general visitor experiences. Call Sharon to let her know you're coming at 408-262-5513.

Family Bird Walk

Visitor Center, Fremont

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

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

Botanical Wanderings

Visitor Center, Fremont

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

Discover the diverse spring habitats from the hilltops to the marsh. Use our free plant list to help identify the great variety of plants that thrive in this unique urban refuge. Bring binoculars to get a better look at birds and animals we may encounter on the trail, or borrow a pair of ours. Led by Alvin Dockter.

Evening Escapades

Environmental Education Center, Alviso

7:00 p.m. - 8:30 p.m., 8:30 p.m. - 9:30 p.m.

Long work week? Come wind down your week with an evening at the Refuge. Start off at 7 with a twilight walk around our trails. Experience a completely different environment as the sun goes down and the night creatures come out. Warm up inside with a cup of hot chocolate, and then join us at 8:30 for a look at the night sky. Learn about what stars and planets are up, as well as their interesting histories. Come for all or part of this evening. Dress warmly as the wind can pick up at the Refuge. Bring binoculars for the walk, or borrow ours. Walk geared for adults and led by Sharon Lee. Star program led by Ralph Libby. Subject to weather conditions.

Sunday, May 4

Salinity Sleuths

Environmental Education Center, Alviso

3:00 p.m. - 4:00 p.m.

Step into the shoes of a scientist and strap on your detective field packs for a hands-on investigation! We will collect water samples, use plant clues and do some sleuthing around to answer the question "How salty is it?" All you and your youngsters will need to bring are a keen sense of taste, smell and sight to determine which plants live in the Refuge's salty habitats. Appropriate for ages 9 and up. Reservations requested. Call Sara Polgar at 408-262-5513 x 104 to reserve a spot.*

*The *Slow the Flow* Program is sponsored by a grant from the City of San Jose.

<http://desfbay.fws.gov>

For information and reservations, phone between 10:00 am and 5:00 pm. For directions, see page 16

Visitor Center, 1 Marshlands Road, Fremont (510) 792-0222

Environmental Education Center, 1751 Grand Blvd., Alviso, (408) 262-5513

Spring Activities Schedule

at Don Edwards San Francisco Bay National Wildlife Refuge

Friday, May 9

INTERNATIONAL MIGRATORY BIRD DAY PRE-EVENT

Environmental Education Center, Alviso
Art Viewing/Refreshments
6:00 p.m. - 7:00 p.m.

Twilight Walk
7:00 p.m. - 8:30 p.m.

Lecture Subject TBA
7:00 p.m. - 8:30 p.m.

Mercury and the South Bay Terns
8:30 p.m. - 9:30 p.m.

It's the beginning of this year's International Migratory Bird Day! Before the main event on Saturday, come out Friday evening for a leisurely twilight stroll. See what birds come out in the evenings in the salt marsh. Return to the building for shade-grown coffee tasting and a presentation by the San Francisco Bay Bird Observatory about current research in the South Bay about mercury contamination and Terns. This is a great event for beginning and advanced birders alike! ADULTS ONLY.

Saturday, May 10

INTERNATIONAL MIGRATORY BIRD DAY MAIN EVENT

Environmental Education Center, Alviso
Main Event 10:00 a.m. - 4:00 p.m.
Some activities before 10:00 a.m.

See schedule of events, page 6-7.

Celebrate the 11th International Migratory Bird Day at the Environmental Education Center by bringing your friends and family to participate in one of our many activities. Don't have a particular interest in birds? Come out anyway! This is a great time to explore the Refuge, to find out what you can do at home to protect all wildlife, and to have some fun. This year we provide activities for a wide range of ages; some for adults only, some for families with toddlers, and some for everyone in between. There are scheduled activities as well as on-going activities, so drop by anytime. Please take note of any activities that may require reservations prior to the event or on the event day. Schedule subject to change. All activities are free. Call Sharon Miyako at 408-262-5513 ext. 102 with questions about IMBD activities and for reservations. See page 6-7 in this Tideline for a complete schedule.

Twilight Marsh Walk

Visitor Center, Fremont
7:00 p.m. - 8:30 p.m.

Experience the salt marsh at twilight on an easy stroll along Tidelands (1 1/3 mile) Trail. At the setting of the sun we will observe the beginning of nature's night shift. Come discover the sights, sounds, and smells of the Refuge as night descends. Not suitable for young children. RESERVATIONS REQUIRED. Call 510-792-0222. Led by Mary and Gene Bobik.

Sunday, May 11

Making Tracks with the Blue Goose

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

Where is the Blue Goose? Does it really exist? Follow the animal tracks wherever they may lead (find out what animals left the tracks), and put together all the clues they leave behind. If you can solve the mystery, you'll discover who the Blue Goose is, and you might even catch a glimpse of one. After the chase is over, remember all the tracks you learned by making a track scarf to take home with you. Geared for children ages 7 - 10. RESERVATIONS REQUIRED. Call Sharon Miyako 408-262-5513.*

Saturday, May 17

What are the Parts that Make a Marsh?

Visitor Center Auditorium, Fremont
1:00 p.m. - 2:00 p.m.

Join us for a puppet show and find out what are the parts that make a marsh! Afterwards, we'll take a short walk on the trail to find those parts and view plankton through hand lenses and microscope. Recommended for ages 3-6. Led by Bryan Lapine.

Sunday, May 18

Scenes from a Marsh

Environmental Education Center, Alviso
3:00 p.m. - 4:30 p.m.

Join us at the Center for a presentation on water pollution control practices (both natural and human-devised) in the Bay Area through the ages. We will jump back in time to see how our salt marsh habitats fared through these different approaches. Afterwards, take a short walk to Artesian Slough where our cleaned water ends up to appreciate how far we have come with water pollution control methods! Geared for adults, no children please. Call 408-262-5513 x104 to let Sara Polgar know that you will be coming to this program.*

Sunday, May 25

Beginning Birdwatching for Adults

Environmental Education Center, Alviso
9:30 a.m. - 10:30 a.m.

Nesting season is just about here! That means the birds are out and about defending their territories. Take advantage of this time get to know some common Bay Area birds, look through a scope, and enjoy the spring day. Don't have binoculars? Borrow ours! Geared for novice birders. Led by Sharon Miyako

Sunday, May 25

Don Edwards San Francisco Bay National Wildlife Refuge Slide Show Orientation

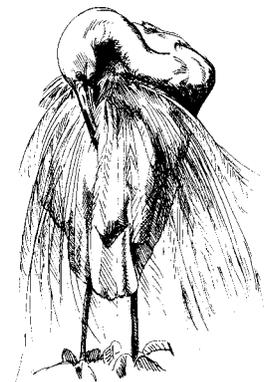
Visitor Center Auditorium, Fremont
2:00 p.m. - 3:00 p.m.

Discover why this National Wildlife Refuge was created, and what makes it different from a park. Learn about some of the common wildlife that can be found on the refuge and the different types of outdoor recreation available. Presented by Carmen Minch.

Salt Marsh Histories

Environmental Education Center, Alviso
3:00 p.m. - 4:00 p.m.

Take a leisurely stroll and learn about human activity from the late 1800's up to the present. "Meet" three unique friends from salt marsh history during the walk, and gain a different perspective on the lands of the Refuge. Geared for adults. Led by Sharon Miyako.



*The *Slow the Flow* Program is sponsored by a grant from the City of San Jose.

<http://desfbay.fws.gov>

For information and reservations, phone between 10:00 am and 5:00 pm. For directions, see page 16

Visitor Center, 1 Marshlands Road, Fremont (510) 792-0222

Environmental Education Center, 1751 Grand Blvd., Alviso, (408) 262-5513

Join in the 11th annual International Migratory Bird Day celebration by participating in the IMBD 2003 poster contest! Get your kids, classes, and yourself drawing, painting, collaging, and any other poster art you can think of! Anyone from kindergarten to adults can enter. All entries must depict **MIGRATORY BIRDS THAT CAN BE SEEN IN THE SAN FRANCISCO BAY AREA** and can be no larger than 16" x 24".

International Migratory Bird Day

Poster Contest

Mail your entries in, or drop them off at a Refuge Center by April 29, 2003. Poster contest winners will be notified by May 2nd, 2003 and awards will be presented May 10, 2003 at the Don Edwards SF Bay National Wildlife Refuge IMBD celebration in Alviso at 12pm. All winning posters will be displayed during the IMBD Celebration on May 9-10, and the Best in Show will be framed. All winners will receive a certificate along with prizes donated by local wildlife oriented stores and organizations. Winners must be present to receive the award. Be sure to include the following form on the back of your poster. Questions? Call Sharon Miyako 408-262-5513 ext. 102.

What's a migratory bird? Check out a birding field guide at your local library, on-line at www.birdday.org, or here are a few to get you started: Red-winged Blackbird, Western Sandpiper, Forster's Tern, American Avocet, Common Yellowthroat. Remember, it must be a migratory bird seen in the San Francisco Bay area.

Entries can be mailed to:
 ATTN: Sharon Miyako
 Don Edwards SF Bay NWR
 P.O. Box 524
 Newark, CA 94560

Entries can be dropped off at the Refuge's Visitor Center in Fremont at #1 Marshlands Road off of Thornton Ave., labeled ATTN: Sharon Miyako, or at the Environmental Education Center at 1751 Grand Blvd. in Alviso.

Full Name _____
 Grade (circle one) K 1 2-3 4-5 6-8 9-12 adult
 Phone Number _____
 School (if applicable) _____
 Bird _____

Marshlands Road Prepares to Close to Protect Threatened Shorebirds



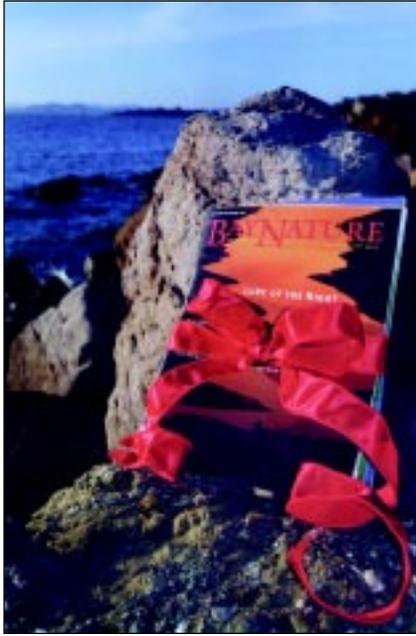
Nesting season is once again at hand, and western snowy plovers will arrive soon to begin nesting along Marshlands Road. These migratory shorebirds nest in flat, open areas, and use the levees and dried salt ponds along the road to build their nests. The chicks wander onto the road surface, where their gray and white feathers blend into the asphalt, making it very difficult to spot them from a car.

Marshlands Road provides access to the Dumbarton Fishing Pier at the edge of San Francisco Bay. The road closure creates a difficulty for anglers who wish to drive out to the fishing pier. However the road is still open to bicycles and pedestrians. The road closure is expected to last from April 1 until August 31. "The objective of this management action is not to close roads and inconvenience anglers," said Refuge Manager Marge Kolar, "but to insure the

survival of these threatened shorebirds."

The Refuge will provide shuttles to the pier on Saturday and Sunday and will leave from the Visitor Center parking lot at 9:00 a.m. and 12:30 p.m. The shuttle will pick up anglers at the fishing pier parking lot to return to the Visitor Center parking lot at 12:45 p.m. and 5:15 p.m. Reservations can be made at 510-792-0222.

Snowy plovers, listed as "threatened" in 1993 due to a severe decline in numbers, have in the past nested on beaches along the coast of central California. Plovers at most of those nesting sites, however, have long since disappeared due to spring and summer disturbance each year by humans. Unfortunately, for the plovers, the nesting season coincides with the greatest human use of beaches. Fortunately, nesting has begun on other areas, such as dried salt ponds and levees along Marshlands Road.



Now on Sale at the Visitor Center in Fremont...

Bay Nature Magazine -
the quarterly magazine that explores
and celebrates the magnificent Bay Area
natural world!



Don Edwards San Francisco Bay National Wildlife Refuge



April 19, 2003
8:30 a.m. to Noon

***Celebrate the National
Wildlife Refuge
Centennial and help
keep your local
wildlife refuge clean.***

***Take part in this
year's Refuge Clean-up.***

***No reservations needed. All groups welcome.
Call Carmen at 510-792-0222 for more information.***

Field Trips to the Refuge

Celebrate the Centennial by participating in a field trip program at the Refuge! We offer **FREE** field trip programs at two sites; *Wetland Round-Up* and *Trekking the Refuge* field trip programs at the **Visitor Center in Fremont**, and *Wetland Round-Up* and *Sinks, Sewers and Sloughs* field trip programs at the **Environmental Education Center in Alviso**. These programs actively involve teachers, adult volunteers, and students in investigating the diverse habitats and wildlife found 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. Field trips are offered from February thru June, 2003. *All programs have been correlated to the appropriate State of California Education Standards.*

Wetland Round-Up Field Trip

Investigate creatures of the mud flats, plankton in the slough, brine shrimp in the salt pond, and pickleweed in the salt marsh on the **Wetland Round-Up Field Trip**. This field trip is designed for grades K-6, for up to 65 students. To schedule a field trip at the Visitor Center in Fremont, call the education staff at **510-792-0222**. For reservations at the Environmental Education Center in Alviso, call **408-262-5513**.

Trekking the Refuge Field Trip

Trek the one-mile Tidelands Trail and learn about the natural history of the Refuge! Explore pickleweed in the salt marsh, brine shrimp in the salt pond, and creatures in the slough during three rotational activities! Available only at the Visitor Center in Fremont, **Trekking the Refuge Field Trip** is designed for grades 3-6, for up to 36 students. Call **510-792-0222** for field trip dates and reservations.

Sinks, Sewers and Sloughs Field Trip*

This *Slow the Flow* program provides an experiential learning environment for students and educators to explore the topics of water use, wastewater treatment, and habitat preservation. Activities and presentations focus on the relationship between personal habits and their effects on local habitats. The program geared for grades 5-12 (although a modified field trip is available for college groups) and up to 36 students. Call the education staff at **408-262-5513** for a reservation.

*The *Slow the Flow* Program is an environmental education program sponsored by a grant from the City of San Jose. *Slow the Flow* programs are available to educators and groups located in San Jose, Alviso, Milpitas, Santa Clara, Saratoga, Monte Sereno, Los Gatos, Campbell and Cupertino.

Field Trip Orientation Workshops

Educators and Youth Group Leaders conduct the *Wetland Round-Up* or *Trekking the Refuge* field trips after attending a *Field Trip Orientation Workshop*. The Orientation Workshops provide the information you need to design and conduct your own field trip. Teachers must recruit adult activity leaders and chaperones for each activity. We provide easy to follow scripts for leading each activity. Teachers participating in the Spring 2003 Orientation Workshops will receive the latest editions of the educator guides. Both activity leaders and chaperones are strongly encouraged to attend a Field Trip Orientation Workshop. **It is our policy that teachers must attend this orientation workshop every 2 years.** To reserve a place for yourself and adult volunteers who plan to lead activities on your field trip, call the education staff at the Visitor Center in Fremont at **510-792-0222**, or at the Environmental Education Center in Alviso at **408-262-5513**.

Wetland Round-Up Orientations in Fremont

Weekdays, 4:00 p.m. - 8:00 p.m.

Tuesday, March 4, 2003, Tuesday, April 8, 2003 and Tuesday, May 13, 2003.

Trekking the Refuge Orientations in Fremont

Weekdays, 4:00 p.m. - 8:00 p.m.

Tuesday, March 25, 2003, Tuesday, April 22, 2003, and Tuesday, May 20, 2003.

Wetland Round-Up Orientations in Alviso

Weekdays, 4:00 p.m. - 8:00 p.m.

Tuesday, March 18, 2003, Thursday, April 10, 2003, Tuesday, April 29, 2003, and Thursday, May 15, 2003.

Sinks, Sewers and Sloughs Orientations in Alviso

Saturday, April 12, 2003, 8:30 a.m. - 3:00 p.m. (Educator Only Workshop) Call Jennifer Durkin, City of San Jose at 408-945-5185, for more information. (A small fee is charged for this workshop).

Classroom and Outreach Presentations

For those educators who cannot bring students out to the Refuge, *Slow the Flow* offers FREE classroom and outreach programs at your location! These 50-minute programs are geared for grades 5-12 and adults (up to 36 participants), with a maximum of 5 presentations per day. Call **408-262-5513** to make a reservation.

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

Explore the salt marshes, salt ponds, and the birds of the Refuge with your family or small youth group! The discovery pack includes an activity booklet and equipment such as dip nets, magnifying lenses and bug boxes that you will need to take a close look at the salt marsh plants, brine shrimp, and birds! The backpack is suitable for up to six people, from kindergarten - adults. There are also group packs available for 12 - 24 (only at the Visitor Center, please call in advance if you would like a group pack). You can check out the Discovery Packs free of charge at the Visitor Center in Fremont or the Environmental Education Center in Alviso! The Visitor Center is open Tuesday - Sunday from 10 am - 5 pm. For questions or to reserve a group pack please call 510-792-0222. The Environmental Education Center is open Saturday and Sunday from 10 am - 5 pm. For questions please call 408-262-5513.

Refuge Implements the National Fire Management Plan

by Refuge Manager Clyde Morris

People driving down Marshlands Road or walking up the hill to the Don Edwards San Francisco Bay National Wildlife Refuge Visitor Center may have noticed a drastic change in the landscape. *Where have all the trees gone?*

As part of the National Fire Plan that was enacted in 2000, The Don Edwards Refuge is actively reducing fire danger to the visiting public, Refuge staff, facilities and wildlife habitat by removing highly flammable nonnative eucalyptus and acacia trees near structures and trails. These trees, although beautiful and fragrant, are prone to fires. They burn more intensely and fire spreads more rapidly than among native trees. The catastrophic Oakland Hills fire in the early 1990s, which resulted in many losses to human life and homes, was made worse because eucalyptus trees were allowed to grow too close to buildings.

To avoid fire catastrophes such as the Oakland Hills fire, the National Fire Plan eliminates highly flammable trees on federal land near urban areas, replacing them with native trees that are less likely to burn as quickly. As part of this plan, Don Edwards Refuge used California Conservation Corps (CCC) crews this past summer to build fire fuel breaks between the homes surrounding the Refuge's Mayhew's Landing parcel and the Refuge's wildlife habitat. In previous years, youths and fireworks have started fires on Mayhew's Landing. If the Newark Fire Department had not responded so quickly, these homes could have become endangered.

The CCC have also cut nonnative trees around the Refuge Headquarters that are closest to areas used by the public and around the facilities such as the Visitor Center. Some nonnative trees that are further from public use areas also had their limbs trimmed so they are less likely to carry an intense fire up the hill. Overall, fewer than 100 trees have been cut on Mayhews Landing and around the Refuge Headquarters.

Another reason to control nonnative species is their effect on native wildlife and other native plant species. Point Reyes Bird Observatory Naturalist Rich Stallcup recently wrote an interesting article about the damage nonnative eucalyptus have on native birds. Many birds, hoping to replenish their fat reserves before the spring migration, feed on blooming eucalyptus in the winter. At first glance, this seems harmless and even great for migratory birds. However, dead hummingbirds and warblers have been found at the base of these trees. It is believed that the sticky gum from the eucalyptus had clogged their nostrils, thereby suffocating the birds.

It is interesting to note that all Australian birds that feed on eucalyptus, where they are native, have long beaks. Perhaps they have evolved with the sticky eucalyptus to keep their nostrils away from the gum. Another concern with eucalyptus is their impact on native vegetation. Native plants seldom grow beneath mature eucalyptus because when their leaves drop to the ground, substances found on the leaves transfer to the soil and inhibit the growth of native plants.

The Refuge will soon be working with our volunteer staffed native plant nursery to provide oak trees to re-vegetate where the non-native trees have been removed. These trees will soon be providing habitat for the wildlife while not posing a serious fire danger to the Refuge. If you would like to volunteer with the re-vegetation, please call 510-792-0222.



TIDELINE

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

Volume 23, Number 1

Editors: Carmen Minch, Bryan Lapine, Sandy Spakoff

To receive Tideline, to submit an address change, or to submit other newsletter correspondence, write to: Tideline, Don Edwards San Francisco Bay National Wildlife Refuge, P.O. Box 524, Newark, CA 94560-0524.

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

Project Leader: Marge Kolar
 Deputy Project Leader: Mike Parker
 Don Edwards San Francisco Bay Refuge Manager: .. Clyde Morris
 Farallon Refuge Manager: Joelle Buffa
 San Pablo Bay Manager: Christy Smith
 Don Edwards Refuge Operations Specialist: .. Bart McDermott
 South Bay Refuges Manager: Ivette Loredo
 Antioch Dunes Refuge Manager: Sandy Spakoff
 Chief of Visitor Services: Carmen Minch
 Outdoor Recreation Planner: Fran McTamoney,
 Environmental Education Specialists: Genie Moore, Ken Clarkson
 Law Enforcement Officers: Jon Adamson, Barry Tarbet
 Volunteer Coordinator: John McClure
 Biologists: Joelle Buffa, Joy Albertson, Ivette Loredo,
 Diane Kodama, Giselle Downard, Rachel Hurt,
 Sally Reynolds, Gerry McChesney
 Administrative Staff: Sheila Blackman Bahan, Ellen Tong
 Maintenance Staff: Juan Flores, Arthur Chan,
 James Griffin, Wes Skelton

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 and seven other National Wildlife Refuges.

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Staff

Interpretive Specialist: Sharon Miyako
 Education Specialist: Sara Polgar
 Program Administrator: Sue Ten Eyck

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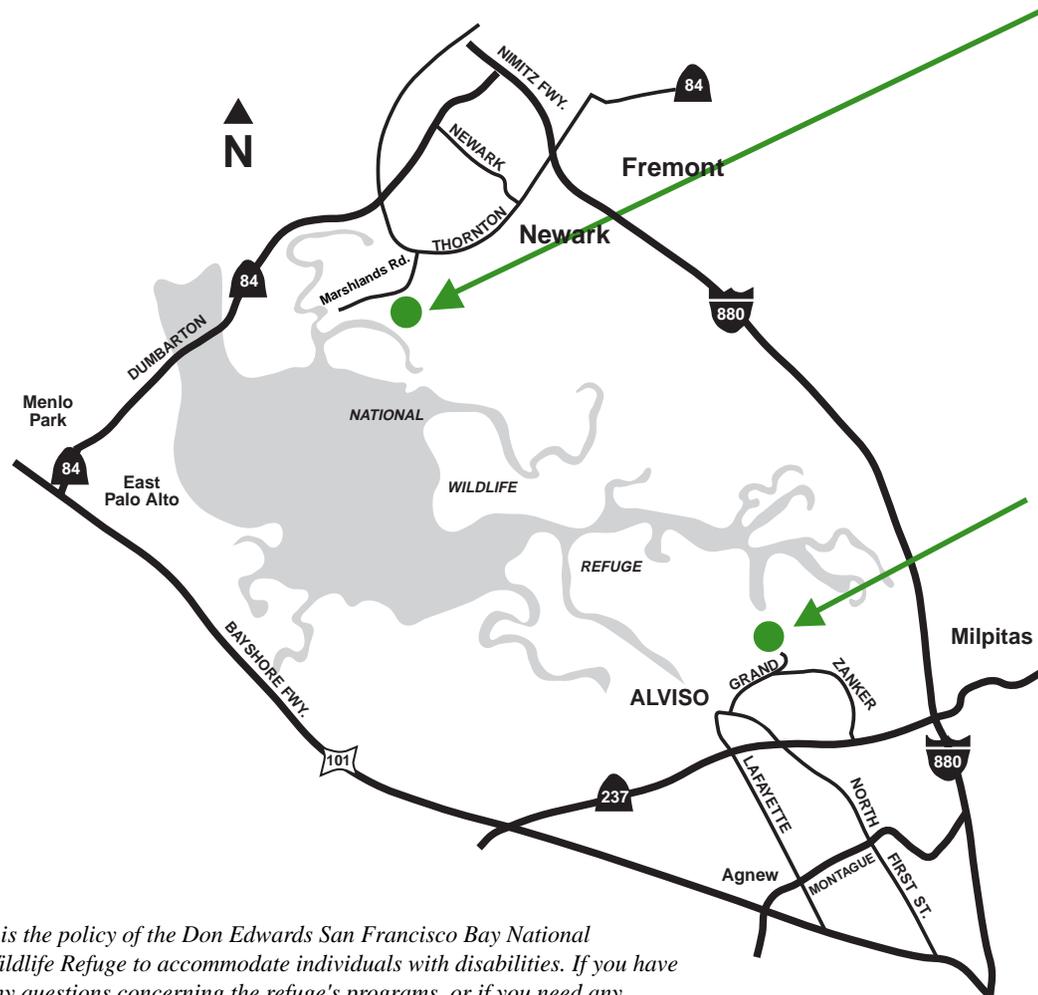
UNITED STATES
 DEPARTMENT OF THE INTERIOR
 FISH AND WILDLIFE SERVICE
 DON EDWARDS SAN FRANCISCO BAY
 NATIONAL WILDLIFE REFUGE
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Refuge Headquarters & Visitor Center
 (510) 792-0222
 Directions: From Highway 84 (at the east end of the Dumbarton Bridge), exit at Thornton Avenue. Travel south on Thornton Avenue for 0.8 miles to the Refuge entrance on the right. Turn right into the Refuge and follow Marshlands Road to the stop sign. Turn left into the parking lot.

Refuge Environmental Education Center
 (408) 262-5513
 Directions: From I-880 or Highway 101, exit on Highway 237 toward Alviso. Turn north onto Zanker Road. Continue on Zanker Road to the Environmental Education Center entrance road (a sharp right turn at Grand Blvd.) The distance from 237 to the entrance road is 2.1 miles.

It is the policy of the Don Edwards San Francisco Bay National Wildlife Refuge to accommodate individuals with disabilities. If you have any questions concerning the refuge's programs, or if you need any accommodation to enable you to participate in the refuge's programs, please contact a visitor services staff person at the Visitor Center at (510) 792-0222 or at the Environmental Education Center at (408) 262-5513.