

The Stilt

Summer 2004

SAN FRANCISCO BAY BIRD OBSERVATORY NEWSLETTER

DIRECTOR'S CORNER

Along a Birding Trail

In 2000, in a millennial celebration of sorts, my family decided to visit Costa Rica for volcanoes, birds, beaches and for the Monte Verde Cloud Forest Preserve. After surviving the atrociously potholed road leading into town (is there any more effective conservation tool around?), we settled into a room that we immediately abandoned. The Three-wattled Bell-birds were calling and proved to be maddeningly difficult to see.

Early next morning we drove up the main drag of Monte Verde that ends at the Preserve and joined a guided walk. The Preserve is 10,500 hectares of misted ridges and canyons filled with strangler figs, ferns, mosses, orchids and bromeliads, at around 4500' above sea level. It is breathtakingly beautiful and intensely alive. We walked just a tiny segment of its 16 miles of trails with a Dutch guide (I got lucky - he was a birder). He pointed out a rather short snag **not 10 feet from the trail** as the recently used nest of Resplendent Quetzals. When I expressed amazement at the proximity to the trail, he startled me by pointing out that this species and others often *selectively* nest near trails, for protection from ecotourist-shy predators.

I knew my knowledge of the subject of trails and wildlife disturbance was pretty limited, but now it was clear I had only been playing in the shallow end of the pool.

There are hundreds of birding trails in the U.S., varying from a few 100 feet in length to hundreds of miles. Some are simple nest box trails while others are complex partnerships of state agencies and commercial interests, with elaborate signage and maps, such as the Great Texas Birding Trail. Trails leading to encounters with nature have the potential to educate thousands of people to the secret lives of birds and other wildlife. By indicating actual locations of actual birds, trails can introduce their public to biological phenomena such as migration, seasonality and the precarious nature of habitat quality.

What could possibly be wrong with this picture? The whole conundrum of ecotourism is embodied in trails: how to invite humans into the secret lives of animals without any detrimental effects, or if one considers quetzals, without an artificially induced *positive* effect? The Native American in me (ideology only) objects mightily to leaving any footprint where I have walked, or for that matter any damage to the coral reef where I have snorkeled.

If we wish to raise human understanding and support for wildlife, we must somehow put humans into some form of communication with it, if only visual. Zoos and aquariums exist

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WICKI JENNINGS



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MONICA LUNDY

The San Francisco Bay Bird Observatory is a not-for-profit organization dedicated to the conservation of birds and their habitats through research, monitoring and educational activities.



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Migration

Migration is here! We've been hearing our neighborhood birds singing and the migrating birds practicing their songs in preparation for arrival to their breeding grounds. Here we answer some frequently asked questions about these avian journeys, and what makes them possible.

WHAT IS MIGRATION?

Migration is the regular, seasonal movement of populations from one geographic location to another and back again, usually between a summer breeding area and a winter non-breeding area.

WHAT TIME OF DAY DO BIRDS MIGRATE?

Most songbirds migrate at night, while most soaring birds (i.e., hawks), some insectivores (insect eating birds like swifts and swallows), and flocking birds (i.e., waterfowl and finches) migrate during the day.

WHAT STIMULATES BIRDS TO MIGRATE?

Internal, annual "clocks" (circannual rhythms) stimulate migratory condition at the appropriate time of year. Changes in day length "set" the internal clock so the bird's readiness to migrate is synchronized with the real world. When day length starts to decrease in fall, migrant birds prepare for migration by gaining weight in the form of fat and showing migratory restlessness.

Temperature is one secondary stimulus that can either accelerate or inhibit the rate of response from day length. For example, if increasing day length is stimulating a bird on the wintering grounds to begin traveling back to breeding grounds, but the temperature is still too cold, the bird may not leave as soon as it would if the temperature was warmer.

As birds "prepare" to migrate, physiological changes take place. During non-migratory periods, fat usually makes up 3-5% of a bird's mass. In contrast, short and middle distance migrants (e.g., the Western Fly-



Common Yellowthroat

catcher) can increase fat to 15% of total body weight, while longer distance migrants (i.e. Swainson's Thrush and Yellow Warbler) can gain 30-50% fat!

WHY DO BIRDS MIGRATE?

One evolutionary theory proposes birds began migrating due to frequent changes in worldwide climate patterns. At the most basic level, migration allows birds to take advantage of seasonally abundant food during the breeding season in areas not allowing for over-winter survival. This adaptation helps them respond to seasonal changes, allowing them access to more insect food during summer, having reduced competition for space and food, and having longer days to feed and grow during the breeding months.

HOW DO BIRDS ORIENT AND NAVIGATE?

Navigation requires knowledge of three things: current location, destination, and the direction to travel to get from the current location to the destination.

Different birds use different orientation signs to maintain a particular flight direction. These cues include the stars, the Earth's magnetic field, the sun, polarized light, and landmarks on the Earth's surface. Some species may even navigate by smell.

Studies show that a single explanation on how birds orient and navigate may not fit all cases. One study finds that juvenile European Starlings, as well as adult Hooded Crows, know which direction to fly if displaced, but do not know that they are displaced. Imagine you've planned a route from San Jose to San Francisco, and begun driving when an invisible hand moved you to Vallejo, but you don't know that. You continue driving to San Francisco, as if you were coming from San Jose. In contrast, adult Starlings realized that they had been displaced and adjusted the flight direction to get to their original destination.

Radar studies show that birds do migrate above the clouds where landmarks are not visible, under overcast skies where the sun and stars are not visible, and even within cloud layers where neither landmarks, the sun, nor stars are visible. What are the

birds using? It may be the Earth's magnetic field. In one of many studies concerning the ability of migrants to use the Earth's magnetic field for orientation and navigation, European Robins showed that in the absence of any other navigational cues (i.e., the sun, stars, and landmarks), they would change their orientation in response to shifts in an artificial magnetic field that was as weak as the Earth's natu-



Yellow Warblers are one of the CCFS's top migrants that feeds primarily on insects.

PHOTO BY YVETTE LEUNG

ral magnetic field. It has also been shown that previous exposure to the sun and the stars enhances this ability to respond more appropriately when only the magnetic cues are available.

WHAT DO BIRDS EAT WHILE MIGRATING?

Coyote Creek Field Station's top spring and fall migrants eat mostly insects (i.e. the Orange-crowned Warbler, Swainson's Thrush, Wilson's Warbler, Yellow Warbler, Western Flycatcher, and Willow Flycatcher.)

HOW FAR DO BIRDS FLY?

The Arctic tern holds the record for longest migration distance of about 18,600 miles. This is an around the world bird, flying from one pole to the other and back.

Most songbirds do not migrate non-stop. A few like the Blackpoll warbler, will fly 1800-2400 miles over water for 80-90 hours non-stop from New England southeast across the Atlantic to the coast of South America! Even the Ruby-throated hummingbird makes one fell swoop (620 miles) across the Gulf of

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PHOTO BY K.W. LARSON

Caspian Terns on Brooks Island.

AGAINST ALL ODDS

Since 1850, 95% of the San Francisco Bay Area estuary and surrounding wetlands have been converted to salt evaporator ponds, agricultural lands, and development. This has resulted in 42% and 79% decreases in tidal flats and marsh habitat, respectively, and a 2062% increase in salt pond habitat. Despite this habitat degradation, the Bay supports over one million waterbirds throughout the year. Among these species are the Forster's Tern and Caspian Tern. Both species benefit from the salt ponds on the Bay and now nest on dredge-spoil islands and degraded levees created during salt pond construction and maintenance.

Habitats in the South Bay are about to change again. Proposals to restore a portion of the 16,000 ha of the Bay salt ponds to tidal marsh will increase some types of bird habitat, but could also reduce the amount of nesting habitat available to these terns. To pinpoint specific factors influencing tern colonies as well as specific methods land managers can use to minimize any negative impact of restoration, we analyzed more than twenty years of Colonial Waterbird Program data looking at colony distribution, sizes and annual trends in the Bay. Using binoculars and spotting scopes, SFBBO volunteers and biologists counted all adults and nests from 1982-2003 at 13 Caspian Tern and 17 Forster's Tern sites.

HOME SWEET HOME . . . FOR FORSTER'S TERNS

Our analysis indicated no significant increases or decreases in numbers of Caspian Terns breeding within the Bay. However, the primary colonies in the Bay have differed across the 22 years; Caspian Tern colonies have moved around considerably.

In contrast, the number of Forster's Terns does show a significant decline from 1984-2003. Compared to the Caspian Tern colonies, those of Forster's Terns were more consistently occupied. Forster's Terns do not move around like the Caspian Terns. During the 22-year study, the average duration of occupancy by

TRENDS IN FORSTER'S AND CASPIAN TERN COLONIES IN THE SAN FRANCISCO BAY, 1982-2003

Caspian Terns at any given site was 8 years, whereas the average number of years that Forster's Terns occupied a site was 19 years.

Colonies with the highest number of Forster's Terns differed across the 22 years, and included those at Bair Island, Baumberg, Hayward Shoreline, Moffett, Turk, and Knight. The largest colony at the beginning of this study (1982) and middle (1992) was at Moffett (655 to 1000 birds). By 2003, only 3 colonies had more than 300 birds (Baumberg, Belmont, and Turk).

From the data, we've been able to see that Forster's Terns are declining in numbers, while Caspian Terns though not declining, are also not increasing their population. These failures are likely because of either reproductive failure or emigration of terns to new sites. A willingness to return to the same breeding areas (site fidelity) is a function of reproductive success, and is influenced by habitat stability.

LIVING IN AN UNSTABLE WORLD

In the Bay, factors effecting tern reproductive success include changing water levels, encroachment by California Gulls, predation by red fox and other mammals, human disturbance during construction and levee maintenance, and contamination.

High water levels reduce or eliminate nesting islands and often flood out nests; low water levels allow access to predators and increased human disturbance. For example, red fox predated nests on Bair Island, Baumberg, Moffett and Alviso sites when low water levels created land bridges to islands.

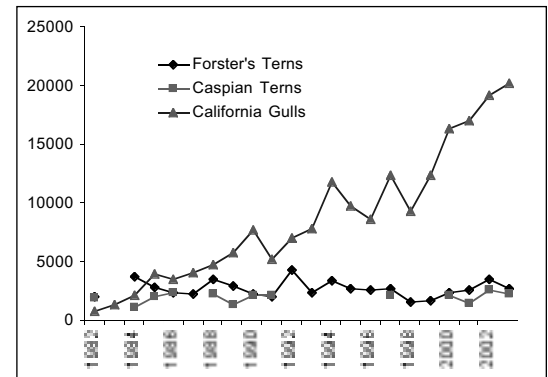
California Gulls have colonized areas adjacent to and previously occupied by nesting terns, taking over available nesting sites and preying on tern eggs and chicks. The most dramatic increase is in the south Bay where California Gulls have expanded from 2,000 birds in 1984, to over 20,000 in 2003. Other large gull colonies include Moffett and Mowry.

Levee maintenance renders a site unsuitable for colonially nesting birds as the surface becomes uneven and eggs and chicks become stuck in the cracks. Construction of new levees and bridges has also led to the decline or disappearance of tern colonies in the past two decades.

Contaminant levels may also play a role in tern declines over the study period. Studies on shorebirds, diving ducks, and herons in the Bay, as well as new SFBBO data confirm elevated levels of mercury and PCB's in bird eggs.

CONSERVATION IMPLICATIONS

The continued presence of isolated, insular islands is crucial to the continued presence of terns in the Bay as they provide suitable nesting ground isolated from many predators and human disturbance. Land man-



agers should also consider maintaining water levels at a depth that will prevent land bridging or flooding during the breeding season. The potential management of gull and other predators, as well as contamination levels are also primary concerns requiring more attention to successfully maintain our tern colonies as the Bay moves into its next phase.

SFBBO would like to thank the myriad of volunteers that have made the collection of this data possible. Without you we would not know much about our local waterbirds!

~Cheryl Strong
Program Director
Birds of the Baylands Program



PHOTO BY D. CARDINAL

The California Gull colony on a levee near Mowry Slough has been in existence since 1992.

A Mirrored Forest: from Education to Action

On January 6th of this year, a group of software engineers led by Gerald Young left their office building for lunch. Gerald's ears perked up as he recognized a Cedar Waxwing call. As he and his lunch companions looked for the singing birds, they saw an entire flock of waxwings head directly into the windows enclosing an external stairwell. They watched in horror as at least seven birds slammed into the window. Five died outright and two were left stunned on the ground. Of the two on the ground, one eventually recovered, but I took the second to a rehabilitation facility after work. The witnesses to this tragedy immediately ran back inside and related their gruesome story. They obviously wanted someone to do something to stop the carnage and I felt a lot of eyes looking in my direction.

Why were they looking to me? And why did Gerald recognize a Cedar Waxwing's call? This story begins in 2001.

THE BEGINNING

Ever since my company moved into our remodeled Sunnyvale office in the spring of 2001, I knew there were birds colliding with our building. As I gained the "bird guy" reputation at work, people began to come to me with their bird questions. One winter day, a woman rushed up to my office, exhorting me to come out and look at the dead bird in the parking lot. Outside, I discovered a stunned but very much alive Merlin lying on the ground, an apparent victim of a window strike. After a couple hours in a quiet dark place, the Merlin recovered and I released it in front of a small crowd of interested coworkers.

This winter, I received numerous reports from people on the west side of our building complaining about occasional thump sounds made when a bird hit their window. Many reported that after a bird strike, they would see a disheveled and stunned bird clinging to a branch outside their window.

On Friday, January 5th, a coworker showed me a dead Cedar Waxwing that he had found outside our building. I used this opportunity to perform an impromptu Show-and-Tell with the waxwing as the unfortunate inanimate prop. I arranged for a conference room and invited my coworkers to learn about our friend, the Cedar Waxwing. While playing Cedar Waxwing songs on my laptop, I introduced the bird and regaled the assembled multitude with details of its life history.

Cedar Waxwings perch high up in tall trees and are often heard before they are seen as they pursue their nomadic flights in search of fruit and berries. The high-pitched chirp is an easily recognized sound associated with winter in the Bay Area. We learned that the Cedar Waxwing has such an efficient digestive system that it can eat its fill of berries, digest them, and expel the undigested seeds within about 45 minutes. This explained why car owners that parked along the berry trees in our lot would occasionally return to find their cars covered with a disgusting layer of purple juice and seeds. Everyone enjoyed hearing that waxwings and robins are believed to get tipsy after a meal of partly fermented berries.

I also pointed out that if they listened carefully, my coworkers could often hear the waxwing song while walking from their cars towards the building.

Back to the beginning of this article. Gerald, who had led the lunch-time witnesses of the en masse bird strike, attended my impromptu Cedar Waxwing presentation. This helped him

recognize the distinctive chirp and see the small flock crash into the windows.

TAKING ACTION

A few minutes "reflection" in our back parking lot revealed exactly why the Cedar Waxwings were colliding with our building. One side of our lot was planted with trees filled with yummy purple berries. The waxwings gorged themselves on berries and then flew up to roost in the trees circling our building whose branches reached our second floor windows.

Unfortunately, our office windows presented a near-perfect mirror-like reflection, so that birds could easily mistake a tree reflection for a real tree and smash into the window. Our building was a mirrored forest.

I had seen the small black bird silhouettes people attach to their picture windows to stop bird collisions. After some discussion, we came up with the idea of making large owl-shaped silhouettes and mounting them on our windows. Teresa Koo, our arts and crafts guru, volunteered to visit a plastics store and find a black plastic film that could attach to the outside of our windows. I brought in an owl book and Teresa developed owl patterns by zooming up some of the owl pictures on our copier to near life-size. I was happy with using only one pattern, but Teresa felt it would be more aesthetically pleasing to have multiple owl types. We now have Great-Horned, Long-Eared, Western

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A MIRRORED FOREST: FROM EDUCATION TO ACTION

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Screech and several other owls adorning our office windows. Several employees volunteered (or volunteered their children) to cut out owl silhouettes based on Teresa's patterns. On a parallel front, another coworker took it on himself to purchase a couple large plastic Great-Horned Owls. We filled those with sand to



weigh them down and stood them up on our roof where they could be seen by the waxwings flying in to roost in our trees.

Teresa discovered a black plastic film that clings statically to the window, can be used outdoors, and can be removed if necessary. There remained the challenge of mounting these silhouettes on our second floor windows without ladders, since we needed to come up with a method that could be done with no danger to employees. Our collec-

tive engineering wisdom led us to the idea of a long extendable pole with a squeegee on the end. On calm days with no wind, we draped the large silhouettes over the squeegee, and then carefully lift the silhouette up 20 feet to the second floor windows. From there, the silhouette partially attached itself via static cling and the squeegee finished the job, pressing the remainder of the silhouette against the window and squeezing out any air bubbles.

Additional coworkers helped attach the silhouettes during several late afternoon sessions, until we had about 25 silhouettes mounted in key areas. Cars leaving the parking lot would often stop to find out what the people were doing clustered around a long pole disappearing up into the trees.

After the first dead birds were reported in early January, I estimate that I found approximately 25 dead birds, almost entirely Cedar Waxwings, although 3 Lesser Goldfinches and a Mourning Dove also fell victim to our lethal windows. Once the silhouettes were up, the number of deaths dropped dramatically. Those who had complained about hearing birds colliding into windows reported that the silhouettes helped a lot in reducing colli-

sions. I've continued to hear and see Cedar Waxwings around our building, so I know they are still in the area. We need at least another year of observation to determine whether the silhouettes reduce the bird kills over the course of a California winter, but so far it seems promising.

Organizing this volunteer project has been very gratifying. Once they understood the nature of the problem, my coworkers were very willing to help in many ways. The building owner was also very supportive. Working together on this project, many people gained insight into the effects our everyday environment has on birds. In addition, we were able to take action, and modify our building to minimize the harm done to our feathered friends.

For more information, this website by a group in Toronto discusses both day-time and night-time bird collisions with windows: <http://www.flap.org>

Are you the Bird Man or Bird Woman of your office? Consider offering a birdwatching activity around your building, or organizing a lunch time field trip to a birding spot nearby. Even better, bring a group out to see bird banding at the Coyote Creek Field Station. You never know what action your education could inspire!

~Jan Hintermeister
SFBBO Board President

Migration . . .

Continued from page 2

Mexico! But most migrants rest and refuel at stopover sites, also called staging areas, such as the Coyote Creek Field Station, then continue on their journey. An example of a long distant migrant occurring at CCFS is the Western Wood-pewee which breeds throughout western North America and migrates all the way to South America where it winters primarily from Colombia and Venezuela south to Peru and Bolivia.

AT WHAT ALTITUDE DO BIRDS FLY?

Most migratory flight occurs below 100 feet. There are, of course, exceptions. Some geese and ducks fly at incredible heights. Bar-headed geese have been recorded flying as high as 29,000 feet! Keep in mind, Mt. Everest's peak is at about 29,030 feet.

HOW FAST DO THEY FLY?

In still air, most songbirds fly 20-30 mph, while waterfowl and shorebirds can fly 30-50 mph. Tailwinds provide an extra push, allowing birds to fly faster.

HOW DOES THE COYOTE CREEK FIELD STATION'S RESEARCH FIT INTO MIGRATION?

While banding at CCFS we learn about birds' general movements: where its migration route is, how long it may take to get between two places, where it winters, and where it breeds. We know approximately when birds arrive at and depart to breeding or wintering grounds and whether this changes from year to year. We also learn what type of habitat each species uses when they stopover during migration and that specific birds reappear year after year on both the way to

their breeding grounds and the way back to their wintering grounds, oftentimes within a few weeks and in the same net! Ultimately we've learned that CCFS is a hot spot for migration stopovers.

~Gina Barton
Landbird Biologist

CORRECTION

In the last issue of *The Stilt*, we incorrectly credited the photo of the Heron & Egret rockery at Shadow Cliff. Kudos for the photo go to **Steve Huckabone**. We extend our apologies for this error.

The Challenge Is Coming

CHALLENGE: 1. A call to engage in a contest, fight, or competition. 2. A test of one's abilities or resources in a demanding but stimulating undertaking.

The Fall Challenge is a call to participate in a contest and competition; participants dual it out to see who can raise the most funds for SFBBO and/or who can track down the highest percentage of birds in a county. Sponsor a team. Or start your own sponsor list, pick a day, go birding and increase your species list while supporting SFBBO. **Prizes are at stake!**

It's also a test of every participant's abilities: birding and fundraising. The entire process is engaging and stimulating, taking beginning and expert birders alike above and beyond their comfort zone to learn more birds and make more fundraising contacts.

But what about that word in the first definition: fight? Fight: to strive vigorously and resolutely. Is the Fall Challenge a FIGHT? YES! It's part of SFBBO's ongoing mission to conserve birds and their habitats through research and education. It's part of the fight to urgently learn more about the Bay Area's birds, what's happening to them, and what can be done for them. It's part of SFBBO's fight to introduce Bay Area residents to the feathered residents and the role research plays in our communities.

Want to be a part of this fight? Answer the Challenge! The Fall Challenge is coming. And whether you're a birder or non-birder, we need you, and we are excited to have you join us in the fight.

SAVE The Date

**AUGUST 12TH, 7 PM,
PLACE TBA.**

Think you can't win the **Fall Challenge** because you've never been in it before? Think again! Join *Bonnie Bedford-White* for our **Rookie Orientation**. Bonnie was last year's Top Fundraiser, and winner of the cruise for two aboard Discovery Voyages. Keep an eye on the SFBBO website for further details.

ALONG A BIRDING TRAIL

Continued from page 1

to forward this notion. In the wild, the trick is to accomplish this and not disturb the very wildlife we seek to protect or, as the saying goes, without "loving it to death". You could call this the "Shamu Effect". We can succeed at winning the public's heart but for a price that purists find unacceptable

This is a problem that land managers wrestle with every day, vexed by a lack of definitive answers to the challenge of disturbance. Our abilities to measure and evaluate disturbance are overmatched by the variables it presents: habitat, wildlife present, its seasonality of use of habitat, type and quantity of trail traffic, width of trail corridor, ad infinitum. In their recently issued trail handbook, the Colorado Department of Recreation on trails and wildlife diplomatically states: "These complex interactions are just beginning to be understood and few unequivocal ecological principles for trail planners are known."

The San Francisco Bay Trail has had to grapple with these complexities. Mandated in 1987, the Trail will eventually become 400-mile loop of trails around San Francisco Bay. Much of its route was pre-ordained by the diking of wetlands over a hundred years ago, along with the development and freeways that rapidly followed. Just consider the segments of

the Trail on top of levees in Foster City and Redwood Shores or the Embarcadero in San Francisco. This is not carving some new logging road through pristine wilderness. But the Trail also edges on tidal marshes and diked wetlands, where most of our most precious wildlife resides. It's a complicated picture of urbanites on foot or wheels, possibly accompanied by their own animals, interfacing with the largest wetlands restoration project in the West's history.

But it is also a grand opportunity to introduce our 7 million Bay Area urbanites to the secret life of birds. SFBBO is partnering with Bay Trail to identify locations along the Trail of prime birding, wildlife and habitat viewing interest. Veteran birders have helped select existing Trail birding hotspots that will be highlighted through signage and literature to bring more trail users into the fold of wildlife advocates. We'll offer guided walks; we'll make every effort to teach current trail users about the wealth of wildlife literally at their feet. Our intention here at SFBBO is to raise the general public's awareness and knowledge, so that they become, like us, ardent admirers and protectors of the treasure – the birds of the Bay Trail.

~ Janet Hanson
Executive Director, SFBBO

WISH LIST

SLIDE SCANNER

To capture all our wonderful slides in electronic format

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For the AOU conference in Quebec this August

DECK FOR THE FIELD STATION

For bird banding demonstrations and other gatherings

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4-STROKE OUTBOARD MOTOR

To make our waterbird program more environmentally correct

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SFBBO

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The Bird Observatory is located at 1290 Hope Street in Alviso, behind the historic Bayside Canning Co. building. If you would like to visit the office or our Coyote Creek Field Station, please call in advance.

Board meetings are held monthly and are open to the Membership. Call the Observatory for dates and times.

SFBBO Tern-Over

This spring we sadly bid SFBBO board member Sandy Spakoff a fond farewell. Her education and interpretation expertise were always appreciated, and she will be missed. Sandy has moved on to the U.S. Fish and Wildlife Service's National Training Center in West Virginia. Congratulations, Sandy!

Recently SFBBO welcomed Eric Feuss on to staff as the new Office Manager. Want to know more about him? We did! So we went beyond the typical office interview...

Q: What are your other big interests besides SFBBO?

A:

- My Family, being a father, husband, and care taker to a whole menagerie of animals (two dogs, cat, bird - cockatiel, rabbit, two guinea pigs, two chinchillas)
- Santa Cruz Bird Club, field trip coordinator/leader and outreach participant

These first two leave little time for anything else.

Q: What's your view of SFBBO?

A: The San Francisco Bay Bird Observatory (SFBBO) feels very much like my experience with the Institute for Bird Populations (IBP), a very

tight knit family with great ideals, ambitious goals, and a lot of hard inspiring work. Only, SFBBO feels like its being born all over again.

Q: How many tattoos do you have?

A: NONE; PLAIN LOVING GUY HERE



Q: Anything else you'd like the readers to know?

A: In addition to birding and biology/ornithology, I have a background in physics and IT work (Information Technology - enterprise application development). Trombone, juggling, and a lot of other things each had there place in my past.



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