

# The Stilt

Vol. 20 No. 3

Summer 2002

SAN FRANCISCO BAY BIRD OBSERVATORY NEWSLETTER

## DIRECTOR'S CORNER

### BAIR ISLAND REFUGE

On a cold windy day this past March, I found myself once again in a small boat in a big creek, Redwood Creek to be exact, looking up at some of the very large "boats" docked in the Port of Redwood City. It was yet another spray-soaked trip to outer Bair Island but this particular trip was a special milestone on the timeline of Bair's evolution.

SFBBO has a long history of research and habitat management on Bair Island. In the 80's, SFBBO staff and volunteers worked hard to sustain a heron rookery doomed to failure by the introduced red fox. They hauled literally tons of oyster shells by hand in an attempt to create substrate suitable for tern nesting. With the prospect of condos ever looming, they compiled an inventory of Bair's habitats and wildlife that was a key source of information during the final victory of acquisition by the U.S. Fish and Wildlife Service (FWS) for addition to the wildlife refuge in 1997. Bair is part of SFBBO's organizational psyche, through all of its tribulations and triumphs. Now that the very high hurdle of ownership has been cleared, the land enters a new phase.

Bair Island is really three islands, each with distinctive features - some hopeful, some daunting, and all are beautiful. Tidal sloughs separate the outer two islands from the mainland, creating splendid isolation for nesting kites and short-eared owls. Cordgrass marsh on outer Bair is waterfowl heaven in the fall. The inner land-bridged portion is popular with hikers and dog-walkers and is under the runway approach for a small airport. The topography of all three islands has been pushed around to create levees for salt ponds that were never

much used. To even begin to think of restoration of tidal marsh, the FWS must contend with old dredge spoils, sewage pipelines, jet skis, power towers, ferry proposals, more red foxes and the potential flooding of neighboring developments. Most discouragingly, outer Bair now has the beginning of an invasion of exotic cordgrass. Bair made it over the high hurdle of acquisition; only to run smack into some fairly numerous landmines called things like "easements" or "invasives."

Enter a new player on the field of Bair, in the form of the California Wildlife Foundation. In 2001, the California Department

of Fish and Game found a way to implement wetland restoration on a portion of outer Bair Island. Under Foundation direction, large earthmovers were barged to the site and a series of ponds was created using existing soils. The pond notion resulted from the call for saltpan creation, put forth by SFBBO and other waterbird scientists in the Baylands Ecosystem Habitat Goals. SFBBO biologists are now monitoring the project's progress toward becoming a functioning wetland ecosystem.

Bair Island is a bellwether. On the smaller scale, the saltpan restoration project is the first of its kind in the south bay. Its progress as wetland and waterbird habitat will be watched with avid interest by restoration specialists. But in the grander scheme of

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*Bair Island  
is a  
bellwether.*

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VICKI JENNINGS

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The California Fall Challenge is coming 9/14 thru 10/12. Learn how you can get involved, have fun birding, and help the SFBBO all at the same time. The Kick-Off Party is August 15th at 7 p.m. in Alviso. Please visit [www.sfbbo.org/cfcflyer.html](http://www.sfbbo.org/cfcflyer.html) for all the info!"

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# INVESTIGATING TOXINS & TERNS

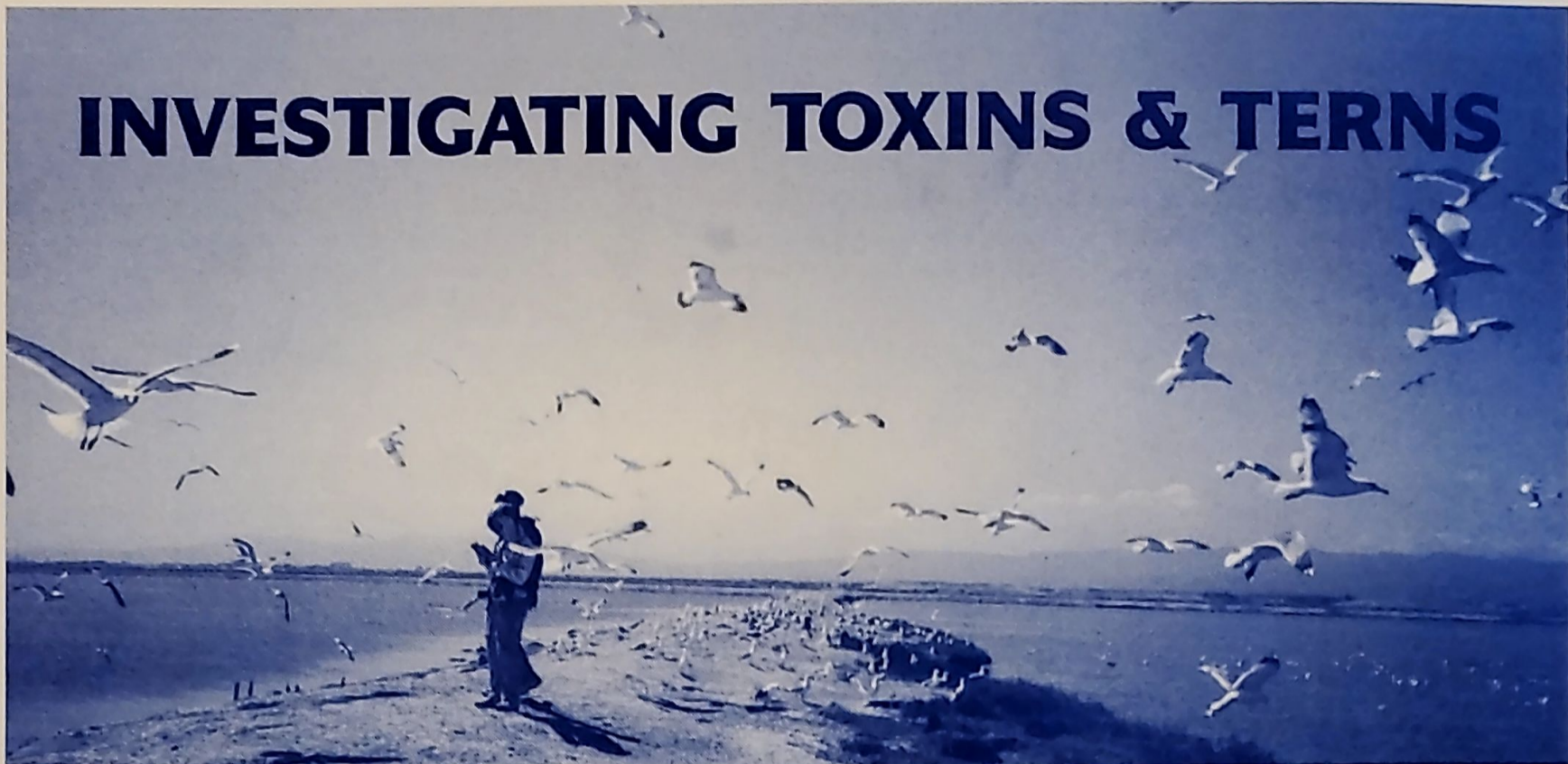


PHOTO BY BRYAN DIAS

The San Francisco Bay is one of the most human-modified estuary in the United States. As early as 1900, the surface area and depth of the estuary had decreased, marsh habitat had severely declined, and many exotic plant and animal species already introduced. The estuary has also been "enriched" with a variety of contaminants including organochlorine compounds (dioxin, PCB's, DDT) and heavy metals such as mercury and selenium. The levels of these contaminants within the estuary are largely, if not completely, of human origin. Some of the contaminants are chemical mixtures manufactured for industrial uses. While manufacture ceased in the U.S. in 1977, contaminants continue to enter the estuary via leakage from contaminated sites, landfills, urban runoff, atmospheric deposition, and remobilization of sediments.

These contaminants are long-lived and amplify in aquatic food webs. PCB's and mercury are contaminants of major concern for humans and wildlife within the estuary (San Francisco Estuary Institute Report 1999). Previous studies have identified PCB levels in Bay harbor seals at two times higher than levels known to cause adverse reproductive and immune effects. PCB levels in the endangered California Clapper Rail fail-to-hatch eggs collected in the Bay exceeded concentra-

tions detected in rail eggs from Southern California by 3-10 times (U.S. Fish and Wildlife Service Environmental Contaminants Division 2001). As a result of a 1994 San Francisco Bay Regional Water Board study, the Office of Environmental Health Hazard Assessment delivered an interim health advisory for people eating fish from the Bay. This advisory remains in effect today (SFEI Report 1999).

The major pathway of contamination is through diet, and fish consumption is the pathway of greatest concern. While a single fish may not contain high levels of toxins, relying on fish as a major food source can lead to a build up of contaminants. Thus animals that eat higher up on the food chain, including humans are particularly at risk. Fish-eating birds are particularly good indicators of contamin-



PHOTO BY CHERYL STRONG

Outreach Coordinator, Bryan Dias, holds a Forster's tern chick before returning it to its nest during a recent survey at Belmont Slough.

ation as they are at the "top" of the aquatic food chain and thus continuously accumulate contamination from the fish they eat.

This phenomenon is called "bioaccumulation." Female birds transfer mercury to their eggs. Mercury contamination is evident in the early life-stages of birds with negative effects including reduced egg hatch-ability, eggshell thinning, and aberrant adult and juvenile behavior (Ohlendorf 1982).

SFBBO has received a second year of funding from the San Francisco Foundation Bay Fund. We are continuing our collaboration with the U.S. Fish and Wildlife Service Environmental Contaminants Division studying the levels of organochlorine compounds and heavy metals. At-risk birds nesting in the Bay include terns, cormorants, herons, and egrets. The endangered California Least Tern and California Clapper Rail are of special interest due to the reduction of their populations in recent decades.

Throughout the Greater Bay, levels of mercury and PCBs are at their highest in the South Bay, where these species nest. This year we are continuing to focus our study on the Forster's terns. Forster's are an excellent study species for a number of reasons: they nest in large numbers and extensively use the artificial salt pond habitat of the Bay for nesting and forag-

ing. Data collected on tern foraging and habitat use can be used to guide restoration plans in salt pond environments throughout the Bay. We will also be able to identify areas of high contamination levels for use in establishing remediation programs for toxic pollutants in the Bay. In addition to identifying contaminants in eggs, we will be monitoring nests for post-hatching success rates at each nest. This will help us determine the overall productivity of the Forster's tern colonies in the South Bay. We will be able to correlate water quality data taken by the San Francisco Estuary Institute with toxin levels in tern eggs for an overall picture of contamination in the San Francisco Bay.

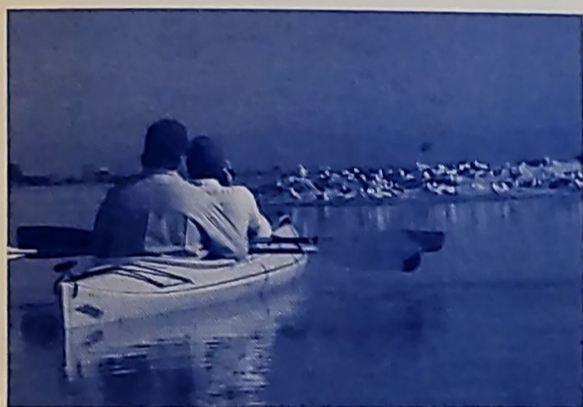


PHOTO BY SUE MACIAS

Part of the "Kayak Crew," US Fish and Wildlife Biologist, Terry Adelsbach and Bryan Dias approach an island in Baumberg, just south of the Hayward Area Shoreline near the San Mateo Bridge toll plaza, ready to conduct another colony survey. Many of the colonies in the area are only accessible by boat.

Many of the proposed tidal restoration efforts focus on providing new tidal marsh habitat for the California Clapper Rail. This study will provide us with detailed information on contaminants found in sediments and waters of the Bay. With this data we will be better able to make informed management decisions such as where this new habitat should be located for the benefit of all of the Bay's nesting birds.

~Cheryl Strong  
Lead Biologist,  
Birds of the Baylands Program

### *In Memorial*

## *Dr. Diane R. Conradson*

"We treasure our autographed copy of her book, *Exploring Our Baylands*, which epitomized her wonderful art as an educator and supporter of the values of our bay shorelines."

~Phil and Pat Gordon

## VOLUNTEER SPOTLIGHT ON . . . GERRY ELLIS

This time around our "Volunteer Spotlight" has turned to Gerry Ellis. He's been an outstanding contributor to the SFBBO for over ten years now and continues to help out in numerous and invaluable ways.

Gerry is a Bay Area native who was born in San Francisco and raised in San Jose where he currently resides, as a dutiful son, taking care of his elderly mother. Gerry graduated from the University of Oregon with a degree in architecture. After college, he served a stint in the US Army as an infantry lieutenant between 1969 and 1971.

Afterwards, Gerry decided to shift gears. He started working at his own business doing general and restoration landscaping. It has been a great fit for Gerry, who maintains an active interest in native vegetation and works to introduce that concept into his landscape designs.

Gerry has been an active member and volunteer with the Observatory since 1992. He learned about the organization after participating in an Audubon Christmas Bird Count in 1991. He's been hooked ever since. He wears numerous hats in his work for the SFBBO. Currently, Gerry is serving as a member of the Board of Directors (since 2000.) He also spends considerable time at the Coyote Creek Field Station where he is a certified bander, takes care of maintenance and helps with revegetation work. He's also a favorite volunteer because he fills the role of "Organization Handyman" and has taken care of everything from fixing broken doorknobs to erecting office walls.

Outside of his own business and all the time he spends helping at the SFBBO, Gerry enjoys bicycling, photography, butterfly watching, and native plants. He's an active member of the Native Plant Society. In general, he's into "naturalist stuff," as he put it.

Head Landbird Biologist, Sherry Hudson, describes Gerry and all of his tireless work with the Observatory this way, "Gerry is a truly amazing and committed volunteer. Besides fulfilling his twice-monthly commitment as a bird banding volunteer, he is constantly involved with improvements at the Coyote Creek Field Station. Whenever we have Field Station workdays or odd jobs that need to get done, I know I can count on him to show up.

Whenever a tree falls over a path or a net, he is the one that takes care of it. He is even designing a new net set-up for our double-tiered nets! All that just at CCFS . . . then I noticed that as a member of the Board of Directors he always shows up to meetings, and he is constantly putting up walls and doing other maintenance tasks at SFBBO's main office. All this and he still will always have a smile on his face and a good story about his latest 'Audubon moment', or will show me the latest list of butterflies he has observed. We are really lucky to have Gerry working with us!"

Gerry was kind enough to answer the three standard interview questions:

- **Favorite Bird:** Hermit Thrush, because it's the first bird he banded on his own.
- **Favorite Color:** Green, mainly because the "world is green and so is Kermit!" He said.
- **How Many Tattoos:** "None that I know of," he declared.

~ Bryan Dias  
Outreach Coordinator

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.

# Understory Bird Communities in Amazonian Forest Fragments

SFBBO's Lead Birds of the Baylands Biologist, Cheryl Strong, conducted fascinating research as part of her graduate study in the Amazon Basin of Brazil from June 2000 - May 2001, before coming to us at the SFBBO. Please read the interview with Cheryl Strong on page 5 to learn more about her.

In order to clear land for cattle ranching, logging and agriculture, tropical rainforest in the Amazon basin is being cleared at a rate of two million hectares per year (INPE 1997). Along the BR-174, the highway linking the central Amazon city of Manaus to the Venezuelan border, the Brazilian government has promised to open up six million hectares of land for settlement and agricultural production (Laurance 1998).

The results of such land use changes will create a habitat "matrix" of forest fragments, pasture, and secondary growth in an area that is currently comprised mostly of primary rain forest. The results of such fragmentation on forest systems are likely to be



Royal Flycatcher

profoundly negative, especially for species and communities that rely on interior forest habitat. In the case of forest interior birds, the impacts on viable populations could be disastrous, as these birds are reluctant to cross even narrow areas of open habitat (Stouffer and Bierregaard 1995).

The Biological Dynamics of Forest Fragments Project (PDBFF) has been moni-

toring forest communities since 1979, in a series of forest fragments north of Manaus. The Brazilian National Institute jointly administers the Project for Amazonian Research (INPA) along with the Smithsonian Institute. For the study of tropical bird communities, this is the only existing long-term study on the direct effects of forest fragmentation. Mist netting and dawn chorus surveys of the sites have identified species that have colonized or disappeared from the fragments, and helped determine which birds have maintained populations within the area.

In 2000-2001, I worked with Brazilian and American colleagues to mist net the fragments and areas of continuous forest to assess changes in understory bird communities that have taken place since 1992; the last time the area was comprehensively surveyed. We will compare this new data to previous data for assessing changes in species richness, abundance, and community composition. We are trying to accurately estimate the long-term patterns of extinctions in these forest remnants, providing management recommendations for bird populations in an increasingly fragmented Amazon.

Some of the birds that are restricted to large tracts of continuous forest include terrestrial insectivores and species that live in mixed flocks. Species capable of using the smaller fragments are similar to those found in the secondary growth and include many non-forest bird species. Species limited to large forest tracts rarely move through secondary growth or small fragments. Viable populations of interior forest species are dependent on large tracts of uninterrupted continuous primary rainforest.

This area includes some of the most pristine *terra firme* forest left in the Amazon Basin. Although the forest found along roads and settlements has been completely cleared, the surrounding forest area,

ranging up to Venezuela, remains relatively untouched by bulldozer, machete and fire. The bird community of the central Amazon is extremely rich in species. Approximately 400 species of birds have been recorded from the area. The understory community includes roughly 40 species that are terrestrial or restrict their activity to the first 2-3 meters of the



White-plumed Antbird

understory. This includes a wide variety of antbirds and leaf-tossers.

The single most common bird captured in mist nets in this area is the White-plumed Antbird. This bird is an obligate army-ant follower. Because it is subordinate to other ant-following bird species, it must keep track of a number of army ant swarms in order to find enough insect prey that is stirred up by raiding ant groups.

About 56 species use the understory and the midstory, including manakins, woodcreepers, and the world's largest array of flycatchers. Manakins are fruit-eaters; they use the sunnier areas of the forest including borders with cattle pasture in their search for ripe fruits. Woodcreepers make a living climbing up tree trunks much like woodpeckers. Tyrannid flycatchers dominate the "little brown bird" spot in Amazon bird identification.

Over 100 species of birds occur in the canopy, including an array of blue, green, orange and yellow tanagers and honeycreepers. We almost never captured these

species, but it makes for an exciting moment when they are. Toucans and macaws fly overhead oblivious to our mist nets below.

A typical day mist netting in the Amazon would find myself, a Brazilian intern and a local field assistant waking up at 4:30 am. We would make coffee before heading off on a hike to the site of the day. Mist nets were opened by 6 am and we were usually kept moving most of the day taking birds out of nets, banding and recording data. Rain always added an extra bonus to the day. Birds had to be taken out of the nets and kept dry in order to prevent them from getting "cold". Luckily it only rained every other day or so.

Potential predators were often a problem. The number of hawks, snakes, tarantulas, and army ants is daunting; enough to clean out a net left unattended too long. Taking a meter-long snake out of a mist net is an experience everyone should have! If we had an army-ant swarm go through our area, or a mixed species flock, we could capture up to 40 birds in a few hours. Our record was 84 birds in a day, and on this particular day there were only two of us working! Nets were closed at 2 pm, the last birds processed and the nets taken down.

We would arrive back at camp around 4 pm, very tired and hungry! Needless to say, I would welcome the sight of my hammock for an early bed, in time to get up and do it again the next day.

~ Cheryl Strong  
Lead Biologist  
Birds of the Baylands Program

White-crowned Manakin



PHOTO BY CHERYL STRONG

## Interview with Cheryl Strong

We'd like to take this opportunity to introduce one of our new staff members, Cheryl Strong. Currently, she is keeping herself very busy conducting a study of contaminants found in tern colonies as well as carrying out waterbird nesting surveys in her role as Birds of the Baylands



Program Director. The surveys have been an 'up close and personal experience,' which can be intense, but also enjoyable. "I just love being covered with baby bird poop and toxic bay mud!" she summed up for us.

Cheryl completed her Master's Degree from Southeastern Louisiana University in Biology. Her graduate study looked at the wintering habitat and diet of the Hermit Thrush. She also conducted postgraduate research in the Amazon Basin near the Brazilian city of Manaus. Specifically, she studied the effects of forest fragmentation on understory rainforest birds in the area. Please see the accompanying article that Cheryl wrote on her experience. She did her undergraduate work at the University of California Santa Barbara in Ecology and Evolution.

Originally, from the thriving metropolis of Porterville, CA, Cheryl has adjusted nicely to all the bustling activity going on in Alviso! She currently resides in San Jose. When asked what her favorite activity is, she responded "gull and tern colony walkthroughs!"

It seems that Cheryl has conducted quite a few of those recently and may be shell-shocked a bit. She was only able to give this answer repeatedly. When not attempting to cross breaches in levees in order to trudge through colonial waterbird colonies, she enjoys yoga, hiking, gardening, and salsa dancing. She can also often be found at Vahl's Restaurant in Alviso on Friday afternoons reflecting on the week's work and enjoying "Beer Friday," as she has dubbed it.

She was recently married to her husband David last August. He works as a wetland restoration specialist at a local environmental consulting firm. They met in graduate school and enjoy whitewater rafting in unstable canoes and hanging out at "power tool drag racing" events together. Cheryl is a vegetarian and has a particular aversion to "ironed hotdogs!" You'll have to ask her about this...

We finished up with the three questions that have quickly become traditional in SFBBO interviews:

- **Favorite Bird:** Locally, it's the Black Skimmer, which is establishing new breeding colonies in the South Bay. From the Amazon, she favors the Guianan Toucanet from the Brazilian Amazon. In general, she's attracted to "birds with big dorky beaks!"
- **Favorite Color:** "Ox Blood Red" (we are not quite sure what shade that is, nor do we want to know how Cheryl settled on that as her favorite color!)
- **How Many Tattoos Do You Have:** Two.

We are very pleased to have Cheryl with us and are excited about the great work she is contributing to the Observatory. Please take the time to say "hello" and get to know our wonderful new staff biologist!

~ Bryan Dias  
Outreach Coordinator

**DIRECTOR'S CORNER***Continued from page 1*

things, Bair is a proving grounds of restoration lessons for the greater bay, a primer on the complexity of land issues, of hydrology and exotic plants, of re-creating and maintaining wildlife habitat in an urban environment.

As we clambered out of the boat onto an old pier at the mouth of Corkscrew Slough, a small cloud of wintering sandpipers flew up ahead, searching for higher ground. The high tides lapped over the mudflats of Bair's surrounding tidal sloughs: Steinberger, Corkscrew, Smith and Redwood Creek. The birds won't find rest or forage to the north in the dense development of Redwood Shores, nor to south at the Port. The birds are seeking refuge. SFBBO is proud to be part of the effort to recreate that at Bair Island.

~ *Janet T. Hanson*  
Executive Director

**STAFF CHANGES****ANNA CLARKE**

has gone back into academia at Humboldt State.

Welcome to **CHERYL STRONG**

*Lead Biologist,  
Birds of Baylands Program.*

Welcome to **BRYAN DIAS**

*Outreach Coordinator.*

**MAIL PREFERENCE**

From time to time, SFBBO makes its mailing list available to other non-profit organizations for a single use. If you would prefer that your name not be shared, please drop us a note at [admin@sfbbo.org](mailto:admin@sfbbo.org). Thank you!

**CORRECTION**

On the cover of our last issue of *The Stilt*, the birder with the Leica Scope should have been identified as Brian Williams, not Dennis Cavallo. Our apologies to both.

~*The Editor*

**HAPPENINGS AT COYOTE CREEK FIELD STATION**

The springtime bird banding operations at Coyote Creek Field Station (CCFS) were "business as usual." Throughout the year, banding operations occur every Wednesday, Saturday, and Sunday. In April, for example, we captured 301 birds of 28 species in 12 banding days, and 19 of our highly trained volunteers logged 210 hours at the field station.

April was an exciting month for us at CCFS because migrants were moving through, while our local and summer breeders are settling in. Our first Swainson's Thrush of the year, a migrant who travels through the area only in the fall and spring, was captured on April 24th. In 2000 and 2001, this thrush was captured for the first time on April 23rd and April 28th. You can almost set your calendar to when this species will appear! We were also enthusiastic to capture other migrants making a short stop here on their journey northwards. These birds included Wilson's Warbler, Nashville Warbler, and Western Flycatcher.

Migrant birds that have stopped at CCFS for the summer include Bullock's Orioles and Brown-headed Cowbirds. The Orioles are happily singing away, while the Brown-headed Cowbirds are searching for other birds' nests. The Cowbird is unique in that they don't build a nest and raise their own young; instead they lay their eggs in other birds' nests and let those birds do the work for them! Cowbirds can lay about 40 eggs per season; however, only about 3%, or 2.4 chicks per female parent, survive to adulthood. If you have ever tried finding bird nests on a regular basis you will know that the Cowbird must be very clever bird indeed to find enough nests to lay all those eggs.

Year round resident birds that we have seen in breeding condition (i.e. with characteristics that show they are mating or incubating eggs) include Song Sparrow, Common Yellowthroat, Bushtit, Chestnut-backed Chickadee, Northern Mockingbird, House Finch, and Downy Woodpecker. One of the highlights was a male Downy Woodpecker in breeding condition, with both male and female breeding character-

istics! That may seem strange, but male Downy Woodpeckers assist the female in incubating the eggs - and therefore develop a "brood patch," an area of the breast where the feathers are dropped and the skin becomes highly vascularized in order to keep the eggs warm. In most songbirds only the females develop brood patches, but in some birds such as woodpeckers, and certain species of vireos and flycatchers, males will develop a partial brood patch. Our Downy friend also had a greatly enlarged cloaca, indicating a storage of sperm. He also had a red hind crown patch, giving us the final clue that we had a male bird.

For those of you interested in coming out and experiencing some of the excitement at CCFS, we are starting up a fledgling education program. Visitors are welcome to visit for a banding demonstration field trip. Call Sherry or Bryan at SFBBO to set a date (408-946-6548), and please give us at least two weeks advance notice.

Here's what one mom had to say: "THANK YOU! THANK YOU! We all had a spectacularly wonderful time today! It was so much fun. I can't believe that the kids lasted 2.5 hours... I am really quite surprised by how much they liked it and how long they could stay with it... Thank you again!"

Although most of us work or volunteer at CCFS to carry out biological research and greatly enjoy our interactions with the birds, we also like to share our experiences and the results of our research with the general public. For those members who have signed an access agreement, we welcome you to bird in the area anytime... but please respect the banders and the work we do if you come on a banding day.

We are looking forward to the summer season, when many young birds will start to fly around. Summer is a time for us to practice identifying birds by song, and to try our hand at identifying butterflies and dragonflies. We will keep you posted on any new CCFS developments.

~*Sherry Hudson*  
Lead Landbird Biologist

# Our thanks to these supporters of the Observatory...

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We thank the following for their membership support during January, February and March 2002:

Peter H. Allen, John Arnold, Charles Bacon and Cynthia Dusel-Bacon, Robert G. Ball, Liz and Bob Bathgate, Louis Beaudet, Laurie Bechtler, Douglas and Maren Bell, Ann Bender, Peg Bernucci, Laura Black, Robert and Marion Blau, Tom and Marian Vanden Bosch, William Bousman, Geoff and Shelley Brosseau, Bob and Irene Brown, David Burnham, Michael Burns, Patricia Busk, William P. Byrnes, Eugenia and Peter Caldwell, Roy Cameron, Art C. Carey, Floyd Carley, Richard and Pat Carlson, Roy B. Carlson, Mary Elizabeth Casanova, Richard Casserley, Donald and Catherine Cassidy, Doug and Gail Cheeseman, Bill and Jean Clark, Luke W. Cole, Rita Colwell, Robin and Steve Dakin, Jay Davis, Carol Dienger, Christine Doyle, Alan Eisner, Gerry Ellis, Lorrie and Ron Emery, Arthur Feinstein and Ruth S Vose, Arleen Feng, Leslie Flint, Edward M. Fryer, Don Ganton, Harriet Gerson, Ira Greenberg, Hugh and Rosita Harvey, Grace Hattori, Walter and Katharine Hays, Judy and Bill Hein, Jan Z. Hintermeister, Von Hintermeister, Delia Hitz, Louise Hudson, Chris I. Illes, Deborah Jamison, David Johnston, Ted and Christy Koundakjian, Edwin F. Laak, Carl and Shirley Larson, Peter and Sue LaTourrette, Rosalie Lefkowitz, Robin Leong, Donald W. Lewis, Lillian Fujii, William

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## CONTRIBUTIONS

We thank the following individuals for their contributions to SFBBO for the months of January through March 2002.

Ronald Barklow and Viola Saima-Barklow, Irene A. Beardsley, George Bing, Andrew Chiu, Luke W. Cole, Linda Elkind, Gerry Ellis, Harriet Gerson, Dolores Hansen, Jay and Janet Hanson, Jan Z. Hintermeister, Robert B. Hole, Barry and Virginia Langdon-Lassagne, Randy and Janet Little, Jean Myers, George and Marti Oetzel, Marjorie Ottenberg, Ed and Kathleen Pandolfino, David Rice, Mike Rigney, Cindy Roessler, Michael Rogers, Robin W. Smith, Frances Toldi, Wallace and Sylvia Tsang, Benush Venugopal, Bill Walker and Mary Wisnewski, Bob and Carol Yutzy

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Chris Illes - computer.

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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.

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# TERNS AND SALT PONDS AROUND THE SOUTH BAY

Terns and SFBBO are old friends. We have been following their trials and tribulations in the south bay since our early days of waterbird monitoring. In 1981, our first season of waterbird monitoring, we found 2,500 pairs of Forster's terns at six nesting sites. Historical records tell us though, that neither Forster's nor Caspian Terns nested here in appreciable numbers until the appearance of salt ponds in the bay.

The earliest records of Forster's terns breeding in the south bay go back to 1948, with 110 nests at the east end of the San Mateo Bridge. In 1971 there were 1200 breeding pairs at south bay colony sites. Last season we found 1,117 nests at 8 sites. The numbers and nesting site locations fluctuate from year to year, as our 20-year data set demonstrates all too well, but one consistent pattern does prevail. Both Forster's and Caspian Terns nesting in the south bay have a fondness for salt pond sites. All but two of the Forster's Tern colonies in 2001 were in salt ponds. The exceptions were the colony in the Charleston tidal basin, and the Belmont colony situated in a diked, seasonal pond.

Forster's Terns that nest here arrive in mid April and start laying eggs in late May to early June. By mid June, colonies are teeming with noisy, hungry chicks. Caspian Terns follow a similar calendar, but nest at only two sites in the south bay, both in salt ponds.

On south bay salt pond sites, both Forster's and Caspian Terns show a decided preference for small spoil islands and degraded insular levees as prime nesting real estate. Robin Dakin's nest site preference studies in 1997 at three of our regularly monitored Forster's Tern sites in salt ponds sorted out their specific neighborhood preferences as well. They are social nesters, preferring 5 to 12 neighbors nesting nearby. They are partial to vegetated sites over unvegetated sites, and alkali heath over pickleweed when given a choice of vegetation. On unvegetated sites, hummocky terrain is preferable to even terrain.



*A recently hatched Forster's tern, still with wet down, awaits the arrival of its two siblings from their eggs.*

PHOTO BY BRYAN DIAS

So the typical tern nesting site, as many of you who annually help with the tern census already know, can be described in general as a damp, smelly, lumpy pile of clay in the middle of a salt pond. There has been no shortage of such sites in the south bay salt ponds in recent years as there is no shortage of south bay salt ponds.

Two hundred years ago, when the Ohlone Indians were sole custodians of the bay, there were 200,000 acres of pristine tidal marshes. By 1988, less than 10% of those historical salt marshes remain. In 1860 salt production began in the bay and the 1930s gave over nearly half of the south bay's tidal marshes over to salt production. The terns moved in, and have nicely adapted to what has become the most abundant wetland habitat in the south bay.

Then came also the opportunity to purchase 16,000 acres of south bay salt ponds, and with it the sweeping dreams of restoration of these ponds to wetlands once again.

What does this have to do with terns? A quick look at a map of the recently active nesting sites in the south bay answers the question and at the same time poses a dilemma for restoration planners. All but two of the sites on the map are on sites in ponds that are slated to remain in salt production.

Restoration of salt ponds to salt marsh will obviously potentially impact the present breeding populations of both tern species in the bay. How we proceed with restoration plans will depend in part, on where terns nest now in the south bay, where they have nested in the past, and how much of that habitat must be preserved to maintain adequate breeding populations in the bay. Salt ponds have been a part of the bay's landscape now for over 140 years. In that time many bird species have successfully adapted to salt ponds as breeding, foraging and roosting habitat. Hopefully some of the data that we have collected in the last 20 years will be put to good use when it comes time to decide what to do with 16,000 acres of salt evaporation ponds.

~ Sue Macias  
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