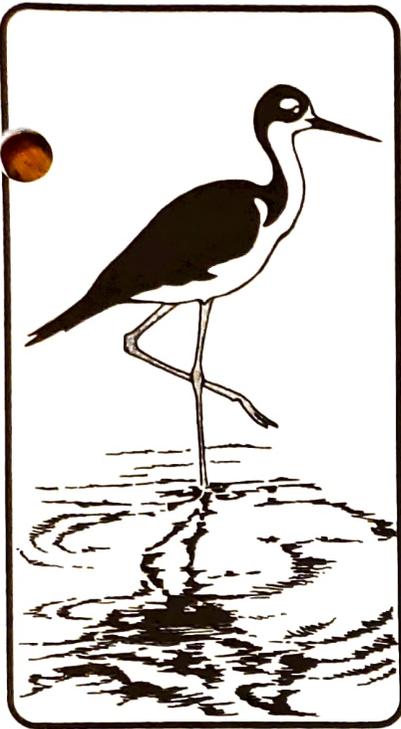


# The Stilt

Vol. 12 No. 2

Summer 1993



Drawing by Vicki R. Jennings

## A Different Type of Wetland In the South Bay

by Valerie Layne

Diked pickleweed marshes teeming with birdlife in the winter and spring months are a familiar sight to many Bay Area residents. However, another type of seasonal wetland occurs in the South Bay that has eluded all but the most diligent observers. Those who look hard enough are rewarded during springtime with a brilliant display of color suitable for an artist's palette: yellow carpets of goldfields interrupted by multicolored splashes of bright blue *Downingia* and white popcorn flower. More subtle shadings of pink and white may be seen on the paintbrush owl's clover tucked away in the grasses. These are the trappings of vernal pools, otherwise known as hogwallows.

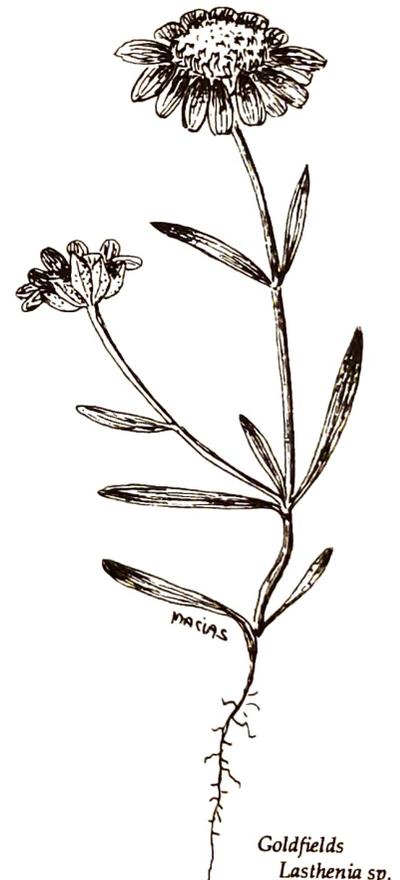
Vernal pools form in shallow depressions of variable size (from less than 1 m<sup>2</sup> to over 60 ha) that fill with water during winter rains. Water accumulates below the soil surface and above a layer of hardpan or other impermeable substance (such as volcanic rock) in a "seasonally perched water table." Water is prevented from percolating underground thereby leaving evaporation the only means of escape.

The depressions in which vernal pools form commonly occur between small hillocks known as "mima mounds" which are typically populated with grassland species. How mima mounds were formed is largely unknown and a subject of great debate. Theories abound describing the shrinking and swelling of clays; ground surface subsidence; differential weathering of the soil surface; and loss of structure leading to collapse basins. One of the theories given most credence at present is the "pocket gopher hypothesis": In areas with shallow soil that is saturated with water part of the year, high points are more desirable habitat for tunneling rodents such as pocket gophers. As the pocket gophers excavate their burrows, they push the soil toward these high points making them higher, consequently making the low points lower. Over time this, or a combination of the above processes, may account for the mounded topography around which vernal pools form.

### DISTRIBUTION

Temporary wetlands similar to vernal pools occur in areas with a Mediterranean climate, where cool wet winters are followed by warm dry summers. South

Africa, Australia, the Mediterranean region and temperate South America all sport their own versions of seasonal wetlands, but those known as vernal pools are found in the California Floristic Province (i.e., all non-desert area west of the Sierra Nevada and Cascade ranges from Southern Oregon to Baja California).



### In this issue

Vernal Pools

Annual Meeting & Picnic

SFBBO/Wildlife Rescue Raffle

San Francisco Bay  
Bird Observatory  
P.O. Box 247  
Alviso, CA 95002  
(408) 946-6548

Continued on Page 2

Vernal pools are little known and no distribution map is complete. Most of the known vernal pools in California are found in alluvial valleys like the Great Central Valley, coastal terraces of Southern California, and volcanic mudflows in Tehama and Riverside Counties. In the South Bay, vernal pools have been found in the grassland near the fringes of the saltmarsh (or historic saltmarsh that has since been developed or used for agriculture). In February of 1992, a 255 acre parcel of vernal pool/grassland habitat in Fremont was purchased by the United States Fish and Wildlife Service for inclusion in the San Francisco Bay National Wildlife Refuge.

### BIOLOGY

Most of the year vernal pools don't look like anything special, but the closer one looks, the more there is to see. Small green rosettes of the *Callitriche* or starwort float on the water's surface accompanied by gooey green marble-sized balls of *Nostoc* filaments - a nitrogen-fixing blue green alga. Beneath the surface swim fairy shrimp, a freshwater counterpart to the familiar brine shrimp that inhabit salt ponds around the bay. On the bottom of the pool scoot tadpole shrimp resembling miniature horseshoe crabs. These organisms depend on the ephemeral nature of vernal pools in order to complete their life histories. They have adapted to a habitat that is inundated with water during winter and spring, and completely desiccated the rest of the year. Many of the plants germinate with the first winter rains, grow while the pool is full of water, then flower and set seed as the water evaporates, forming concentric rings of showy blossoms around the margins of the shrinking pool.

The invertebrates have also evolved unique adaptations to their temporary habitat. Both the fairy and tadpole shrimps "overwinter" as eggs during the dry period, hatching as the pool fills with rainwater. Fairy shrimp hatch out early in the season presumably avoiding predation by the later appearing aquatic insects. Swimming upside-down they feed on algae, bacteria and small protozoans. Tadpole shrimp swim along the bottom of the pool, preying on the fairy shrimp and other invertebrates; as the pool dries, their lifeless carapaces crunch like last years leaves.

Larger, more mobile organisms such as

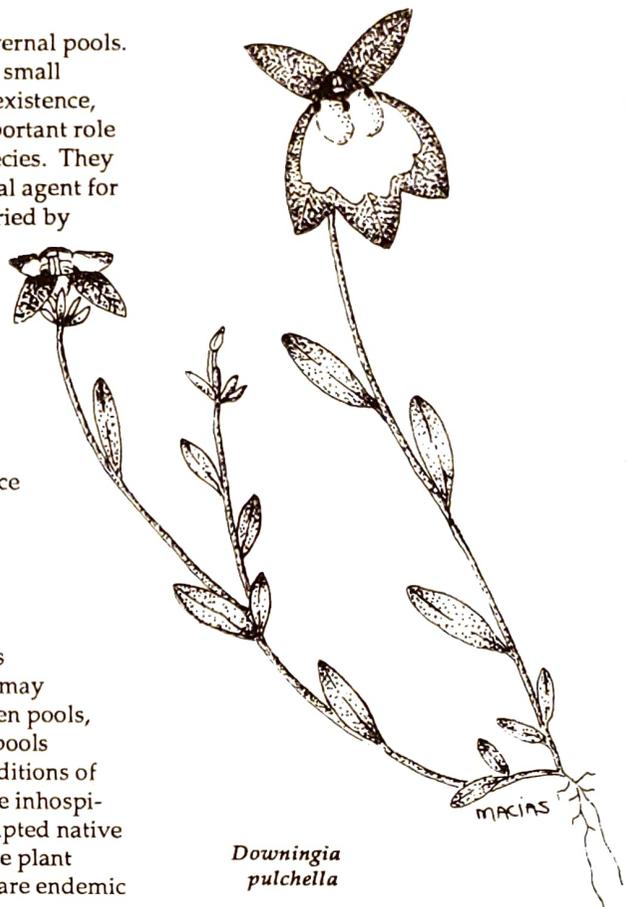
birds are common visitors to vernal pools. While not dependent on these small temporary wetlands for their existence, birds may have played an important role in the distribution of plant species. They are probably the main dispersal agent for propagules too large to be carried by wind. The same or similar species of plants found growing in temporary pools in California and temperate South America (and nowhere in between - a phenomenon known as "amphitropical disjunction") is probably due to long distance migrants sowing seeds.

Vegetation, by far the most conspicuous component of vernal pools, has received the most attention. Exotic species such as wild oats and foxtails may inhabit grassland areas between pools, but they are not found in the pools themselves. The stringent conditions of inundation and desiccation are inhospitable to all but specifically adapted native species. In fact over 40% of the plant species found in vernal pools are endemic (i.e., not found anywhere else).

### CONSERVATION

Vernal pool habitat has declined significantly with increasing urbanization. It is estimated the less than 10% of the historical vernal pools remain in the Central Valley. The primary threat to vernal pool preservation is development, which is currently regulated by the United States Army Corps of Engineers. Under the present regulations, wetlands that are smaller than one acre may be filled without notifying the Army Corps, and the filling of wetlands that are between one acre and 10 acres may not even require public notice.

The increasingly disjunct distribution of vernal pools compounds preservation difficulties and has led to significant loss of habitat for endemic species. Five species of invertebrates (four of fairy shrimp and one of tadpole shrimp) are candidates for listing as endangered species, as are three species of plants. Two plant species, the Loch Lomond coyote thistle and the San Diego mesa mint, have already been granted endangered status. Mitigation for loss of habitat has been attempted, but never proven successful. These efforts have been directed toward preserving plants,



*Downingia pulchella*

and have not yet addressed the invertebrate species.

The characteristics that make vernal pools special also make them one of the most endangered ecosystems in California. Their small size and ephemeral nature ensure that vernal pools go unnoticed for part of the year. Because no two pools are alike, their increasing fragmentation leads to loss of unique habitat, perhaps even entire species. Greater public awareness is needed to preserve these islands in the California landscape.

### WHERE TO FIND VERNAL POOLS IN THE SOUTH BAY

The best time to visit vernal pools is in the late spring (May - June) depending on the amount of rainfall during the previous winter. There are two vernal pool sites in the South Bay that are readily accessible, yet both may be destroyed by development soon. One is in Fremont (off of Paseo Padre Parkway) near the San Francisco Bay National Wildlife Refuge headquarters. Last spring this area was disced and is the future home of yet another light-industrial complex. The second pool is in Alviso on the east side of Disk Drive (off of Nortech Parkway). The Disk Drive pool has played host to some uncommon spring migrants (i.e.,

Ruff and Lesser Golden Plover) as well as a spectacular display of *Downingia pulchella* in late spring. This site has been disturbed by agricultural activities and is slated to become the new youth center for a local church.

#### REFERENCES

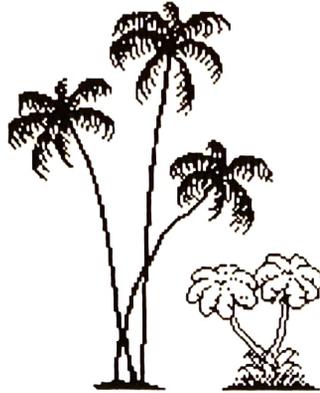
Cox, G. W. 1984. *The distribution and origin of mima mound grasslands in San Diego County, California*. Ecology 65(5):1397-1405.

Holland, R. & S. Jain. 1988. *Vernal pools*. pp. 515-533 in: Barbour, M. & J. Major. *Terrestrial Vegetation of California*. California Native Plant Society Special Publ. #9.

Nagano, C.D. 1992. *Proposal to determine endangered status for four fairy shrimp and the vernal pool tadpole shrimp in California*. Federal Register 57(90):19856-19862.

Stone, D.R. 1990. *California's endemic vernal pool plants: some factors influencing their rarity and endangerment*. pp. 89-107 in: Ikeda, D.H. & R.A. Schlising. *Vernal Pool Plants: their Habitat and Biology*. Studies from the Herbarium CSU Chico Publ. #8.

Zedler, P.H. 1987. *The ecology of southern California vernal pools: a community profile*. U.S. Fish Wildl. Serv. Biol. Rep. 85(7.11) 136 pp.



# HAWAII

WIN THE GRAND PRIZE IN THE 1993 DONATION DRAWING TO BENEFIT SAN FRANCISCO BAY BIRD OBSERVATORY AND WILDLIFE RESCUE AND YOU AND A FRIEND WILL SPEND ONE WEEK ON THE BEACHES OF THE BEAUTIFUL ISLAND OF MAUI

### Grand Prize

A one-week fun in the sun vacation for two in Maui, Hawaii  
Suntrips package includes airfare, lodging and car with unlimited mileage

And 25 other exciting prizes - all tickets eligible for Grand Prize

#### *Promotional package from Suntrips includes:*

*Round-trip airfare for two from San Francisco*

*Rental car with unlimited mileage*

*Seven nights in one-bedroom ocean view accommodations at the Sugar Beach Resort in Kihei*

The 1993 raffle drawing will be September 11, 1993 at 2:00 P.M. at Foothill Park, Palo Alto, during the Wildlife Rescue Volunteer Appreciation picnic. Included in this year's prizes are hang gliding lessons, a white water rafting trip, a discovery flight of the bay area, a night on the beautiful Mendocino Coast, and many more.

This year SFBBO will have a members only presentation and drawing at the SFBBO Annual Meeting, September 25 (see picnic details). The person who sells the most tickets will be presented with an original photo by Tom Roundtree. Also, for each book of tickets you sell or buy, you will be entered in the "Old Bird Book Drawing."

Let's get busy and sell those tickets!!! If you need more tickets, please call Pat Carlson, 408-946-6548.

## Contributions

We are very grateful to the following for their generous donations:

Strong Foundation, San Francisco.

Mike Mammoser

# From the President's Desk

by Ginny Becchine

Well here I go again updating you on the status of the Board of Directors and staff. There is nothing new to report on the current status of the Board, but election time is coming and three positions will be open. **Susie Formenti, Dick Carlson** and I are all at the end of our terms. Hold on, Dick just joined the board, how can his term be over? To refresh your memory Dick filled in for a board member who resigned and that term is over this fall. So Dick who just joined us is already done.

Perhaps I should spend a little time reviewing how it all works. According to our by-laws, the board consists of nine Directors elected from among the membership of SFBBO for staggered three-year terms. The by-laws also stipulate that no director can serve more than two consecutive three-year terms. The President of the Board, with the consent of the Board, appoints a nominating committee. This committee consists of 1-2 members of the Board and 1-2 members of SFBBO at large. An alternate way to nominate a candidate is for at least 20 members of the organization to sign a petition and present that petition to the Secretary of the Board for verification. Elections are held in September.

The by-laws also state that if a Director has filled a position that was vacated by resignation then at the end of that term the person can serve two consecutive three-year terms if elected. Therefore, Dick Carlson can run again in 1993 and in 1996. Dick has accepted the nomination for one of the 1993-1996 Board seats. Susie Formenti, however, is at the end of her two consecutive terms and therefore cannot run again. I'm at the end of my first three year term and have accepted a nomination for the 1993-1996 term.

The nomination committee is seeking additional members for the upcoming September election. If you know of someone who you think would be a good candidate, first ask them if they would be interested, then turn their name over to the nomination committee. To do that just call the office at (408) 946-6548 and the name will be forwarded to the committee.

Before you nominate someone perhaps you would like to know what a Board does. Here is a generic list to give you some idea. (*Ten Basic Responsibilities of Nonprofit Boards*, by Richard Ingram)

1. Determine the organization's mission and purpose
2. Selective the executive director
3. Support the executive director and review his or her performance
4. Ensure effective organizational planning
5. Ensure adequate resources
6. See that resources are managed effectively
7. Determine and monitor the organization's programs and services
8. Enhance the organization's public image
9. Serve as a court of appeal
10. Assess its own performance

As you can see one of the jobs of the Board is to hire the Executive Director and that is my cue to talk about staffing changes at SFBBO. **Dianne Kopec** who has done an outstanding job as our Executive Director is leaving us. The Board knew when we hired Dianne that it was to be a short relationship. Last summer, we wanted someone who knew the organization and could pick up immediately. Dianne was our staff biologist at that time and accepted the Executive Director's position. It has been my pleasure to work with Dianne during this past year and I will miss our dinners together. The Board wishes Dianne all the best and would like to thank her for the hard work and dedication she has given the Bird Observatory this past year.

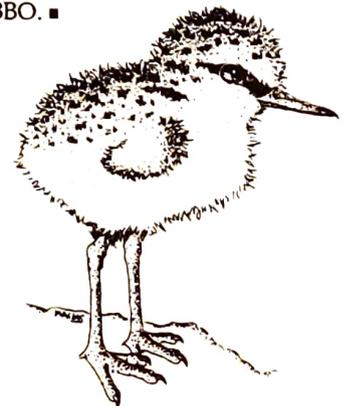
Though we are sad to see Dianne leave we are very excited about our two new Directors. That's right TWO! This is the wave of the future, job sharing and

SFBBO is at the forefront. The Board is very excited about our new co-leaders and I would like to introduce you to them. For now we can say we have an Administrative Director, **Pat Carlson** and a Research Director, **Janet T. Hanson**.

Janet T. Hanson served on the board of directors from 1989-1992. During her time on the board Janet was an active volunteer in our studies and organized our very successful 1992 Western Field Ornithologists Conference. Last year she left the Board to become our part-time biologist. Janet received her B.S. in Zoology from the University of California, Davis and her M.S. in Biology from California State University, Northridge. Janet has varied experiences; she has been a teaching assistant, a laboratory assistant, a veterinary assistant, a researcher, and an aviculturist. The board congratulates Janet on her promotion.

Pat Carlson was working for State Senator Becky Morgan when the job at SFBBO opened up. It is our good fortune that Pat had been thinking of working in something "closer to home." Pat's B.S. is in Biology and her M.S. is in Microbiology. Pat has been a high school biology teacher, a graduate teaching assistant, a laboratory director and an office manager/research assistant. During a recent hiatus from Becky Morgan's office, Pat was the Associate Director of the Marine Science Institute in Redwood City. Welcome aboard Pat.

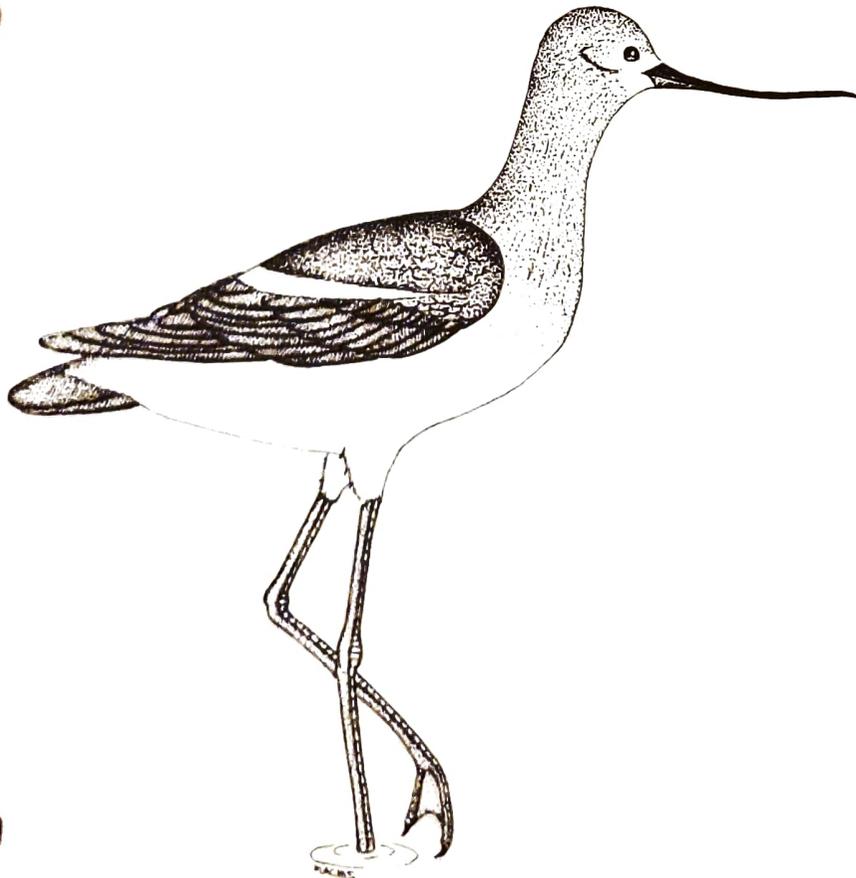
The board is extremely pleased to have hired both of these highly qualified women. We are looking forward to a long and successful relationship with our two new leaders and a bright future for SFBBO. ■



## PICNIC

Join us at SFBBO for our Annual Meeting and Fall Picnic. This yearly event is held in honor of our great volunteers and to say a fond farewell to Dianne Kopec, Executive Director. In addition, this will be an opportunity to meet our new directors; Janet Hanson, Research Director and Pat Carlson, Administrative Director.

- Date: September 25, 1993
- Time: 4:00 PM Visit our office, bird on our levee, social hour  
 5:00 PM Enjoy the food  
 6:00 PM Presentation and drawing of membership Raffle awards  
 6:30 PM Annual meeting and election of Board Members
- Place: SFBBO Headquarters in Alviso
- Food: SFBBO will supply the wine, soft drinks, hamburgers, hot-dogs, condiments, utensils and grills. Please bring either a salad or dessert to share.



## Wish List

### Shorebird Study

A total of \$500 in donations are needed to restart the Shorebird Study in the south bay! The San Francisco Bay Estuary Project funded the study for the first half of 1993 and on August 18, 1993 the SFBBO Board of Directors voted to continue the Surveys through the fall. With the fall data on shorebird migration we will have one complete years worth of information. Of course we will have to find a grant to process the data and write the report, but we will not have lost an opportunity to collect the data. If you participated or would like to participate this fall give our office a call at 408-946-6548.

Our field biologist could use a 2 drawer file cabinet if you have one you are not using.

Also, to stop the fly population from migrating into our office, we could use a donation to purchase a few screens for our windows.

A fourth request: We desperately need field guides (Peterson or National Geographic) — used or new would be appreciated.

### Volunteers Needed

Here is your chance to explore Mallard Slough in our Yukon. The SFBBO Yukon makes a weekly trip into the slough to monitor avian botulism. To accomplish this goal we need bird identification experts (or novices or anything in-between), bird catchers (to net the sick birds) and bird recorders to record the birds we identify. Each trip takes 4-5 hours at high tide. On a recent trip we sighted two pair of Little Blue Herons, a Least Bittern, a fabulous Snowy Egret rookery and we even rescued a Dowitcher suffering from a broken wing. If you would like to help, please call Valerie Layne, SFBBO field biologist at 408-946-6548.

# San Francisco Bay Bird Observatory

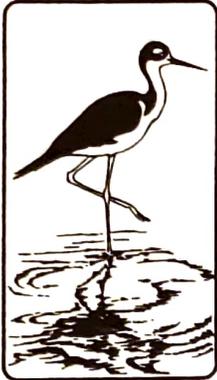
P.O. Box 247, Alviso, CA 95002 (408) 946-6548

Non Profit Organization

U.S. POSTAGE PAID

ALVISO, CA.

PERMIT #9



## Board of Directors

Ginny Becchine - *President*  
Tom Espersen - *Vic-President*  
Terry Hart - *Secretary*  
Richard Carlson - *Treasurer*  
Susie Formenti - *Editor*  
Dr. Howard Cogswell  
Jan Dierks  
Paul Jones  
Lou Young

## Administrative Director

Pat Carlson

## Research Director

Janet T. Hanson

## Staff Biologist

Valerie Layne

## Researchers

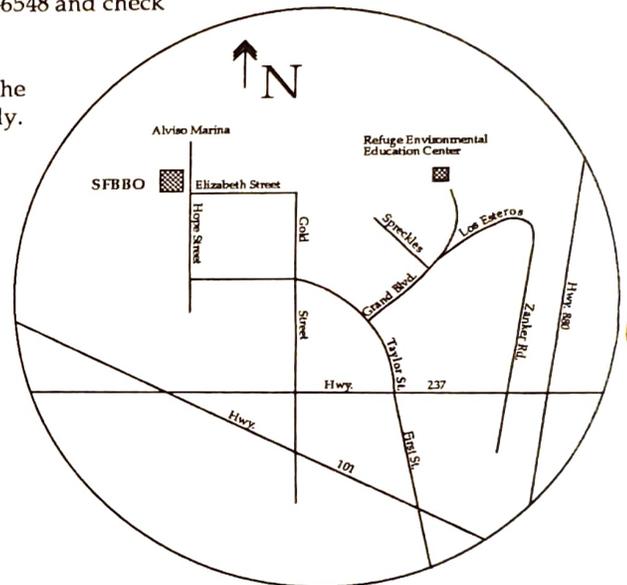
Jan Dierks  
Peg Woodin

The Bird Observatory is located at 1290 Hope St. in Alviso. The office is open weekdays and some weekends, but specific hours vary with our field schedule. Before stopping in, call (408) 946-6548 and check when we will be available.

The Board meetings are open to the membership and are held monthly. Call the Observatory office for dates and times.

The newsletter is a quarterly publication. Send contributions to the editor: Susie Formenti, 16675 Buckskin Ct., Morgan Hill, CA., 95037. Call 408-779-8694 for deadline dates.

The San Francisco Bay Bird Observatory is a non-profit corporation under IRS statute 501(c) 3. All memberships and contributions are tax deductible.



**We invite your membership in the San Francisco Bay Bird Observatory. To join, please complete and mail this form with payment to SFBBO, P.O. Box 247, Alviso, CA 95002. Make checks payable to SFBBO.**

Membership categories: check one

- ( ) Student/Senior \$10    ( ) Associate \$50    ( ) Corporate \$500+  
( ) Regular \$15    ( ) Contributing \$100    ( ) Life Member \$400 \*  
( ) Family \$20    ( ) Sustaining \$200    ( ) Patron \$2,000 \*

\* Single payment becomes part of an endowment fund.

( ) Donation: SFBBO greatly appreciates your tax-deductible donation.

Name \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_ Phone \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_