



“bird bio”
p. 8

PRBO's Policy
Program, p. 4

Observer

▼ *Birds as indicators
of ecosystem health*

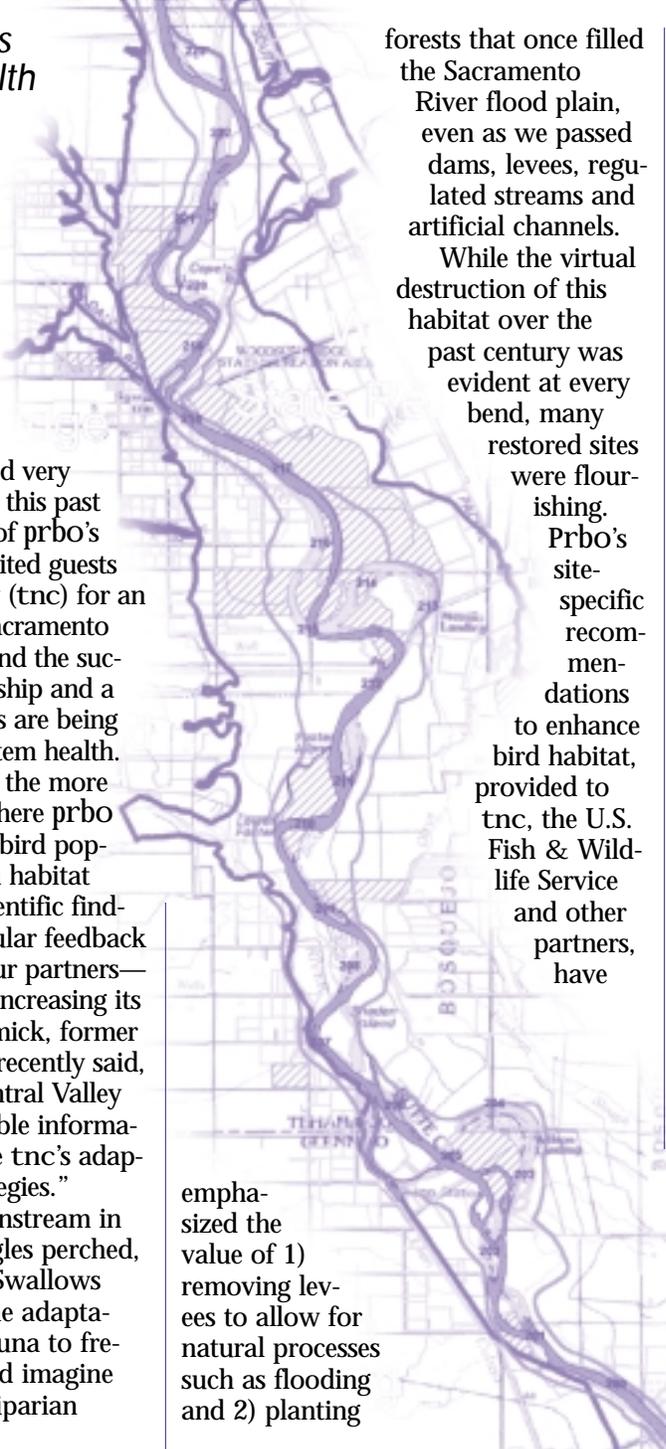
Setting PRBO's Course

Ellie M. Cohen

On one very hot and very wonderful weekend this past June, the members of prbo's Board of Directors were invited guests of The Nature Conservancy (tnc) for an overnight field trip to the Sacramento River. We witnessed first-hand the success of our growing partnership and a stellar example of how birds are being used as indicators of ecosystem health.

We visited a handful of the more than 400 California sites where prbo biologists monitor riparian bird populations and collect data on habitat features. Based on these scientific findings, prbo is providing regular feedback and recommendations to our partners—improving restoration and increasing its effectiveness. Steve McCormick, former Executive Director of tnc, recently said, “Prbo's research in the Central Valley provides absolutely invaluable information that continues to shape tnc's adaptive land management strategies.”

As we meandered downstream in drift boats, where Bald Eagles perched, salmon jumped and Bank Swallows flitted about, I pondered the adaptations of native flora and fauna to frequent river flooding. I could imagine the thousands of acres of riparian



forests that once filled the Sacramento River flood plain, even as we passed dams, levees, regulated streams and artificial channels.

While the virtual destruction of this habitat over the past century was evident at every bend, many restored sites were flourishing. Prbo's site-specific recommendations to enhance bird habitat, provided to tnc, the U.S. Fish & Wildlife Service and other partners, have

emphasized the value of 1) removing levees to allow for natural processes such as flooding and 2) planting

multiple native herbaceous, shrub and tree species to create structural diversity. Our partners continue to implement prbo's science-based recommendations with resounding success—more birds breeding successfully, more species of birds breeding (increased diversity) and more birds present (greater abundance).

This is just one example of how prbo is now positioned to enact effective on-the-ground (and by-the-sea!) conservation at an unprecedented scale for all major habitats in California as well as other western states. Our goal is to ensure that bird conservation science is an integral part of habitat management throughout the West, laying the foundation for healthy ecosystems and stable, diverse bird populations.

Shore and ocean realms

In a related project, prbo is actively engaged in the U.S. Shorebird Conservation Plan, a collaborative effort of researchers, land managers and educators to advance the conservation of North American shorebirds. Prbo senior scientists are involved at the national and regional levels, including serving on the U.S. Shorebird Planning Council, the body whose job it will be to implement the Plan nationally. Prbo is also responsible for producing the regional habitat management plan for the Southern Pacific region, an area including the 1,067-mile long California coastline and the 40-mile-wide by 400-mile-long Central Valley of California.

The first draft of this plan, recently completed, draws largely on prbo's extensive research plus input from more than 50 ornithol-

continued on page 2

All of us at PRBO are excited about the enormous opportunities that lie before us to enhance bird and ecosystem conservation!

ogists and wildlife managers. It provides comprehensive information on shorebirds found in the region, identifies threats as well as conservation, research, monitoring and educational priorities, and concludes with specific implementation steps.

One of our priority regions is San Francisco Bay Estuary, a site of hemispheric importance that supports hundreds of thousands of migrating and resident shorebirds as well as other birds and wildlife. Because the issues affecting wildlife in the Bay ecosystem are so complex and so vital, prbo has launched a cross-programmatic San Francisco Bay Habitat Project, discussed on page 5 of this *Observer*.

In the Marine Sciences Division, prbo is taking the lead in developing a first-ever Adaptive Conservation Plan (acp) for the California Current marine ecosystem, focusing on a suite of 18 seabirds. Our goal is to use seabirds as bio-indicators of the marine ecosystem and to provide key scientific data for selecting potential Marine Protected Areas. We are also in the earliest stages of developing what we are tentatively calling the California Current Joint Venture that would bring together public and private interests in this rich marine environment.

Strategic planning

In order to meet the ever-increasing demand for prbo's expertise, we have developed a long-term strategic plan, with expert help from the Stanford Alumni Consulting Team (act). Prbo was honored to receive our second pro-bono consultation from act this past year, for which we are extremely grateful. Highlights of our new plan center on this major guiding strategy for prbo: to ensure

that every organizational activity, project, policy and communication be aligned clearly and directly with prbo's two fundamental elements, *bird conservation science* and *outreach*. "Outreach" is defined as activities that bring prbo's research results into the conservation action arena: working with habitat managers, other scientists and policymakers; publishing in peer-reviewed journals and presenting papers; and conducting related educational activities for the public.



Ellie Cohen

Geographic Information Systems, page 3, and Conservation Policy, page 4.)

With our growth, we are in dire need of expanded facilities. We are most thankful to Audubon Canyon Ranch for providing our headquarters over the past 28 years.

What once housed a handful of staff and interns is now bursting at the seams. In cooperation with the Point Reyes National Seashore (which provides an ongoing cooperative agreement for our Palomarin Field Station site) we are currently exploring options to expand our "campus" with two nearby buildings situated on park lands.

All of us at prbo are excited about the enormous opportunities that lie before us to enhance bird and ecosystem conservation! After 18 months at the helm of this highly-accomplished organization, I thank all of you—our members and partners—for helping to ensure prbo's progress.

Like that awe-inspiring float down the Sacramento River, witnessing impressive ripari-



PRBO and TNC inspect habitat on the Sacramento River banks.

We have begun to implement the dozens of recommendations for how prbo can best accomplish our goals over the next five years. These include bringing more top-quality scientists into the prbo family, expanding our partnerships, enhancing our computer capabilities, and developing a communications program.

Prbo is in a growth phase, and we are strengthening both administrative and programmatic staffing to meet the challenges that lie ahead. (See the articles in this *Observer* on

an restoration first-hand, I have the honor of sitting directly midstream, witnessing prbo's gradual but unmistakable transformation from traditional bird observatory to world-class conservation science center. Thanks to your generous and continued support, prbo will advance our efforts to conserve birds and their ecosystems through innovative scientific research and outreach. Together we really *are* making a difference!



Ellie Cohen is PRBO's Executive Director.

Gis has quickly become part of almost every prbo project.

▼ Geographic Information Systems

Mapping: the Next Generation

Grant Ballard

Much of what we do at prbo is in response to changes to major habitats covering large expanses of the planet—riparian, oak woodland, the California Current, the Pacific Flyway. Much of the challenge in our projects has been in deciding *where* to work so that research efforts are most effective.

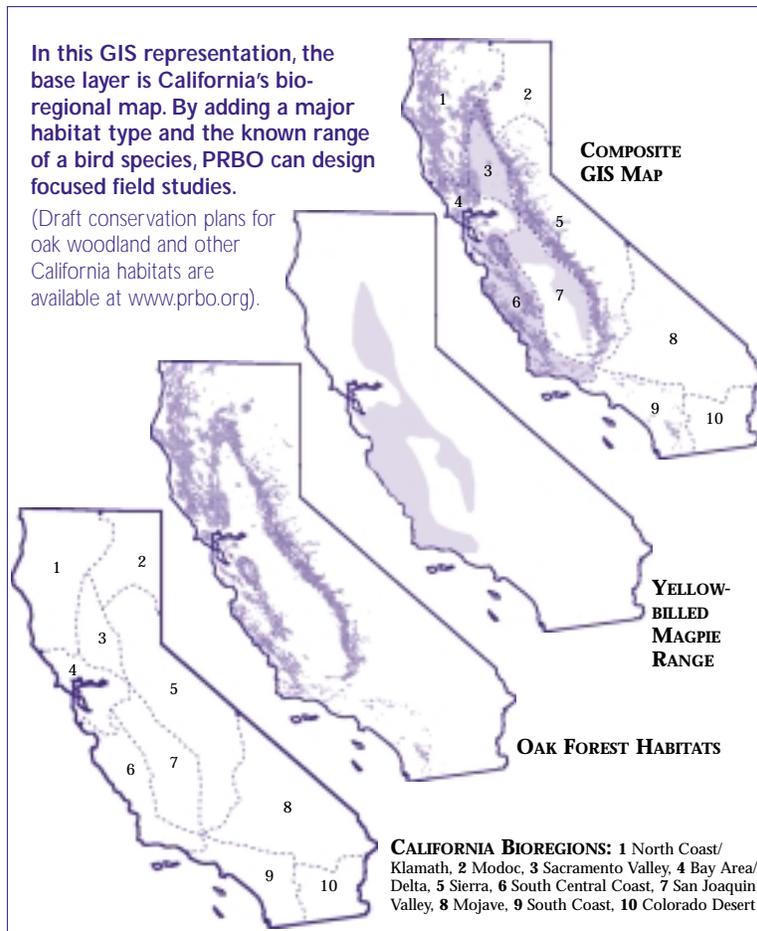
Maps have always been a big part of what we do. Geographic Information Systems (gis) represent the evolution of maps in conjunction with more powerful computers. The need for landscape-scale ecological perspectives, which gis provides, has helped drive this evolution.

Gis enables us to layer different types of maps from different sources, often beginning with topographic maps as the base. We add available information layers that we think are relevant: vegetation data interpreted from aerial or satellite photography, indices of urban expansion, climate information, soil type and so on. Prbo's biological data from bird monitoring studies frost the cake. The resulting multi-dimensional picture allows us to examine large areas for patterns in species' distribution or abundance. If historic data are available, gis can calculate changes in habitat or bird species distribution over time.

Gis also ushers in the relatively new field of spatial statistics and modeling. These scientific tools enable us to predict changes that are likely to occur when habitat is altered. For example, if we know the scale and configuration of habitat change, we can use gis to predict differences in bird species composition and other responses.

In this GIS representation, the base layer is California's bio-regional map. By adding a major habitat type and the known range of a bird species, PRBO can design focused field studies.

(Draft conservation plans for oak woodland and other California habitats are available at www.prbo.org).



Gis has quickly become part of almost every prbo project. Source data from a long list of collaborators enable us to design research on a larger scale than ever before. For example, when we wanted to survey the remaining large patches of riparian habitat for all of California, we asked the state's Department Fish and Game to provide vegetation maps and maps showing land ownership. We overlaid all the known bird study areas (ours and other researchers'), then downloaded the coordinates of patches not yet surveyed to Global Positioning Systems (gps) units. Prbo biologists could then simply follow their gps to riparian habitat patches on public lands and conduct bird surveys. This process revealed new patterns in distribution for several riparian bird species, which helped prioritize current management action and future study.

Our habitat conservation plans all have a gis component, often identifying which areas of California lack adequate current information. This, in turn, drives study design for the next generation of fieldwork.

Prbo is now entering a new phase in the application of gis. Diana Stralberg has joined our staff in a new position, Gis Specialist (see page 8), thanks to funding from the Gabilan Foundation. As part of the San Francisco Bay Habitat Project, Diana will be working on gis on two spatial scales. The first is region-wide, spanning the entire San Francisco Estuary (see page 5 for an example). We are also embarking on development of a very fine-scale gis for each of six marshes in the San Francisco

Estuary (two each in Suisun Bay, San Pablo Bay and South San Francisco Bay). For this effort, we are gathering high quality, digitized aerial photos and combining them with our on-the-ground data regarding bird distribution and abundance, vegetation characteristics and marsh features. To our knowledge, this is the first such project in the Bay Area to develop fine-scale gis for multiple sites. Previous efforts have examined only single sites and have not included detailed vegetation information. The results will be extremely useful in evaluating critical habitats remaining on the Bay Estuary and helping guide future restoration efforts.



Grant Ballard is a staff biologist in PRBO's Terrestrial Research Program. Population Ecologist **Nadav Nur, PhD**, Director of our Population Ecology Program, also contributed to this story.

Communication based on science can make a world of difference.

▼ Translating science into conservation action

PRBO's Policy Program

Gregg Elliott

On a recent tour of Asia, I was intrigued by a breaking "conservation policy" story in the Thai newspapers. About 800 farmers were about to stage a hunger strike in Bangkok because the Thai cabinet had rejected the recommendations of a government-appointed science panel. The government refused to open the sluice gates of Pak Moon dam to allow fish to spawn upstream and to cleanse downstream farmland of salts that had built up in the soil in the absence of regular flooding. "This looks like a monumental failure of communication," I thought.

Conservation policy is all about communication. Policy analysis has been defined as "speaking truth to power." Prbo's Conservation Policy programs are all about getting the "truth" of our scientific data into the hands of those with the "power" to decide what happens in our parks, beaches, oceans, open space and the diverse ecosystems of the West.

Policies concerning conservation of natural resources are best developed using all pertinent information, particu-

larly the best scientific data. Since we are constantly adding to our scientific knowledge of the planet, policies must regularly be updated in an adaptive fashion to remain effective in our rapidly changing world. Prbo's Conservation Policy program is essentially an outreach effort to build and maintain partnerships that ensure that our conservation science is used by government resource managers, private landowners, fisheries, habitat restorationists and the public.

How this can succeed is exemplified in the story below. Over the past several years, the Marin Resource Conservation District (rkd) and the local office of the Natural Resources Conservation Service (nracs) have begun an impressive program of work with local ranchers to restore creeks of the Tomales Bay watershed. Prbo saw an opportunity to share our knowledge about the needs of birds in riparian habitat, and we approached these two



Gregg Elliott (above, in Thailand) investigated conservation issues in other countries while on leave of absence from PRBO.

organizations with an idea for collaborating. A year later, prbo's Habitat Conservationist, supported in part by the rkd, is working closely with local ranchers and restorationists in assessing past projects and providing input to new restoration plans. We hope to use this program as a model for statewide collaboration with the nracs.

Locally, regionally and on a broad geographic scale, regular communication based on science can make a world of difference!



Gregg Elliott is PRBO's Conservation Policy Analyst.

Restored Riparian by Viola Toniolo

At 6:30 AM, the fog is still thick on the tops of Marin's rolling hills. As I descend toward Walker Creek's riverbed, the cacophony of rising sound begins to loosen into individual songs. Song Sparrows, Black-headed Grosbeaks, Wilson's Warblers, Swainson's Thrushes, Warbling Vireos and Western Woodpeckers are among the numerous birds inhabiting this lush riparian forest, and in mid-May they are busy finding mates, building their nests and rearing the first young of the season. As I step into the cold rushing waters of the creek to begin a bird monitoring session, I am greeted by lush beauty: thick stands of mugwort and young willow saplings flash their green-silver leaves in the breeze, while tall alders, willows, big-leaf maples and box elders flank the creek on both banks. A thick understory of plants, which provides crucial protection to the nests of most migratory songbirds, stretches to the fences on either side of the creek.

This section of Walker Creek, located in one of Marin's numerous private ranches, has been fenced off to cattle and replanted with native vegetation as part of the Marin Resource Conservation



District's (RCD) county-wide riparian habitat restoration work. With birds as excellent indicators of ecosystem health, monitoring bird populations on sites such as this one will help assess the health of the riparian forest, evaluate the effectiveness of our projects and shape future restoration efforts. During the 2000 breeding season, I recorded over 40 species of birds on just five pieces of property, evidence of the invaluable contribution private landowners can make to conservation. By replanting native vegetation along their creeks and ponds, private landowners can create riparian habitat corridors that connect fragmented populations to one another.

PRBO and the Marin RCD are actively working to assist more private landowners with riparian restoration projects along Marin's creeks and streams. All projects will follow the recommendations of the Riparian Bird Conservation Plan, developed by California Partners in Flight and the Riparian Habitat Joint Venture with the leadership of PRBO.

For more information or to receive a copy of the RCD's newsletter, contact Viola Toniolo at (415) 868-0655 or viola@prbo.org.

Viola Toniolo (pictured above), is PRBO's Habitat Conservationist.

How will the alteration of one habitat type to another influence bird populations?

▼ PRBO's new cross-programmatic work on San Francisco Bay

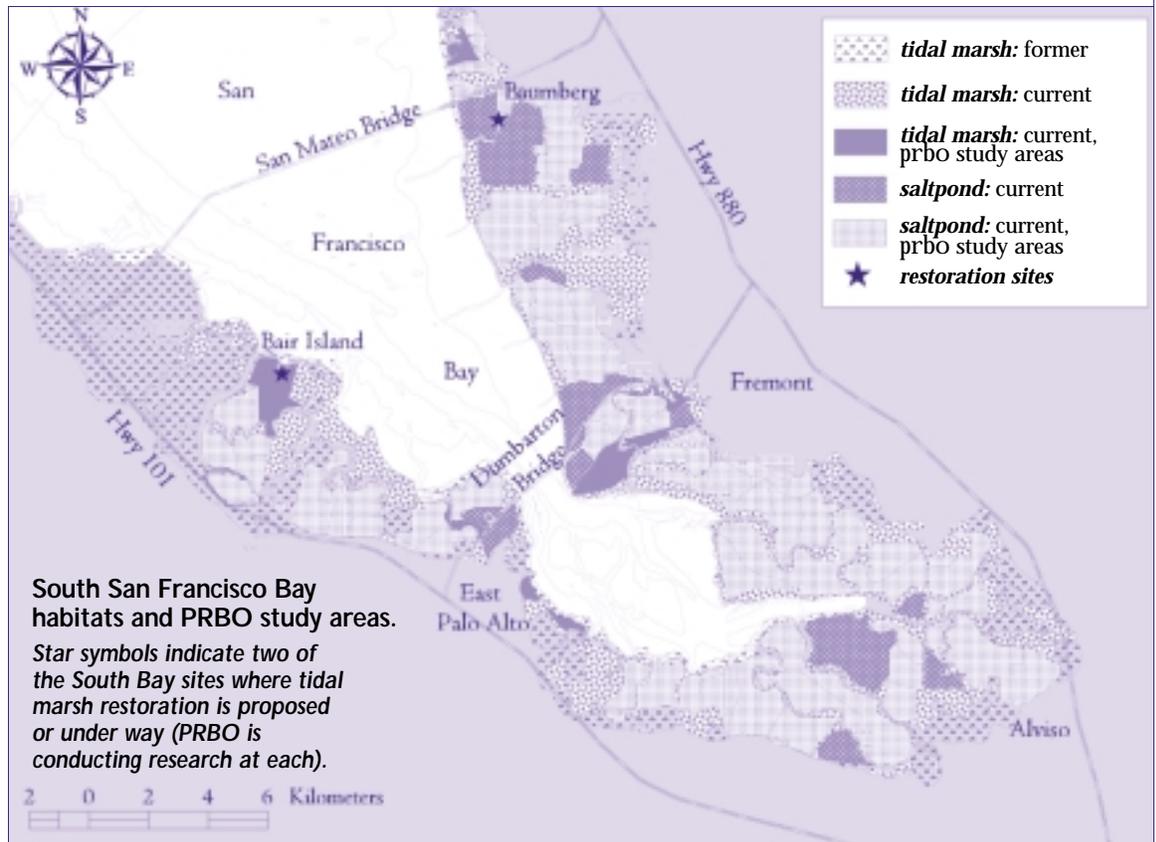
Habitat Balancing Act

Nils Warnock, PhD

San Francisco Bay currently is the focus of a cross-program initiative involving the Wetlands, Terrestrial, Marine and Population Ecology programs of prbo. Our new San Francisco Bay Habitat Project aims to better understand the complex relationship of the many bird species and myriad habitats within the Bay ecosystem. San Francisco Bay habitat is in constant flux, mainly due to human manipulations—one reason we feel it is crucial to have an integrated view of how birds use the Bay Estuary.

An example of this concerns the Bay shoreline. From 1800 to 2000, tidal flats decreased by 40%, tidal marsh by 79% and riparian zones by over 80%. During this same period, salt pond habitat increased from a few thousand acres of naturally occurring pans and ponds to over 30,000 acres of commercial salt ponds; much of this expansion was at the expense of tidal marshes.

Currently, salt ponds have great habitat value to birds. Through our Pacific Flyway Project, prbo was able to document that millions of waterbirds use San Francisco Bay salt ponds as breeding, wintering and migratory stopover sites. However, in recent years, there has been a movement to restore salt ponds to some of the habitats lost, especially tidal marshes where some of our most endangered species live (Clapper Rail, saltmarsh harvest mouse and others). At present, a great deal of restoration work is going on in the Bay, and there is the potential for much more—especially as mitigation, if airport runways are expanded and new bridges built across the Bay.



This is where scientific perspective is essential. One concern is that an unplanned conversion of salt pond habitat to tidal marsh habitat might have unanticipated negative effects on certain species. At prbo, we are interested in being able to predict how the alteration of one habitat type to another will influence bird populations.

We have initiated research to address this concern, in cooperation with the U.S. Geological Survey and the San Francisco Bay Bird Observatory and with generous support from the Gabilan Foundation. To look at the use of salt ponds and surrounding habitats by individual shorebird species, we are conducting a series of radiotelemetry studies; we previously worked on Western Sandpipers and Black-necked Stilts and next will focus on dowitchers and American Avocets. We are also conducting studies comparing waterbird densities, microhabitat use and behavior in salt ponds and

tidal marshes on low and high tides. In spring 2001, we will survey breeding shorebirds in San Francisco Bay, targeting American Avocets and Black-necked Stilts and the habitats they use.

This act of trying to balance the conservation of one habitat with the conservation of another goes beyond the issue of salt ponds and tidal marsh. Prbo's San Francisco Bay Habitat Project seeks a better understanding of what San Francisco Bay provides to bird populations. The project includes studies of tidal marsh songbirds and Alcatraz Island seabird colonies (both discussed in *Observer 121*, Summer 2000). Through a series of studies, we aim to provide the scientific basis for making informed decisions about changing San Francisco Bay in ways that have beneficial consequences for all bird populations.



Nils Warnock is Co-Director of PRBO's Wetlands Studies Program.

Information is what PRBO has to offer... through our "window to the world."

▼ *Palomarin Visitor's Center*

Designs for Education



Visitors to Palomarin Field Station study exhibits (at left) and meet PRBO biologist Maureen Flannery outside the Banding Lab (below).

In 1999, we began an exciting project to improve the Visitor's Center (see *Observer* 118, Fall 1999). Now, a year later we are well on our way to seeing the project to completion. The improvements, which will include an interactive computer learning center, updated displays focusing on all aspects of prbo's bird and habitat conservation projects, a membership and merchandise display, scientific improvements to the Banding Lab, and the addition of an interpretive deck for

speaking to school and community groups, are scheduled to be completed by September 2001.

To design the new exhibits in the Visitor's Center and Banding Lab, we have hired Edutracks and the Sibbett Group and are very excited about working with them. Their past work includes designing two visitor centers for the U.S. Forest Service in southeastern Alaska and, more locally, exhibits for the San Francisco Maritime Museum and the Bay Area Discovery Museum.

Fundraising for this project has been extremely successful, and we would like to thank all our contributors. To date \$130,000 has been pledged, \$90,000 of which has already come in. Our total budget is now estimated to be \$180,000. Your donations are still welcome! We look forward to welcoming prbo members and the public at an all new and improved Palomarin Visitor's Center. 

Melissa Pitkin is PRBO's Education Coordinator. For more information about Palomarin Visitor's Center, contact Melissa at (415) 868-1221 ext. 33 or mpitkin@prbo.org.

Melissa Pitkin

We are today in the middle of the information age, and information is what prbo has to offer. Years and years of data collection by countless field biologists have been synthesized into recommendations to guide conservation decisions. This information is prbo's greatest asset, but its value is appreciated only when communicated to ecosystem managers, scientists, policy makers and the general public. Our Visitor's Center at Palomarin Field Station is one of prbo's many tools to disseminate this information. This is why our current effort to upgrade our "window to the world" is so important.



photos by Aaron Holmes

Sandy Imlay Remembered

PRBO was saddened to learn of the death of a former member of our Board of Directors, Alexander (Sandy) Imlay, on September 7, 2000.

Sandy Imlay accomplished a great deal in his 80 years, including holding office as mayor of Sausalito, California. He was an attorney who formed a partnership with the late Peter Behr, a California state senator renowned for his contributions to the environment.

Mr. Imlay also was a dedicated environmentalist who loved sailing on San Francisco Bay and once said that going into the wilderness, which he often did, was "like going to church."

Says prbo Board member Tot Heffelfinger, "Over a period of 40 years, I was associated with Sandy—sometimes as law partner, sometimes as board member, always as a trusted friend. In each role I could rely on his good judgment and loyalty." Sandy Imlay will be missed. 

Mr. Imlay's estate has directed that memorial contributions may be made to PRBO.

Farallon Patrol Log

Thanks as always to the expert skippers of prbo's volunteer Farallon Patrol for providing the nautical connection with our field station on Southeast Farallon Island.

Aug 12	John Wade	<i>Starbuck</i>
Aug 19	Rick Boyce	<i>Paloma</i>
Sept 2	John Gratton & Linda Hill	<i>Nakia</i>
Sept 9	Mick Meningoz	<i>New Superfish</i>
Sept 16	Burt McChesney	<i>La Storia</i>
Sept 30	Tom Charron & Seth Bailey	<i>Mi Vida</i>
Oct 7	Al DiVittorio	<i>Solbritt</i>
Oct 14	John Gratton	<i>Nakia</i>

F O C U S

Christmas Bird



Count

55

Rich Stallcup

It's ten after four on the morning of December 16, 2000, and we are crouched on a deer trail beneath a towering forest of Douglas fir. It is cold, and a rainy mist envelops the weeds, dampening our enthusiasm. Except for the anxious drumming of a dusky-footed woodrat, all is silent.

We hoot.

Normal citizens are snuggled all warm in their beds. Gee whiz, they don't know what they're missing. We are birders, strong and true—volunteer participants in the 101st annual Audubon Christmas Bird Count (cbc) near Point Reyes.

The only answer we hear is a distant Holstein.

CBC evolution

The cbc was begun on Christmas Day 1900 as an alternative and protest to what was known as the Side Hunt. Side Hunt rules were simple: groups of highly armed humans would gather at selected places, divide into teams and spend the day killing as much wildlife (mostly birds) as possible. The team with the biggest pile won.

Some citizens became concerned about this mindless slaughter, and Frank M. Chapman of the fledgling National Audubon Society urged members to begin a more sensible "side count"—the cbc—where players would track down as many birds as possible but would count, not kill them. Results would be published in the Society's journal, *Bird Lore*.

Chapman and the early counters could not possibly have known the hemispheric conservation implications the cbc would eventually produce. It is the longest continuous wildlife survey undertaken ever, anywhere!

On 25 December 1900, 27 counters on 25 cbc's logged about 18,500 birds of 90 species. Count localities were mostly in or near cities in the northeastern United States and extended to Toronto, Louisiana and

California (at Pacific Grove).

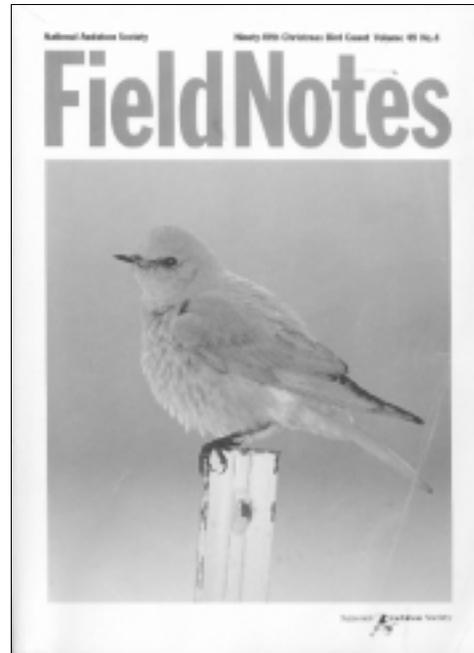
Year by year, the notion and practice of the cbc grew, and now, 100 years after that first noble start, over 50,000 volunteers participate in over 1700 well organized counts in all 50 states, all Canadian provinces, places in Latin America including the Caribbean, and some Pacific islands.

The resulting mammoth on-line database contains enormous information on bird abundance, reflecting changes in the natural environment throughout the 20th century. It tracked the decline of several species such as Trumpeter Swan, Peregrine Falcon and Bald Eagle, providing evidence for them to be listed for protection under the Endangered Species Act (esa). Years later, cbc data helped show their populations' recovery, leading to delisting these magnificent animals—proof that the esa works.

Rules of the game

Through time, as the number of counts and counters has grown, rules have been amended. Today, a cbc area is a circle 15 miles in diameter (about 177 square miles in area). In places where coverage can be thorough—some cbc's have more than 200 counters—the circle is broken into areas and areas assigned to teams. Each team aims to be thorough and also find exciting species. While there is no written rule addressing the question, "poaching" birds in another team's area is an absolute no-no.

Beginning this cbc season, the count period will always be 14 December through 5 January (instead of varying dates). This will ensure consistency and



Annual CBC results are published by National Audubon Society.

often include an extra weekend.

At day's end, at a compilation dinner, birders can tell stories about their adventures, and lists are tallied. Results are summarized by National Audubon in a special publication. This hefty annual volume is available for \$10 from: Christmas Bird Census Subscriptions, National Audubon

Society, Box 689, Lahaska, PA 18931.

Meanwhile, back in the pre-dawn fir forest: *Who, who, who, who, hooooo*. A male Spotted Owl blows from the blackness just above our heads. His mate answers from up the canyon. "Spotted Owl, two." We scurry back to the bike trail that will lead us to the truck and ever onward to the next bird.

Call your local Audubon chapter and ask how you can volunteer to help on a Christmas Bird Count. Rain or shine, it's a great day in the field-of-wonder with like-minded friends. It's also a fine contribution to our knowledge of birds that can influence conservation management decisions.



Rich Stallcup is PRBO's Naturalist in our Education Program.

My Season with Penguins—An Antarctic Journal, by PRBO Research Associate Sophie Webb, is now available in bookstores. Intended for people 10 years of age and older, this informative book is illustrated with delightful watercolor paintings. (Houghton-Mifflin, \$15)

Bird-A-Thon 2000 is on track to surpass last year's record of nearly \$100,000.

▼ PRBO staff

Migrations

Welcome!

Joining prbo's science staff in a new position, gis (Geographic Information Systems) Specialist, is Diana Stralberg. Her help incorporating bird and habitat data into computer-generated maps and related analyses (see story on page 3 of this issue) will expand prbo's research capabilities.



Diana Stralberg

Diana most recently worked with Placer Legacy, a county-wide open space conservation program in the Sierra foothills. Using gis, she created and managed a comprehensive resource inventory. For her masters degree in Conservation Biology from the University of Michigan, she studied breeding birds in the human-altered coastal chaparral of Southern California.

Diana says, "I'm delighted to be working with prbo, whose research quality and rigor I've long admired." We are equally delighted to have her here: welcome!

Academic Journeys

Several prbo biologists have relocated this year to pursue advanced degrees in various fields. Mike Lynes has begun law school in San Francisco, specializing in environmental law. To work on doctoral degrees, both Stacy Small and Jennifer White are attending

University of Missouri, and Julie Thayer is enrolled at U.C. Davis. Jennifer Roth has begun her masters program at Humboldt State College in Arcata, California. Prbo is proud of these individuals and wishes them all the best. Those engaged in biological sciences will continue their prbo projects as part of their thesis research, rejoining us in the field this coming spring.

PRBO's Bird-A-Thon 2000 is on track to surpass last year's record of nearly \$100,000 raised. Thank you for participating as a Counter or Sponsor. Find a full report in your next *Observer*.

Did You Know...

Most netting and bird banding are useful tools for determining the survivorship (how long a bird lives) of many bird species. In 1983, survivorship records for all bird species caught in North America were published in *Journal of Field Ornithology*. Prbo "held the record" for many of the species listed. Below is a sampling of longest-living birds from prbo's data, taken from the 1983 records and some more recent data:

<i>Ash-throated Flycatcher</i>	5 yrs, 9 mos
<i>Violet-green Swallow</i>	9 yrs, 2 mos
<i>Steller's Jay</i>	11 yrs, 0 mos
<i>Chestnut-backed Chickadee</i> ..	7 yrs, 9 mos
<i>Bushtit</i>	8 yrs, 5 mos
<i>Winter Wren</i>	4 yrs, 1 mo
<i>Swainson's Thrush</i>	10 yrs, 1 mo
<i>Warbling Vireo</i>	13 yrs, 1 mo
<i>Wilson's Warbler</i>	7 yrs, 5 mos
<i>Fox Sparrow</i>	9 yrs, 8 mos

Prepared by **Melissa Pitkin**, PRBO's Education Coordinator. For more information, call (415) 868-1221, extension 33, or e-mail mpitkin@prbo.org.

bird bio

WRENTIT (*Chamaea fasciata*)

Characteristics: Wren-like, 14-15 centimeters long, olive-brown upperparts, paler reddish-brown underparts.

Distribution: Resident (non-migratory) and sedentary (remains within 400 meters of territory). Found only on the west coast of North America—limited to the south by the deserts of Baja California, to the north by the Columbia River and inland by the Sierra Nevada and Cascade mountain ranges (except for a few pairs found recently in the Owen's Valley).

Habitat: Dense shrubby habitats—prefers coastal sage scrub and montane chaparral, avoids eucalyptus and broom fields. The Wrentit is a PRBO study species at Palomarin Field Station.

Feeding: Gleans insects, spiders, caterpillars and seeds from bark and twigs, occasionally flycatches small moths and butterflies from flowers, rarely feeds on the ground.

Song: Described as resembling a dropping ping pong ball: males—*pit-pit-pit-pit-pit-tr-r-r-r-r*; female song similar without the *tr-r-r-r-r*.

Lifespan: Average three years. Longest age recorded, 12 years (two individuals from the Palomarin Field Station).

Behavior Notes: Generally hops and walks through shrubs with short flights. Monogamous. Both males and females build the nest. Parents build a cobweb frame, occasionally collecting that material with their tails. They strip bark from California sage, poison oak and coyote bush to build the nest cup. Both males and females take turns incubating the eggs and feeding young, and both develop a brood patch (an area without feathers to help keep eggs warm).



Give a meaningful gift that protects the Earth!

▼ For birds, other wildlife and their natural habitats

A Gift that Can Make a Difference

Giving a Gift of Stock

Did you know that if you own shares of highly appreciated stock you can donate them to prbo and be exempt from paying capital gains tax on the shares you donate? When you donate stock to prbo, our non-profit 501(c)3 status ensures we will not have to pay capital gains tax, and it also provides you with a tax deduction equivalent to the full value of the shares on the day you make your donation. If you would like to make a stock donation, follow these easy steps:

1. Inform prbo by contacting Matt Leffert or Maria Kaymen (call 415-868-1221, ext. 10 for Matt or ext. 20 for Maria). You may also send us the details by fax at 415-868-1946 or by e-mail to mleffert@prbo.org. Please be sure to let us know:

- a) the name of the stock and the number of shares;
- b) which broker you are transferring it to; and
- c) when the transfer is expected to take place.

2. Contact your broker and ask them to transfer your stock to one of prbo's brokers listed below. Our tax i.d. number is: 94-159-4250. The account name is: Point Reyes Bird Observatory.

Morgan Stanley Dean Witter
 P O Box 48888
 San Rafael, CA 94912-8888
 Attn: Robert Gallagher
 415-444-1200
 Account #: 131-069-405-014
 DTC# 0015

Charles Schwab
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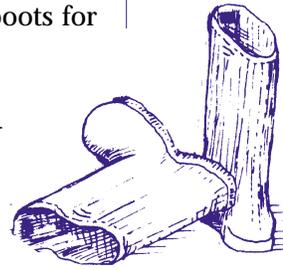
All transfers completed by December 31, 2000 are tax-deductible this calendar year. If you have any questions, please do not hesitate to call.

Thank you for considering a gift of stock to prbo this holiday season!

Holiday Wish List

Can you give a gift to prbo in this season of generosity? Your donation in one of the following amounts could help prbo obtain much-needed supplies for our data collection efforts.

- ◆ \$25—One pair of rubber boots for traipsing through pickleweed marshes.
- ◆ \$50—One mist net for finding out what kinds of song-birds live where.
- ◆ \$100—One tripod for steadying our view of shore-birds on San Francisco Bay.
- ◆ \$250—A season's supply of flipper tags for our elephant seal research.
- ◆ \$500—One pair of binoculars for surveying birds in their nesting habitats.
- ◆ \$1000—One spotting scope for reading color bands on Snowy Plovers.
- ◆ \$2500—One laptop computer for entering data while in the field.
- ◆ \$5000—One satellite tag to help understand white shark behavior.



Great Gift Idea

Stumped on what to buy your brother, neighbor, co-worker or friend who has everything? Why not give a gift membership to prbo this holiday season? Help us build our base of support, and give a meaningful gift that protects the Earth. Just complete the coupon below, and return it in the enclosed envelope. If you would like to give multiple gift memberships, please submit the additional names and addresses on a separate piece of paper and

enclose it along with the coupon. Upon receipt we will send a lovely gift card to your recipient(s) along with our latest *Observer*. It's that easy! For more information, please contact Matt Leffert, Membership Coordinator, at (415) 868-1221, ext. 10.



From now until the end of the year, take advantage of our special offer and get a regular gift membership, normally priced at \$35, for only \$25!

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Findings: scientific questions, methods, results

▼ Probing a migratory species' annual cycle

Warbling Vireo Decline

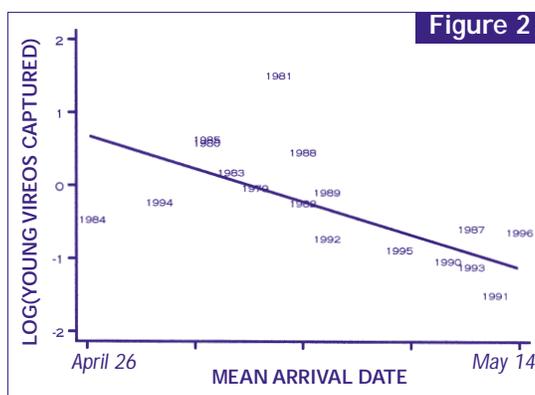
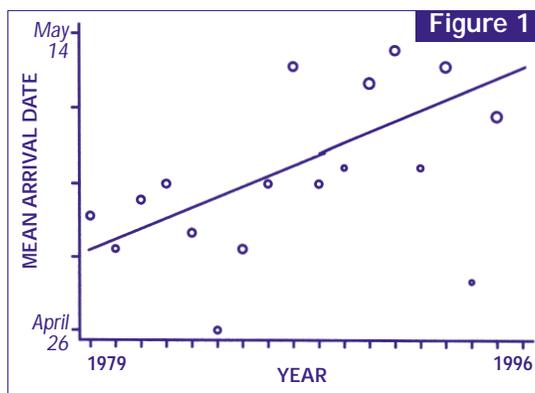


Tom Gardali

Conservation of migratory species requires understanding *all* aspects of their annual cycle (breeding, migration, wintering) and how each phase influences the others. For neotropical migratory birds this is no easy task, as basic knowledge of all phases is lacking, and financial and logistical constraints for studies on the wintering grounds are great. Untangling the interrelatedness of all stages of a migratory species' annual cycle presents a necessary and exciting challenge to conservation biologists.

Nearly 20 years of banding data from prbo's Palomarin Field Station strongly suggest that Warbling Vireos are declining in California. Prbo published these findings in the July 2000 *The Condor* (coauthors Grant Ballard, Nadav Nur and Geoffrey Geupel). We demonstrated that the population decline probably resulted from reduced breeding productivity in North America. This suggests that conservation efforts should focus on improving breeding conditions for Warbling Vireos in order to increase their reproductive output.

While we did not address the specific factors causing poor reproductive performance, prbo and other researchers have shown that Warbling Vireo breeding productivity is sensitive to local fac-



tors such as Brown-headed Cowbird parasitism, nest predator densities and summer weather patterns. Our recent efforts have sought to place these local factors into the bigger context of the annual cycle and thereby better explain the population decline.

Using banding data from Palomarin, we examined another factor—spring arrival date—that influences reproductive success in other migratory species.

Earlier-arriving individuals have more opportunity to replace lost clutches and/or attempt second broods. We began by looking for a trend in spring arrival date at Palomarin and discovered that Warbling Vireos have been arriving later over the course of our study (Figure 1). Next, we wanted to see if there was any relationship between arrival date and productivity and found that we captured fewer young Warbling Vireos in the years where spring arrival averaged later (Figure 2). This means that early arrival has the potential to mitigate nest failure caused by parasitism, weather and predation—and that the trend for later arrival compounds the effects of those factors.

Conservation actions aimed solely at the breeding season may be only partially effective. Spring arrival date, one factor influencing the number of young we captured, most likely results from weather patterns and habitat quality on the wintering quarters and migratory stopover areas. Departure date from the wintering grounds, for example, may be influenced by climate: if winters tend to be drier, vireos may take longer to build the fat reserves necessary for migration. Our results add to the knowledge essential to effectively conserve birds and their habitats.

Tom Gardali is a staff biologist in PRBO's Terrestrial Research Program.

Science Achievements (a sampling) Fall 2000

At a joint conference this year of the American Ornithologists' Union, British Ornithologists' Union and Society of Canadian Ornithologists, Nils Warnock was an author of a paper presented, "Conservation efforts to restore the endangered San Clemente Loggerhead Shrike." Bill Sydeman presented an invited paper "Long-term population studies of seabirds at the Farallon Islands, California," coauthored by Michelle Hester, Peter Pyle and Kyra Mills.

Gary Page organized a coalition of researchers to undertake a fourth comprehensive survey of Snowy

Plovers along the California coast this year. They documented continued declines, with only 976 breeding adults found. At Monterey Bay, however, where prbo works to restore the plover population, 157 chicks fledged this year.

At the first CalFed Science Conference, in October 2000, Stacy Small, Nadav Nur and Geoff Geupel presented an invited bird paper, "Determinants of riparian bird species abundance, diversity and productivity: Comparison of riparian forest and restoration sites in the Central Valley."

At the Western Bird Banding Association meeting in Fairbanks, Alaska in September, Moe Flannery presented her first scientific paper, "Occurrence of incomplete molt in the Wrentit."

Kyra Mills was elected Northern California representative to the Pacific Seabird Group (psg) in February 2000. This fall she completed regional reports for the psg *Bulletin*.

Prbo Terrestrial Program staff biologists have helped complete drafts of California Partners in

Flight Bird Conservation Plans for oak woodland, coastal scrub and chaparral, and grassland habitats. Our many partners include the Wildlife Conservation Society, U.S. Navy and California Department of Fish and Game.

Prbo hosted an international conference in October attended by 90 scientists from 16 different countries. The topic was "State-of-the-art developments for analysis of bird banding and recapture data." Nadav Nur, local organizer, was ably assisted by Missy Wipf, conference coordinator.

Memberships

Our thanks to the following new members who joined prbo from July–September 2000:

Roger Adamson, Nancy Alden, Barbara Anderson, Craig Anderson, Tyler Atkins, Nancy Bain, Mr. & Mrs. Ronald Bell, Benny Bennett, Grant Bennett, Christopher Bettencourt, Constance Blau, Wayne Blunk, David Boucher, Alice Bowen, George Bramson, Mr. & Mrs. Richard Breisch, Carl Brew, Dr. & Mrs. Edgar Brichta, Mr. & Mrs. David Calleri, Kurt Campbell, Lawrance Carlin, Glen Ceiley, Mr. & Mrs. Gregory Clayton, Mr. & Mrs. Monty Cleeves, Mr. & Mrs. Tim Colen, James Collier, Lyann Comrack, John H. Conley, Warren Cooke, Jim Danzenbaker, Dr. John Davis, Pamela De Lencquesaing, Barbara Ditman, Marjorie Dobkin, Frances Dupont, John Eichhorst & Jennifer Blackman, Marianne Feinstein & Dick Glosenger, James Finch, Raymond Fontaine, Michael Frank, Mr. & Mrs. Marco Frascella, Jan Gabrielson, William Galvez, Lynn Gearhart, Andrew Gilcrest, Mr. & Mrs. R. Donald Gill, Gretchen Gillfillan, Arthur Glickman, Dr. Jeff Goddard, Helen Goforth, Mr. & Mrs. John Green, Stanley Grunberg, Mr. & Mrs. Andrew Gunther, Cricket Halsey, Carol Hanson, Mrs. Norma Hasselmann, Merry & David Haveman, Fred Heath, Kristi Hein, David Helzer, Arthur N. Hicks II, Dr. Thomas A. Hildreth, Ella Hirst, Mr. & Mrs. Christopher Holabird, Emile Houle, Jr., Denise Hoy, Steve Huckabone, Keith Hull, Yvonne Israel-Ohare, Karen Jacobsen, Olaf Jahn, Krist Jake, Hermia James, Sarah Jones, Maria Kaymen, Mr. & Mrs. Richard Keene, Mr. & Mrs. Edward F. Kenney, Lurette Kerr, Kathie Kobayashi, Roberta Lagomarsini, Martha Lesser, D.B. Luten, Bruce Macurda, Neal Maine, Jeffrey Marshall, Mr. & Mrs. Thane McIntosh, Mr. & Mrs. Robert Meadows, Steven Melander-Dayton, A. Keene Metzger, Martin Meyers, Marya Miller, David Moody, Richard Morris, Joe Mueller, Elenor Mulkey, Peggy Ogata, Mr. & Mrs. Karl Overby, Sally Peacock, Courtenay Peddle, Gaylan Queirolo, John Rafferty & Francesca Agrusa, Rhio Reigh, Eric Reiner, Theresa Rettinghouse, Celia Reyes, Mr. & Mrs. Adam Rocke, Deren Ross, Dr's. Joseph & Susan Schallberger, Ralph Schardt, Lionel Schour, Judith M. Schultz, Anne Scofield, Stanley E. Senner, D.F. Short & Joy Peterson-Short, Stephen Shunk, Meg Simonds, Al Sinerco, Sherry Smith, Andrew Stoecker, Dr. & Mrs. Barry Stone, Yvonne Tevis, David Thomas, David R. Thompson, Rod Thornton, Barbara Tilmant, Mr. & Mrs. Bob Toth, Judith Uehlein, Erin Ulrich, Mr. & Mrs. J. Duane Vander Pluym, Venetia Ventress, Linnea Von Ahn, Frances von Mertens, Patricia Wagaman, Mr. & Mrs. David M. Ward, Patrice Warren, Karen Wehrman, Tim Weintraut, William Welch, Jr., Stephen White, Douglas Williams, Shawnie Williams, Mr. & Mrs. E. William Wilson, Dr. Frank Witebsky, Jane Witter, Mr. & Mrs. David Yakich, Steve Yu, Zoological Society of Cincinnati, Rosie Zweiback & Mace Hack.

Contributions

We are grateful to the following contributors of gifts of \$250 or more (July–September 2000):

Linda Brownrigg, Pamela A. Cook, Lokelani Devone, Victoria J. Dreitz, George Finger, Mr. & Mrs. William S. Foss, Carlos Garcia, Suzanne Geupel, Fred Grafton, Rhys Green, Dorothy B. Hunt, Anthony Jackson, M.D., Dwight L. Johnson, John L. Jones, David Knight, Mr. & Mrs. Robert Knox, Ewan Macdonald, Dr. Giles W. Mead, Jr., Jeffery W. Meyer, Jim Norris, Dr. & Mrs. Benjamin D. Parmeter, Helen Pratt, Susan Schermerhorn, Daniel Suddaby, Beth Barker via the Steven L. Merrill Family Foundation, Ann Stone, Marilyn M. Strand, Robert Weinstock.

Memorial Donations

Prbo is grateful for the following memorial gifts:

In Memory of Jack Arnold: Marianne R. Shepard
 In Memory of Max Holsinger: Patricia E. Hughes
 In Memory of Alexander Imlay: Peter & Edith Altman, Helen Benedict, Jean Chaitin, Willard Classen, Dorothy Cousins, Jack & Mary Olive, Warren Wachs
 In Memory of Sam Madison: Audrey Madison
 In Memory of Mel Perlee: Gerald & Donna Horn
 In Memory of David Sobel: Angela Mack

In-Kind Donations

We are grateful to the following individuals for recent donations to prbo:

Nathaniel Polish from Daedalus Technology for a Cisco 2500 Modem pool; **Sara Lovett** for the *Birds of North America* collection in memory of her husband, Robert Fillmore Lovett; **Caleb & Terri Miller** for a couch for prbo Headquarters; **Leslie & Roland Tognazzini** for four cell phones for our field biologists.

PRBO needs donated office and field equipment. Please call Melissa Frakes: (415) 868-1221, ext. 11.

PRBO Field Biologists

August through October, 2000: Dan Barton, Russ Bradley, Phil Capitolo, David Gardner, Joanne Gilchrist, Michelle Hester, Michelle Johnson, Sara Krause, Kristen Kusic, Colin Lee, Chris McCreedy, Kristi Millner, Mark Pollock, Matt Ricketts, Chris Rintoul, Heather Ristow, Rachael Roberts, Jim Tietz, Melissa Wipf, Jason Yakich.

As always, PRBO is deeply grateful to Audubon Canyon Ranch, Point Reyes National Seashore, and the U.S. Fish & Wildlife Service for providing facilities and field stations where we work.

Institution Giving

Prbo relies on the generosity of many foundation and corporate supporters to achieve our mission of conservation through science and outreach. We are grateful for this support. The following organizations have provided recent contributions as well as significant ongoing support to prbo.

The **David & Lucile Packard Foundation** has generously provided support to prbo for a variety of groundbreaking conservation projects. The Packard Foundation's original grant to prbo dates back to 1974. Their most recent multi-year grant—to help fund the California Riparian Habitat Joint Venture (rhjv) Coordinator—will significantly enhance habitat conservation throughout California. Prbo chairs the rhjv and has been asked by the 18 partner agencies to hire and supervise the Coordinator.

We also thank **ExxonMobil Corporation** for supporting our work with cavity-nesting seabirds on the islands off California, including Año Nuevo and the Farallones. ExxonMobil's contributions have helped ensure the success of prbo's conservation efforts for threatened populations of Rhinoceros Auklets, Ashy Storm-petrels and Cassin's Auklets. ExxonMobil first supported prbo in 1974.

The **Homeland Foundation** has supported prbo since 1990, most recently through a generous two-year grant for our study and protection of seals and sea lions at the Farallon Islands. Homeland's support has made it possible for prbo to continue its long-term studies of northern elephant seals, California sea lions, harbor seals, northern fur seals and Steller's sea lions. Both the Steller's sea lion and the northern fur seal have been listed as threatened species, making our work—and Homeland's gift—even more critical.

Thanks also to the following organizations for recent support for prbo: Winifred & H.B. Allen Foundation, George & Ruth Bradford Foundation, Bushnell Corporation, The Clorox Company, Compton Foundation, Dean Witter Foundation, Leica Camera Inc., National Fish & Wildlife Foundation, Pentax Corporation, Shark Trust, Swift Instruments.





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Bird-A-Thon 2000 Party

Saturday, December 2nd ♦ 6:00 to 9:00 PM

Stinson Beach Community Center

Supper & entertainment

Please bring a side dish or dessert!

Amazing birding stories

Prizes ♦ Awards ♦ Raffle

For information, call Maria Kaymen: 415/ 868-1221, ext. 20.

Please Mark Your Calendar! ♦ December 2, 2000



PRBO MEMBERS' EVENTS

MONTHLY BIRD WALKS Usually held the first Sunday of each month in the Point Reyes National Seashore area. Walks begin at 9:00 AM and last 2 to 3 hours. Cost: free to PRBO members, \$5/person non-members. For more information, or to request a calendar of our entire year's outings, call 415/868-0655.

December 3 ■ **Waterbirds on Bolinas Lagoon.** To welcome back wintering populations of shorebirds and waterfowl, we explore pickleweed marshes near Pine Gulch Creek.

January 7 ■ **Winter at Palomarin.** Begin the New Year with a look into our mist nets and a birding hike near our Palomarin Field Station (call 415/868-0655 that morning to confirm, if weather is windy or rainy).

February 4 ■ **Abbotts Lagoon Excursion.** On a winter hike through habitats surrounding this beautiful lagoon, we look for resident landbirds, wintering waterfowl and shorebirds.

PRBO online :: WEB SITE www.prbo.org :: E-MAIL prbo@prbo.org

PRBO — working to conserve birds, other wildlife and their ecosystems through objective, innovative scientific research and outreach.

♻️ Printed on recycled paper using soy-based inks

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Benefactor: \$1,000 & more	Family: \$50
Sponsor: \$500	Regular: \$35
Sustaining: \$250	Student & Senior: \$20
Contributing: \$100	

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