

prbo

PRBO Conservation Science



2009-10 Annual Report



Adapting to Our Changing Future: Science, Partnerships and Outreach

Effective conservation in an era of changing climate, human population growth and increased development requires continued research, ongoing monitoring, expanded partnerships and flexible approaches to conservation practices—and PRBO is leading the charge, as highlighted in this annual report.

We worked hand-in-hand with public and private wildlife and habitat managers to understand what the future is likely to hold and how we can help nature and people adapt to the coming changes.

This past year, PRBO scientists identified marine food web “hotspots” throughout the California Current off the West Coast, providing improved marine zoning options for policymakers to protect the feeding grounds of seabirds and other marine wildlife as ocean conditions change.

Combining PRBO’s long-term studies in the San Francisco Bay-Delta with partner expertise, our scientists began identifying species and habitats most vulnerable to sea level rise and salinity changes. Our goal: to help prioritize investments today to yield the most for birds, other wildlife and human communities in the future.

PRBO ecologists published and communicated novel approaches to reducing climate change impacts on riparian-dependent species while also

enhancing nature’s benefits to humans, including replenishing groundwater and reducing flood impacts.

Our partnership with the U.S. Forest Service expanded to all nine National Forests in the Sierra Nevada this past year to assess forest management practices (e.g., timber extraction and fire) to best support biodiversity. We also began developing montane meadow restoration guidelines to conserve habitat diversity and enhance nature’s ability to store water as the permanent snowpack declines.

Our scientists combined extensive bird and vegetation data with climate projections and estimated how the ranges of 60 landbird species might change by late this century. Based on these uniquely data-rich models, we made a startling projection that more than half of California could be occupied by new bird communities by 2070.

As PRBO’s Chief Scientist Dr. John Wiens explained, “Birds are nature’s barometers. If birds occur in different combinations in the future, other organisms such as insects and plants likely will as well. The reshuffling of bird assemblages that we project may just be the tip of the iceberg of major ecological changes ahead.”

In this era of rapid change, PRBO helped catalyze and grow partnerships on

land and at sea—uniting scientists, natural resource managers, and private interests for the best conservation outcomes.

In recognition of our many accomplishments, PRBO received several prestigious awards this past year (see page 6).

PRBO’s Board of Directors continued to provide inspirational guidance and support. We offer our gratitude to retiring members Christopher and Amber Marie Bentley, and Jim Wintersteen. We also welcome new board members Martha Conte and Simon Francis, and returning member Stuart Jacobson.

Thanks to the phenomenal dedication of our staff, Board, members, volunteers, and partners, we are leveraging PRBO’s scientific expertise to improve conservation in an ever more uncertain future. We are deeply grateful for your continued generosity that makes our invaluable work possible.

Ellie M. Cohen
President and Chief Executive Officer

Carolyn J. Johnson
Chair, Board of Directors

PRBO has blazed the path for putting decades of bird data to work in the service of conservation. Their innovative, interactive online tools, empowered by millions of bird observations, allow us to see where birds are now and where they are likely to be in the future.

David Pashley, PhD, Vice President of Conservation Programs,
American Bird Conservancy

2009–10 Findings and Accomplishments

Avian Future Shock. By 2070, more than half of California could be occupied by very different bird communities from today's, according to a PRBO study (see the map graphic on page 6). Bird species are likely to shift their distributions in different directions, in response to climate change. These shifts are expected to produce novel species assemblages—combinations of bird species not seen anywhere in California today.

The Power of Information. PRBO's Informatics team is expanding the online toolbox available to conservationists. With help from Google, we began creating an Internet-based mapping tool to project climate change impacts on California birds. Its interactive maps enable users to see where birds are likely to be in the future and to make better decisions about conservation investments today. Working with the Western Hummingbird Partnership, we have also created the Western Hummingbird Information Network to help apply information on hummingbirds to landscape and conservation efforts. www.prbo.org/cadc

Partnering for Bird Conservation. With The Nature Conservancy of California and Audubon California, we are building the Migratory Bird Conservation Partnership. Working with the California Rice Commission, we identified and tested multiple management practices for Central Valley rice growers to benefit wetland-dependent birds. In the San Joaquin and Klamath basins, we advanced efforts to ensure that river restoration for fish populations will also benefit migratory birds. <http://camigratorybirds.org/>



White-faced Ibis—one of the many species using Central Valley habitats.

Tom Grey

Catherine Hickey surveys for shorebirds and waterbirds in wetlands and agricultural lands of the Central Valley. Courtesy California Rice Commission



Our partnership with PRBO in managing the Farallon National Wildlife Refuge is simply outstanding. The dedicated professionals of PRBO work tirelessly to monitor, study and protect the wildlife that use these unique islands. As the world's climate rapidly changes, PRBO's findings are helping us to understand impacts on the marine ecosystem and how to manage for them.

Mendel Stewart, Manager, San Francisco Bay National Wildlife Refuge Complex,
and Gerry McChesney, Acting Manager, Farallon National Wildlife Refuge



Marine Conservation. Using data from collaborative ocean-going studies, PRBO has identified marine food web “hot spots” in the California Current System. We found a “conservation gap” off northern California and southern Oregon where additional protection may benefit marine wildlife. • With the National Marine Sanctuaries Program and several universities, we have launched a novel program called ACCESS—Applied California Current Ecosystem Studies—to expand ocean knowledge and protection. www.accessoceans.org

Restoration: Riparian Strongholds.

PRBO and partners have shown how restoring river (riparian) ecosystems can enhance their ability to cope with climate change. Restoration is a critical step toward protecting the integrity of ecosystems and the benefits they provide—including clean water, pollination and flood protection—in a time of rapid climate change. www.prbo.org/cms/551

Tidal Marshes and Climate Change.

PRBO is assessing the effects of sea level rise, sedimentation and salinity changes on San Francisco Bay tidal marsh ecosystems and birds. Our resulting future scenarios will be accessible online to help agencies prioritize their investments today. • We also completed a fifth year of monitoring the endangered California Clapper Rail, which occurs only in San Francisco Bay tidal marshes; we assessed the birds' responses to wetland management and restoration actions.

Find more information on all of PRBO's work at www.prbo.org.

Jaime Jahnce, PhD, holds a sample of krill (a critical component of the marine food web) on a research cruise in the Gulf of the Farallones in partnership with NOAA National Marine Sanctuaries. *Sophie Webb*

Above: Common Murres. *Ben Saenz*

Farallon Island Study. PRBO's long-term research on Southeast Farallon Island, in partnership with the U.S. Fish and Wildlife Service, continued to reveal increased ocean-climate variability. Strong cold-water upwelling in spring 2009 brought success to the Cassin's Auklets, whose crash in 2005–2006 was unprecedented in our records. Brandt's Cormorants, in contrast—evidently unable to find food at a critical time in the spring—produced few young.

Climate Partnership. To develop science-based strategies for addressing the impacts of accelerating climate change on ecosystems throughout the San Francisco Bay Area, PRBO and eight public agencies formed the Bay Area Ecosystems Climate Change Consortium. PRBO plays a lead role in this effort to bring scientists and natural resource managers together—which also serves as a demonstration project nationally. www.baeccc.org

A New Eco-friendly Field Station. PRBO began work to establish the new TomKat Ranch Field Station on the Central California coast. We will conduct ecological monitoring, training, and education programs that support efforts to manage





I am so grateful to be able to partner with PRBO. Their collaborative approach—implementing monitoring and research; applying the results so that they are meaningful on-the-ground; then broadly disseminating that information—is extremely valuable to the management and conservation of habitat on National Forest System lands.

Diana L. Craig, Acting Deputy Director, Ecosystem Management Staff, U.S. Forest Service, Pacific Southwest Region

TomKat Ranch's 2,000 acres, including grass-finished beef, in an eco-friendly manner. This major PRBO milestone reflects growing demand for information to guide conservation within working agricultural landscapes.

Habitat Mosaic Across the Sierra. In nine national forests spanning five million acres in the Sierra Nevada, PRBO continued our partnership with the U.S. Forest Service. We helped study birds as indicators of management actions for a diverse, resilient and sustainable ecosystem. In addition, we began engaging with efforts to restore mountain meadows—valuable to wildlife and critical for water storage under changing climatic conditions.

Invaluable Long-Term Data Sets.

PRBO's ongoing data collection encompasses uncommon time spans and provides the foundation for our innovative conservation efforts. We are grateful to our partners who make this possible. Some 2009–10 anniversaries:

- Palomarin Field Station – 44 years
- Farallon Islands – 40 years
- Bolinas Lagoon – 39 years
- Coastal Snowy Plovers – 32 years
- Ross Island, Antarctica – 27 years
- Rockfish cruises, seabirds – 25 years
- Central Valley riparian – 17 years
- Alcatraz Island – 17 years
- Northern Sierra – 14 years
- Eastern Sierra – 14 years
- S.F. Bay tidal marsh – 14 years
- Spotted Owls – 12 years
- Vandenberg A.F.B. – 11 years
- Alameda Least Terns – 11 years
- California deserts – 8 years
- Gulf of the Farallones – 6 years

Jim Tietz gathers data on birds' use of habitats in national forest land in the Sierra Nevada. *Nicholas VanDyken*

Above: Hairy Woodpecker, a management indicator species for the U.S. Forest Service.

Tom Grey

Snowy Plovers. PRBO continued working closely with state and federal agencies to restore a successful breeding population of Snowy Plovers to the greater Monterey Bay area. In 2009, plovers there produced the third highest number of juveniles recorded to date. Numbers of breeders are approaching 100% of the population size targeted for the region in the U.S. Fish and Wildlife Service recovery plan.

Penguins and Ice. PRBO's long-term Antarctic study of Adélie Penguins added new knowledge about a unique sea-ice ecosystem, the Ross Sea. Changing patterns of sea ice formation, associated with climate change, stress Adélie populations in diverse ways, and increasing fishing pressures threaten the Ross Sea food web. We continued building scientific evidence for the establishment of Ross Sea marine protected zones.

Technology: Long-distance Tracking.

To expand our geographic knowledge of the Long-billed Curlew, one of North America's most impressive and vulnerable shorebirds, we placed lightweight satellite tags on birds at their Montana breeding grounds. They migrated toward Texas and Mexico—about twice the distance of nine tagged curlews from



PRBO's private-lands monitoring provides valuable information on trends in wildlife diversity, which NRCS uses not only in initial restoration design but also for implementing adaptive management techniques when necessary.

Alan Forkey, Assistant State Conservationist, Programs, USDA Natural Resource Conservation Service, California



Oregon, which wintered in California's Central Valley. • At PRBO's Palomarin Field Station, using miniscule geolocators placed on Golden-crowned Sparrows in winter and Swainson's Thrushes in spring, we began to study aspects of songbirds' year-round travels—essential for successful conservation.

Global Cooperation. In June 2009, bird conservation leaders from the Middle East and North Africa visited the Palomarin Field Station through the U.S. Forest Service (USFS) International Program to advance cross-border collaboration. In April 2010, PRBO helped lead a workshop in Jordan on migratory bird monitoring and outreach. • PRBO's

renowned internship program hosted budding scientists from Egypt, Colombia, Mexico and Canada, through the USFS International Program and National Park Service Park Flight Program.

Fragile Deserts. PRBO furnished scientific expertise for the State of California's new program to site large-scale solar energy installations. • We also continued monitoring songbirds that breed in "desert riparian" habitats. For species like Black-capped Gnatcatcher, nesting success often hinges on the previous winter's rainfall pattern.

Education and Outreach. PRBO educators continued innovative programs for tomorrow's leaders. In the Canal neighborhood of San Rafael, children in our after-school Bird Club led stewardship efforts for nearby birds and habitats. In the Seabird Education Awareness program, students from San Francisco learned about seabirds and marine conservation at Alcatraz Island. This is a PRBO partnership with the Farallones Marine Sanctuary Association and Golden Gate National Recreation Area.

Lishka Arata leads a field trip to the seabird colonies of Alcatraz Island National Park.

Jennifer Aragon

Oil Spill Preparedness. When the tanker *Dubai Star* leaked oil into San Francisco Bay in October 2009, trained members of our staff helped collect oiled birds and scientifically document those taken to the state's Wildlife Processing Center. After the Gulf oil disaster began in April 2010, PRBO's Oil Spill Coordinator, Diana Humple, joined the response effort led by the International Bird Rescue Research Center.

Translating Science for Policymakers.

- PRBO contributed to *The State of the Birds: 2010 Report on Climate Change*, released by U.S. Interior Secretary Ken Salazar. It shows that birds face multiple threats compounded by climate change.
- In local, regional, and national meetings PRBO scientists presented "Doing restoration in a climate change context: Examples for riparian systems" to some 500 resource managers, policymakers, and restoration practitioners.
- Ellie Cohen and Grant Ballard were invited to represent PRBO on the interim steering committee of California's new Landscape Conservation Cooperative, a Department of Interior

Above: Wilson's Warbler, one of 16 focal species in the Riparian Bird Conservation Plan, a landowner guide for improving wildlife habitat.

Tom Grey





Areas in red indicate regions of the greatest projected differences in California's bird communities by 2070 due to climate change. A front-page story in the *San Francisco Chronicle* in August 2009 was one of 12 print and online media stories on this ground-breaking PRBO research. (See "Avian Future Shock," page 2.)

initiative to identify and deliver highest-priority science for ecosystem conservation in the context of climate and other environmental change.

- Dr. John Wiens chaired a science advisory team evaluating the Bay-Delta Conservation Plan, which aims to balance conservation of the San Francisco Bay-Delta ecosystem with multiple demands on water in a changing environment.
- Dr. Chrissy Howell served on the Independent Science Advisory Panel for California's Desert Renewable Energy Conservation Plan.
- Dr. Grant Ballard served on the Climate Change Stakeholders Working Group, which advises the California Department of Fish and Game in developing strategies to address climate change.

Communicating Scientific Results.

Among PRBO's publications in 2009–10 (also see page 9):

- In *Proceedings of the Natural Academy of Sciences*, a paper featuring PRBO's California climate change research examines assumptions and uncertainties associated with modeling future species distributions; it provides recommendations for managers aiming to work with such projections.

- In the journal *Ecological Applications*, scientists from PRBO and U.C. Davis discuss the use of aerial laser technology to predict bird species' occurrence. This new tool could help identify areas that merit protection.
- The *Desert Bird Conservation Plan*, by PRBO and California Partners in Flight, uses birds as indicators to help land managers improve habitat in the Mojave and Sonoran desert regions. www.prbo.org/cms/3
- A PRBO paper, "Why climate change makes riparian restoration more important than ever," was one of the 50 most downloaded articles on climate change from *Ecological Restoration's* website.

Media Highlights. PRBO's work is making headlines regionally and nationally, including:

- "Mixed Signals from the Ocean," featuring PRBO's cooperative at-sea research, was a front-page story in the *San Francisco Chronicle* in September 2009.
- "Saving Wildlife in a Warmer World," in the *Christian Science Monitor* in November 2009, quoted Dr. John Wiens.
- "Climate Change and Research on the Farallones," featuring our Farallon Island program in cooperation with U.S. Fish and Wildlife Service, aired on public

television on the KQED science program "QUEST" in October 2009.

See "In the News" at www.prbo.org.

Awards and Recognition. Some 2009–10 honors for PRBO:

- For outstanding contributions to wildlife conservation, PRBO received the Conservationist of the Year award from The Western Section of The Wildlife Society.
- The California Rice Commission's "Circle of Life Award" honored Catherine Hickey and PRBO's work with Audubon California and The Nature Conservancy to enhance the value of Central Valley rice lands to waterbird populations.
- Dr. Jaime Jahncke, Director of Marine Ecology at PRBO, received a 2009 Environmental Hero award from the Gulf of the Farallones National Marine Sanctuary and the Farallones Marine Sanctuary Association.
- PRBO was part of a team honored with a 2009 Partnership Award, in the President's Coastal America Program, for ecosystem-based management of endangered Least Terns at Vandenberg Air Force Base.



Snowy Plover chicks.
(See page 4). Jenny Erbes

Affiliations

Organizations in which PRBO is an invited or elected member

include: American Bird Conservancy, Avian Knowledge Alliance, Avian Knowledge Network, Bank Swallow Technical Advisory Committee, Bay Area Ecosystems Climate Change Consortium, Bay Area Watershed Network, Bay Delta Conservation Plan Science Advisory Panel, Bay-Delta Science Consortium, Bird Conservation Alliance, Bird Conservation Funding Coalition, Bird Education Alliance for Conservation, Bolinas Lagoon Technical Advisory Committee, California Association of Winegrape Growers, California Landscape Conservation Cooperative, California Partners in Flight, California State Parks Vehicular Recreation Areas (OHV) Review Panel, California Rangeland Coalition Research Committee, Canada–U.S. Shorebird Monitoring and Assessment Committee, Central Valley Bird Club, Central Valley Flood Management Program, Central Valley Joint Venture, Cordell Bank Sanctuary Advisory Council, Cosumnes Research Group, County of Marin Wind Energy Advisory Group, Environmental Education Council of Marin, Information Center for the Environment (U.C. Davis), Intermountain West Joint Venture–California Steering Committee, Laguna de Santa Rosa Biodiversity Advisory Committee, Landbird Monitoring Network of the Americas, Migratory Bird Conservation Partnership, Mono Basin Science Council, Mono Lake Outdoor Education Center Advisory Board, North American Banding Council, North American Bird Conservation Initiative—U.S. Committee, Oiled Wildlife Care Network, Pacific Coast Ocean Observing System (NOAA), Pacific Coast Joint Venture, Partners in Flight Research and Implementation committees, Petaluma Wetlands Alliance, Riparian Habitat Joint Venture, Sacramento River Riparian Sanctuary Technical Advisory Committee, San Francisco Bay Bird Observatory – Science Advisory Committee, San Francisco Bay Joint Venture, San Francisco Bay Upland Habitat Goals Steering Committee, San Francisco Bay Wetlands Regional Monitoring Program, San Francisco Science Collaborative, San Joaquin River Partnership, Shorebird Research Group of the Americas, Sierra Nevada Willow Flycatcher Working Group, Sonoran Joint Venture, Swainson’s Hawk Technical Advisory Committee, Thank You Ocean, Tomales Bay Watershed Council, Tricolored Blackbird Working Group, USFWS Birder’s Team, U.S. Shorebird Conservation Council, Waterbirds of the Americas, Western Bird Banding Association, Western Hemisphere Shorebird Group, Western Snowy Plover Working Groups–Regions 4 and 5, Yellow-billed Cuckoo Working Group.

Nat Seavy, PhD, leads an outreach activity for bird conservationists from five Middle Eastern and African countries at a U.S. Forest Service International Program workshop in Jordan. Christopher Soriano

Tern Society

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Tern Society members are individuals who have notified us that PRBO is included in their estates.



PRBO has the highest rating from Charity Navigator. To support PRBO’s invaluable conservation science and outreach, please call or email Nancy Gamble at 707-781-2554 or ngamble@prbo.org.





Rufous Hummingbird.
(See "The Power of
Information," page 2.)

Tom Grey

2009–10 Friends of PRBO

Gifts received between April 1, 2009, and March 31, 2010, including gifts to our Lasting Legacy Campaign.

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Jean Starkweather
Dr. Stuart and Elizabeth Stephens
Barbara N. Stewart
Ellen and Jim Strauss
Dr. and Mrs. Bill Talmage
Vivendi Universal

Farallon Patrol

The volunteer skippers of the Farallon Patrol provide year-round boat transportation for PRBO and U.S. Fish and Wildlife Service to our field station on Southeast Farallon Island. We thank all Patrol members, including the following skippers who served actively this past year.

Keith Sedwick, *Commodore*
Harry Andrews
Fred Babian
Seth Bailey
Terry Berkemeier
Laurie Chaikin
Tom Charron
Henry Corning
Mark Dallman
O'Neil Dillon
Paul Dines
Al di Vittorio
Jeff Dunnivant
Jim & Jean Ellis
James Fryer
Jody Harris
Sam Lavanaway
Dennis Lear
Rob MacFarlane
Mick Menigoz
Bob Musor
Alex Pop-Lazic
Bernard Quante
Warren Sankey
Clifford Shaw
John Wade
Alan Weaver

PRBO's long-term commitment [at the Ross Sea] has resulted in one of the most comprehensive studies of seabirds in the Southern Hemisphere, enabling us to answer ecological questions that are rarely addressed and to advise Antarctic management and policy.

Phil Lyver, PhD, Landcare Research, New Zealand

Publications Peer-reviewed papers, online tools and selected presentations, April 2009 through March 2010

- Ainley D.G., G. Ballard, L.K. Blight, S. Ackley, S.D. Emslie, A. Lescoë, S. Olmastroni, S.E. Townsend, C. T. Tynan, P. Wilson, E. Woehler. Impacts of cetaceans on the structure of southern ocean food webs. *Marine Mammal Science* 26:482–498.
- Ainley D.G., G. Ballard, S. Olmastroni. An apparent decrease in the prevalence of “Ross Sea killer whales” in the southern Ross Sea. *Aquatic Mammals* 35:335–347.
- Ballard, G. Biotic and physical forces as determinants of Adélie penguin population location and size. Ph.D. thesis. University of Auckland, New Zealand.
- Brown, A.E., D.E. Lee, R.W. Bradley, S. Anderson. Dynamics of white shark predation on pinnipeds in California: Effects of prey abundance. *Copeia* 2010 232–239.
- Dale, V.H., K.L. Kline, J. Wiens, J. Fargione. Biofuels: Implications for land use and biodiversity. *Biofuels and Sustainability Reports*, Ecological Society of America, Washington, DC.
- Gill, R. Jr., T. Tibbitts, D. Douglas, C. Handel, D. Mulcahy, J. Gottschalck, N. Warnock, B. McCaffery, P. Battley, T. Piersma. Extreme endurance flights by landbirds crossing the Pacific: Ecological corridor rather than barrier? *Proceeding of the Royal Society B: Biological Sciences* 276:447–457.
- Howell, C.A., J.K. Wood, M.D. Dettling, K. Griggs, C.C. Otte, L. Lina, T. Gardali. Least Bell's Vireo breeding records in the Central Valley following decades of extirpation. *Western North American Naturalist* 70:105–113.
- Jennings, S., T. Gardali, N.E. Seavy, G.R. Geupel. Evaluating effects of mist netting on reproductive performance of two passerines. *The Condor* 111:488–496.
- Kelling, S., W.M. Hochachka, D. Fink, M. Riedewald, R. Caruana, G. Ballard, G. Hooker. Data intensive science: A new paradigm for biodiversity studies. *Bioscience* 59:613–620.
- Lee, D.E. and W.J. Sydeman. North Pacific climate mediates offspring sex ratios in northern elephant seals. *Journal of Mammalogy* 90:1–8.
- Page, Gary W., Lynne E. Stenzel, G. W. Page, J. S. Warriner, J. C. Warriner, P. W. Paton. Snowy Plover (*Charadrius alexandrinus*), *The Birds of North America Online* (A. Poole, Ed.). Cornell Lab of Ornithology.
- Rotenberry, J.T. and J.A. Wiens. Habitat relations of shrubsteppe birds: A 20-year retrospective. *The Condor* 111: 401–413.
- Scott, J.M., D.D. Goble, A.M. Haines, J.A. Wiens, M.C. Neel. Conservation-reliant species and the future of conservation. *Conservation Letters* 3:91–97.
- Seavy, N.E., T. Gardali, G.H. Golet, F.T. Griggs, C.A. Howell, T.R. Kelsey, S. Small, J.H. Viers, J.F. Weigand. Why climate change makes riparian restoration more important than ever. *Ecological Restoration* 27:330–338.
- Seavy, N.E. and C.A. Howell. How can we improve delivery of decision support tools for conservation and restoration? *Biodiversity and Conservation* 19:1261–1267.
- Seavy, N.E., J.H. Viers, J.K. Wood. Riparian bird response to vegetation structure: A multiscale analysis using LiDAR measurements of canopy height. *Ecological Applications* 19:1848–1857.
- Shuford, W.D. Inland-breeding pelicans, cormorants, gulls, and terns in California: A catalogue, digital atlas, and conservation tool. *Nongame Wildlife Pgm. Rpt.* 2010–01. Calif. Dept. of Fish and Game.
- Shuford, W.D., G. M. Langham, G. W. Page, C. Hickey. Distribution, abundance, and habitat use of Long-billed Curlews in California's Central Valley from broad-scale surveys in 2007 and 2008. *Central Valley Bird Club Bulletin* 12:29–44.
- Stralberg, D., D. Jongsomjit, C.A. Howell, M.A. Snyder, J.D. Alexander, J.A. Wiens, T.L. Root. Re-shuffling of species with climate disruption: A no-analog future for California birds? *PLoS ONE* 4:e6825.
- Wiens, J.A. Landscape ecology as a foundation for sustainable conservation. *Landscape Ecology* 24: 1053–1065.
- Wiens, J.A. Review of J. Wu and R.J. Hobbs (Eds.): Key topics in landscape ecology. *Landscape Ecology* 24:451–452.
- Wiens, J.A. and D. Bachelet. Matching the multiple scales of conservation with the multiple scales of climate change. *Conservation Biology* 24: 51–62.
- Wiens, J.A., Stralberg, D., D. Jongsomjit, C.A. Howell, M.A. Snyder. Niches, models, and climate change: assessing the assumptions and uncertainties. *Proceedings of the National Academy of Sciences*. vol. 106, suppl. 2:19729–19736.
- In: Tundra to Tropics—Proceedings of the 4th International Partners In Flight Conference.* T.D. Rich et al (Eds.). • Alexander, J.D., J. Stephens, G.R. Geupel, T. Wills. Decision support tools: Bridging the gap between science and management. • Iliff, M., L. Salas, E. Ruelas Inzunza, G. Ballard, D. Lepage, S. Kelling. The Avian Knowledge Network: A partnership to organize, analyze, and visualize bird observation data for education, conservation, research, and land management. • Stephens J., D. Hanni, J.D. Alexander, G. Ballard, G.R. Geupel, B.L. Sullivan. The Avian Knowledge Alliance: A network of nongovernmental organizations working together on bird conservation. • Sullivan, B.L., S.T. Kelling, C.L. Wood, M. J. Iliff, D. Fink, M. Herzog, D. Moody, G. Ballard. Data exploration through visualization tools.

Online Tools

The Analyst: Data analysis tool for the California Avian Data Center. (L. Salas, M. Fitzgibbon, M. Herzog, G. Ballard, D. Moody, N. Nur).
<http://data.prbo.org/apps/analysts/>

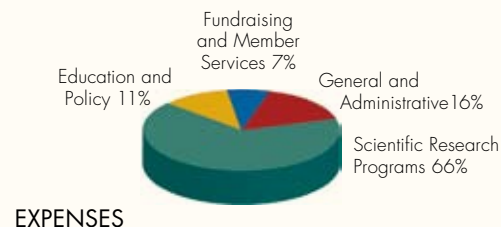
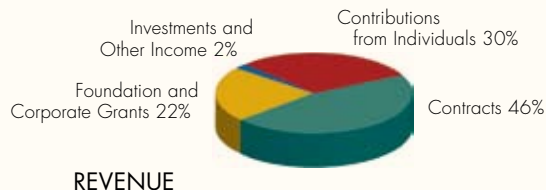
SNMIS Analyst: A California Avian Data Center tool for the visualization of the Sierra Nevada Management Indicator Species project. (L.J. Roberts, R. Burnett, M. Fitzgibbon, L. Salas, D. Moody, M. Herzog).
<http://data.prbo.org/partners/usfs/snmis/>

Presentations, A Sampling

Developing predictive models of top predator distribution to design a marine protected area network for the California Current (N. Nur, J. Jahncke, J. Howar, D. Stralberg, M. Herzog). First International Marine Conservation Congress, May 2009, Virginia.

Citizen science bird observation data improve ecosystem knowledge in California. (D. Jongsomjit, D. Stralberg, C.A. Howell, J. Alexander, B. Sullivan, A. Jones, G. Ballard. Ecological Society of America meeting, August 2009, Albuquerque.

The challenge of conservation practice in a changing climate: Applications of species distribution models on public lands. (C.A. Howell, D. Stralberg, D. Jongsomjit, J.A. Wiens). One of many PRBO presentations at the joint American Ornithologists' Union, Cooper Ornithological Society and Canadian Society of Ornithologists meeting, February 2010, San Diego.



2009–10 Financials

Statement of Financial Position as of March 31, 2010 and 2009

	2010	2009
Assets		
Current assets:		
Cash and cash equivalents	\$ 1,736,612	\$ 1,054,953
Certificates of deposit	1,431,444	1,302,515
Contracts receivable	1,308,975	1,151,298
Contributions, grants and bequest receivable	216,500	2,162,666
Prepaid expenses and other current assets	82,234	89,838
Total current assets	<u>4,775,765</u>	<u>5,761,270</u>
Non-current assets:		
Endowment fund	120,815	93,053
Property, net of accumulated depreciation	<u>5,775,926</u>	<u>5,920,001</u>
Total non-current assets	5,896,741	6,013,054
Total Assets	<u>10,672,506</u>	<u>11,774,324</u>
Liabilities and Net Assets		
Current liabilities		
Accounts payable	239,530	206,767
Accrued vacation	204,424	196,214
Deferred revenue	381,156	234,030
Current portion of note payable	<u>471,553</u>	<u>424,339</u>
Total current liabilities	1,296,663	1,061,350
Note payable	<u>485,426</u>	<u>956,978</u>
Total liabilities	1,782,089	2,018,328
Net assets:		
Unrestricted		
Board-designated funds	2,218,069	924,090
Other	<u>4,882,424</u>	<u>6,430,395</u>
Total unrestricted	7,100,493	7,354,485
Temporarily restricted	<u>1,789,924</u>	<u>2,401,511</u>
Total Net Assets	8,890,417	9,755,996
Total Liabilities and Net Assets	<u>\$10,672,506</u>	<u>\$11,774,324</u>

Statement of Activities for the Years Ended March 31, 2010 and 2009

	2010	2009
Changes in unrestricted net assets:		
Revenue and Support		
Government and other contracts	\$ 2,839,447	\$ 2,642,512
Contributions from individuals	418,670	3,171,900
Foundation and corporate grants	7,708	35,129
Investment and other income	151,125	175,791
Net assets released from restrictions	<u>2,763,995</u>	<u>2,960,317</u>
Total revenue and support	6,180,945	8,985,649
Expenses:		
Program services		
Research and ecological conservation	4,253,670	4,271,334
Education, outreach and policy	<u>729,935</u>	<u>874,429</u>
Total program services	4,983,605	5,145,763
Support services		
General and administrative	1,021,204	1,022,711
Fundraising and member services	<u>430,128</u>	<u>453,570</u>
Total support services	1,451,332	1,476,281
Total expenses	<u>6,434,937</u>	<u>6,622,044</u>
Unrestricted revenue & support over expenses**	(253,992)	2,363,605
Changes in net assets restricted for a future period:		
Government and other contracts	—	3,025
Contributions from individuals	1,186,293	1,432,718
Foundation and corporate grants	948,297	1,626,732
Other Income	17,818	5,257
Net assets released from restrictions	<u>(2,763,995)</u>	<u>(2,960,317)</u>
Increase in temporarily restricted net assets	(611,587)	107,415
Change in net assets	(865,579)	2,471,020
Net assets at beginning of year	9,755,996	7,284,976
Net assets at end of year	<u>\$ 8,890,417</u>	<u>\$ 9,755,996</u>

**NOTE: PRBO was fortunate to receive major unrestricted gifts in 2009 that resulted in a \$2,363,605 increase in unrestricted net assets. Budgeted spending against a portion of these gifts in 2010 resulted in a planned operating deficit.

The condensed financial statements presented above reflect PRBO's complete set of financial statements for 2009 and 2010 which have been audited by Perotti &

Carrade, Certified Public Accountants, and on which they have rendered an unqualified opinion dated June 30, 2010. The organization's complete audited financial statements

and the independent auditor's report can be found at www.prbo.org/2009auditreport.

Laurie Talcott
Chief Financial Officer



PRBO Conservation Science



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Kriss Neuman
Matthew Reiter, PhD
W. David Shuford
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Thomas Fonseca

Dennis Jongsomjit

Sherie Michale, PhD

Douglas Moody

Nadav Nur, PhD, *Quantitative Ecologist*

Leonardo Salas, PhD

Diana Stralberg, *Landscape Ecologist*

Sam Veloz, PhD

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Rich Stallcup, *PRBO Naturalist*
Lishka Arata
Claire Peaslee
Missy Wipf

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Nancy Gamble, *Director, Individual Giving*

Emily Sanborn, *Membership and Events*
Eve Williams

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Noah Eiger, *Director, Information Technology*
Lee Callero
Heather Kurland
Chris Rintoul
Jill Talmage

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Frances Bidstrup
Malcolm C. Coulter, PhD
Jules G. Evens
Mark Herzog, PhD
Steve N. G. Howell
David Hyrenbach, PhD
John P. Kelly, PhD
A. Peter Klimley, PhD
Borja Mila, PhD
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Mark Rauzon
Stacy Small, PhD
Nils Warnock, PhD
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John S. Warriner
Sophie Webb
David W. Winkler, PhD
Steve Zack, PhD

PRBO Partners

The Amargosa Conservancy
American Bird Conservancy
Ardea Consulting

Arizona Bird Conservation Initiative

Association of Bay Area Governments

AT&T Labs- Research

Audubon California

Audubon Canyon Ranch

Avocet Research Associates

The Bay Institute

Bird Studies Canada

Bodega Marine Laboratory

California Academy of Sciences

California Bay-Delta Authority

California Coastal Commission
California Coastal Conservancy
California Dept. of Fish and Game

California Dept. of Parks and Recreation

California Dept. of Water Resources

California Institute for Energy and Environment

California Rice Commission

California State Universities

Canal Family Support Program

Central Valley Joint Venture

Central Valley private landowners

Cordell Bank National Marine Sanctuary

Cornell Laboratory of Ornithology

Cornell University

Ducks Unlimited

East Bay Municipal Water District

East Bay Regional Parks District

East Stanislaus Resource Conservation District

Friends of the Tuolumne, Inc.

Golden Gate National Parks Conservancy

Golden Gate National Recreation Area

Greenbridges and Adobe Valley, LLC

Gulf of the Farallones National Marine Sanctuary

H.T. Harvey & Associates

Imperial Irrigation District

Institute for Fisheries Resources

Klamath Bird Observatory

Laguna de Santa Rosa Foundation

Landcare Research – Manaaki Whenua, New Zealand

Las Cruces Biological Station

Literacy for Environmental Justice

Los Angeles Department of Water and Power

Marin County Dept. of Parks & Open Space

Marin Municipal Water District

Marine Fish Conservation Network

Massey University

MBK Engineers, Inc.

McEvoy Ranch

Mono Lake Committee

Monterey Bay Aquarium

National Audubon Society & local chapters

National Coalition for Marine Conservation

National Fish & Wildlife Foundation

National Park Service & national parks

National Science Foundation

Natural Resources Defense Council

The Nature Conservancy

New Zealand Ornithological Society

NOAA Fisheries

NOAA Marine Sanctuaries

North American Bird Conservation Initiative

Oceana

Office of Naval Research

Oikonos

Oiled Wildlife Care Network

Olofson Environmental, Inc.

Oregon State University

Park Flight

Philip Williams and Associates

Point Reyes National Seashore

The Presidio Trust

Prince William Sound Science Center

River Partners

Rocky Mountain Bird Observatory

San Francisco Bay Bird Observatory

San Francisco Bay Joint Venture

San Francisco Bay National Wildlife Refuge Complex

San Francisco Estuary Institute

San Francisco Estuary Project

San Joaquin County Resource Conservation District

San Luis National Wildlife Refuge Complex

San Vito Bird Club

Scripps Institution of Oceanography

Sequoia Riverlands Trust

Simon Fraser University

Solano County Farmlands & Open Space Foundation

Sonoma County Agriculture & Open Space District

Sonoma Land Trust

Sonoran Joint Venture

Smithsonian Institution

Stanford University

Thomas Reid Associates

Tulare Basin Wildlife Partners

United Anglers of Southern California

U.S. Bureau of Land Management

U.S. Bureau of Reclamation

U.S. Environmental Protection Agency

USDA Forest Service

USDA Forest Service- Redwood Sciences Laboratory

USDA Natural Resource Conservation Service & Resource Conservation Districts

U.S. Fish & Wildlife Service & National Wildlife Refuges

U.S. Geological Survey

USGS California Off-Highway Motor Vehicle Recreation Division

University of California, various campuses

University of New Orleans

University of San Francisco

University of Victoria, B.C.

University of Washington, Seattle

Vandenberg Air Force Base

Vermont Institute of Natural Science

Wak Ka Koneke Indigenous Association

Washington Dept. of Fish and Wildlife

Washington State University at Vancouver

Western Shasta Resource Conservation District

Wetlands & Water Resources

World Wildlife Fund