

FLIGHT LOG

NEWSLETTER OF CALIFORNIA PARTNERS IN FLIGHT Working Together for the Conservation of Songbird Populations



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> The Coastal Scrub and Chaparral Bird Conservation Plan



Version 2.0 Coastal Scrub Plan now available

Coastal Scrub Habitats in the Spotlight

Kim Kreitinger, CalPIF Coordinator kkreitinger@prbo.org

CalPIF held its annual statewide meeting Aug 20-21, 2004. The meeting location, Audubon California Starr Ranch Sanctuary, is a 4,000 acre preserve that contains large expanses of mature coastal sage scrub (see page 2 for more information on Starr Ranch). More than 50 people attended, including representatives from 7 federal agencies, 3 state agencies, and 12 nongovernmental organizations. This two-day event focused on the conservation and management of coastal scrub and chaparral birds and habitats and coincided with the release of the newly published Coastal Scrub and Chaparral Bird Conservation Plan. This plan provides recommendations for habitat protection, restoration, management, monitoring and policy to ensure the long-term persistence of birds and other wildlife dependent on shrubland ecosystems.

Coastal scrub and chaparral are among the most threatened and least protected habitat types in California. Massive human development and the presence of an especially diverse ecosystem have resulted in a concentration of species in peril of local or global extinction. Coastal sage scrub supports more than 100 species of plants and animals that are considered rare, sensitive, threatened, or endangered by California or U.S. federal wildlife agencies (CalPIF 2004). The high number of special status species in coastal scrub and chaparral habitats emphasizes the need to increase collaboration between planners and conservationists. This CalPIF meeting was an attempt to do this.

Representatives from the Sonoran Joint Venture, Center for Natural Lands Management, and Terra Peninsular presented methods to better manage and conserve these threatened habitats. Audubon California and the Bureau of Land Management presented on restoration work currently being performed in coastal scrub and alkali desert scrub habitats. UC -Riverside, San Diego State University, Institute for Wildlife Studies, and the Nature Reserve of Orange County presented research findings on several coastal scrub-associated birds including Gray Vireo, Sage Sparrow, Cactus Wren, and California Gnatcatcher. The articles within this edition of the CalPIF newsletter highlight some of the presentations given at this meeting, and more specifically, inform our readers of the conservation efforts in coastal scrub and chaparral habitats.



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Coastal Sage Scrub Restoration at Audubon California's Starr Ranch Sanctuary

Sandy DeSimone, Director – Research and Education Starr Ranch Sanctuary sdesimone@audubon.org

Starr Ranch Sanctuary is a 4,000 acre preserve owned and operated by the National Audubon Society and was the site of the 2004 CalPIF Statewide Meeting. It is located in the foothills of the Santa Ana Mountains in the mild and semiarid Mediterranean climate of southeastern Orange County, California, approximately 60 miles southeast of Los Angeles. Their mission is to stimulate, coordinate, and perform scientific research on the biology and conservation of the unusual Mediterranean climate ecosystems at Starr Ranch and to extend this science to the local community in the form of unique education programs and conservation activism. For more information, visit: http://www.starrranch.org/.— Editor

Coastal sage scrub restoration at Starr Ranch begins with control of the exotic herbaceous perennial, artichoke thistle (*Cynara cardunculus*). We take a research-based approach to non-chemical control of artichoke thistle and subsequent restoration to native habitat. We have had success in significantly reducing artichoke thistle by regularly cutting leafy rosettes with brush cutters or surface tilling with a mower. By fall 2003, 340 of 700 acres targeted for treatment were under control (i.e., thistle populations in sites reduced to 0–5% cover). In the second year of thistle treatment, we begin restoration to needlegrass grassland (450 acres) or coastal sage scrub (250 acres).

At 4,000 acre Starr Ranch, there are at least 22 nesting pairs of the federally threatened passerine California Gnatcatcher (*Poloptila californica californica*, "gnatcatcher") and approximately 1,963 acres of undisturbed coastal sage scrub, which is the preferred nesting habitat of the gnatcatcher. During 2001-02 we initiated our first coastal sage scrub restoration and by



end of May, 2004, 30 acres have been planted. By year three of restoration, total native plant cover in sites has averaged 57 - 64%. All seeds for restoration are collected at Starr Ranch and plugs are grown in our homemade native plant nursery.

Ongoing experiments on planting techniques for native shrub and grass species guide decisions on plug and seed rates, low-cost methods of soil tamping, and the timing of plug planting and direct seeding. Experiments also help make decisions about timing and effectiveness of nonchemical methods (brush cutting, hand weeding, flaming, mowing) for control of exotic annual grasses and forbs. Restoration standards are derived from data collected in relatively pristine, mature coastal sage scrub and native grassland at Starr Ranch. Restoration research and application are done by a field crew leader and 3–4 field assistants who are hired seasonally. All are recent college graduates, usually on their way to graduate school, who seek research, invasive species control, and restoration experience. The field crew live on Starr Ranch.

Ranch research is integrated into our innovative approach to environmental education, "Starr Ranch Field Ecology Programs." These programs draw people from the local community to Starr Ranch with the goal of connecting people of all ages to nature through participation in ecological research. During spring, 2004, we offered an adult class on "Effects of Restoration on Wildlife." Volunteers from this class then helped us initiate a long-term study on effects of coastal sage scrub restoration on small mammal, invertebrate, and bird populations. Kids who are in our "Starr Ranch Junior Biologists" summer program completed a week long study investigating differences in soil variables, invertebrates, and small mammal populations in an artichoke thistle-invaded versus a pristine coastal sage scrub stand.

Our goal is to add 20 – 50 additional acres for artichoke thistle control annually. At this rate, we expect to be working in all 700 acres by 2010. Restoration will follow, but is much more dependent on annual rainfall for success so that predictions for project completion are difficult. Thanks to the hard work and commitment of many field assistants and volunteers, I can predict that we will make regular, steady progress each season.

The Sonoran Joint Venture: Binational Bird Conservation

Jennie Duberstein,

SJV Education and Outreach Coordinator Jennie_Duberstein@fws.gov

The topography and climate of the Sonoran Joint Venture region produce a diversity of habitats including several that were the focus of the CalPIF Statewide Meeting: chaparral, coastal shrublands, and desert shrublands. The avifauna is diverse with more than 500 bird species breeding in, wintering in, and/or migrating through the region. The Sonoran Joint Venture supports the conservation of these birds and their habitats through their Awards Program. Visit their web site at: http://www.sonoranjv.org for more information.— Editor

The Sonoran Joint Venture (SJV) is a binational program involving diverse organizations and individuals from the southwestern United States and northwestern Mexico that share a common commitment to the conservation of all bird species and their habitats. The SIV's mission is to initiate and sustain a regionally-based, biologically-driven, landscape-oriented partnership to protect, conserve, restore, and enhance bird populations and their habitats. Partnerships facilitated by the SIV help groups and individuals come together to achieve conservation objectives that would be difficult or impossible to accomplish independently. The SIV collaborates with partners to achieve bird conservation goals, coordinates planning and activities to maximize effectiveness of bird conservation efforts, works with a diversity of partners from the U.S. and Mexico, improves public awareness of bird conservation issues, and encourages support for projects and programs.

The SJV region spans all or part of six states (Arizona, California, Sonora, Sinaloa, Baja California, and Baja California Sur) in two countries (Mexico and the U.S.), as well as the Gulf of California and its endemic-rich islands. Although the southeastern portion of California has been part of the SJV region since the program's inception in 1999, the Management Board recently voted to expand its borders to include much of the southern part of the state, from Punto Concepción south to the Mexican border. This expansion also increases the number of potential partners for SJV projects and increases opportunities for bird and bird habitat conservation in the region.

THE SJV IN CALIFORNIA

Each year the Sonoran Joint Venture supports a variety of projects from across the SJV region through an annual Awards Program. The objective of this program is to support the investigation and conservation of all birds and their habitats within the SJV boundaries by providing funds through a com-



petitive process. Proposals for projects that support the SJV goals and objectives are eligible for funding, including habitat management, research, monitoring, education, community involvement, outreach, ecotourism, and training. Projects supported in California include:

- Desert Bird Conservation Plan. The SJV provided support to PRBO Conservation Science for the development of the Desert Bird Conservation Plan, the need for which was identified by CalPIF. This guide, due to be completed in December 2004, will provide land managers, planners, and biologists with a cohesive, easy-touse guide to conserve and promote bird populations in the Mojave and Colorado Deserts of southeastern California.
- Tern and Skimmer Monitoring in Southern California and northwest Mexico. This collaborative project between the Natural History Museum of Los Angeles County and Pronatura will monitor breeding colonies and post-breeding movements of Gull-billed and Royal Terns and Black Skimmers in Baja California, Sinaloa, and southern California. This study will develop a standardized protocol to monitor the breeding colonies of terns and skimmers in the area. It will also look at juvenile and adult dispersal and identify important non-breeding habitats in northwestern Mexico.
- **Coastal Sage Scrub Avian Monitoring.** SJV support for this project will allow Audubon California to implement avian monitoring at coastal sage scrub habitat restoration sites in Starr Ranch Bird Observatory. Starr

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Ranch Sanctuary staff has been working on non-chemical control of the highly noxious exotic artichoke thistle and, with support from the US Fish and Wildlife Service, the Sanctuary has made efforts to restore 250 acres back to coastal sage scrub. Funds from the SJV will allow Sanctuary staff to monitor changes in bird populations and nesting success over the course of the restoration project. This monitoring effort meets the goals of the CalPIF Coastal Scrub and Chaparral Bird Conservation Plan, which lists long-term monitoring of focal species during restoration projects in coastal sage scrub habitats as a priority. This project will provide sorely needed data about this fragile and diminishing ecosystem.



Developing Monitoring Techniques for Western Riverside County's Multiple Species Habitat Conservation Plan

Kris Preston

Center for Conservation Biology, UC - Riverside prestons7@juno.com

The results from the fieldwork and modeling conducted in this project will allow land managers to determine whether conservation goals are met and will guide adaptive management strategies. Projects that employ adaptive management help to create a steady feedback loop between scientists and managers to consistently improve their methods for conserving native habitats and species.— Editor

The Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP) was developed as a Habitat Conservation Plan (HCP) under the Federal Endangered Species Act and as a California Department of Fish and Game Natural Community Conservation Plan (NCCP). The WRCMSHCP is a large plan with the goal of protecting 146 "Covered" plant and animal species on 500,000 acres within the 1.2 million acre plan area. Both the HCP and NCCP require a monitoring program to determine whether conservation goals are met for each Covered Species and to provide information to guide adaptive management of these species and their habitat within the preserve system. The University of California Riverside's Center for Conservation Biology (CCB) is developing a monitoring framework for the WRCMSHCP.

Because of the large area and many Covered Species in the WRCMSHCP, it is impractical to monitor each species individually. Instead, our goal was to develop a monitoring framework that gathered data on multiple Covered Species within the context of their community. These data will be used to develop models that assess species distributions and abundance and identify threats to their persistence. Our modeling approach is similar to that developed by CCB for the Coachella Valley MSHCP in eastern Riverside County (Barrows et al., in press). It is based on an iterative process of creating niche models for species within natural communities to identify environmental parameters important in predicting species occurrence. Our niche models are based upon testing conceptual models that describe potential relationships between environmental factors and species distributions. Specifically, we are creating niche models that detect spatial trends in the occurrence of particular species, that identify and describe species requirements and community relationships, and that predict potential threats to species persistence.

We are developing niche models at different scales. First we develop regional models incorporating GIS-based landscape level habitat variables to predict species distributions within the plan area. At a finer resolution, we develop and test conceptual models predicting the distribution and abundance of Covered Species within preserves based on specific habitat associations and interactions with other species in the community. We also model community level metrics, such as diversity, in relation to both landscape and local scale variables. We develop and test these models with species location data obtained from museums, public documents, experts in the field, and from current fieldwork. In future years, as field data are collected under changing environmental conditions, models will be revised to retest hypotheses about relationships between species distributions and environmental factors. The results from fieldwork and modeling will allow managers to determine whether conservation goals are met and will guide adaptive management strategies. To develop and test our initial niche models, CCB extensively sampled riparian and coastal sage scrub communities during the spring and summer of 2004.

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Riparian Community Monitoring

During the spring and summer of 2004 we conducted 290 avian point count surveys at 18 riparian sites in 15 drainages dispersed throughout western Riverside County. We repeated our surveys a second and even third time at certain locations. We used distance sampling, temporal based removal method, repeated sampling, and vocalization recording to develop detectability estimates for individual bird species. At each point we sampled arthropods using pit fall traps and measured vegetation using a relevé technique developed by PRBO Conservation Science. We collected information on reptiles and mammals in non-linear, 2 m-wide transects connecting adjacent points. To measure potential anthropogenic threats, we documented land use adjacent to the survey areas and recorded signs of human activity.

Coastal Sage Scrub and Non-native Grassland Monitoring

Coastal sage scrub (CSS) and non-native grassland habitats form a mosaic throughout the WRCMSHCP area, with much CSS now fragmented and disturbed. We sampled 8 sites consisting of these mosaics with grids of 15 to 69 points 250 m apart. We conducted over 200 avian point counts and measured vegetation at 130 of these points using 100 m line transects. Along 100 m x 2 m transects we also sampled arthropods, mammal burrows and sign, reptiles, ant mounds, and information on potential anthropogenic threats.

Using the data we collected this field season, we are assessing the effectiveness of our community sampling methods and designing future sampling strategies. We are currently developing and testing niche models for Covered Species. We are evaluating potential stressors to riparian and coastal sage scrub communities that may affect the distribution and abundance of Covered Species. For example, a preliminary analysis of a subset of our vegetation data indicates some coastal sage scrub sites are experiencing considerable shrub die-off that may be related to drought and other factors. This type of die-off has the potential to affect the future distribution and abundance of Covered species.

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Understanding and Effectively Measuring Bird Response to Habitat Disturbance in Coastal Sage Scrub

Robert E. Chapman San Diego State University robertchapman@mindspring.com

As part of his Masters of Science Degree in Biology at San Diego State University, Bob Chapman is using information about bird abundance and species composition to develop an index of habitat quality as measured by disturbance in coastal sage scrub habitat. The results from this research will help provide resource managers with a cost-effective tool for assessing habitat quality in coastal sage scrub.



Humans may negatively influence habitats in major ways, resulting in modification of bird species richness and composition. Over the last several decades, human land use destroyed and fragmented large areas of coastal sage scrub (CSS) in Southern California. The effort to conserve biodiversity and restore coastal sage scrub in the face of high levels of development pressure resulted in the establishment of the Natural Communities Conservation Plan (NCCP). This plan includes a requirement for monitoring and preserving biological diversity, function and endangered species throughout CSS. Key to the preservation of CSS habitat within the NCCP reserve is effective monitoring and management, which requires a robust, cost-effective method for estimating habitat quality and level of disturbance.

Birds are susceptible to habitat disturbance, as are many other taxa, because disturbance often alters habitat structure. Birds utilize aspects of habitat structure for foraging, perching, and nesting sites and for protection from the ele-

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ments and predators, making it a major element of bird habitat selection. Disturbances affecting structure can alter bird community diversity and composition. The kinds of disturbances that influence structure are many and varied, but include loss of habitat, habitat modification, habitat fragmentation and generation of urban/suburban edges, and introduction of nonnative plants and animals.

Biological integrity is "the ability to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region" (James Karr). As such, biological integrity is a multifaceted concept incorporating both the structure (species composition) and functional (numerous ecological processes) aspects of biological systems. Given this complexity, efforts to measure biological integrity have lead to the development of biological indices, which attempt to distill much of the variation in ecological systems into a readily interpretable and affordable metric.

My goal is to use information about bird abundance and species composition to develop an index of habitat quality as measured by disturbance in CSS habitat. Bird point counts and vegetation sampling were conducted over a two year period at 46 50-meter square plots distributed across five sites in southern California. Disturbance was defined as the proportion of absolute exotic cover contained within the 50-meter square plots. The 46 plots represented a gradient of disturbance from pristine (all CSS) to fully disturbed (all non-native grasslands).



To evaluate bird response to disturbance, I considered relative abundance and species richness of two guilds across the gradient of disturbance. The "woody" bird guild included species whose abundance was typically higher in pristine CSS plots, while the "grassy" guild included species typically most abundant in highly disturbed plots. I then tested several models relating guild richness and relative abundance to degree of disturbance. In one method, plots with a prevalence of woody birds were scored a 5, plots with a prevalence of grassy birds were scored a 1 and plots with an even mix of both guilds were scored a 3. The scores for each plot within the five sites were then summed to yield a total score reflecting that sites disturbance. These scores were then compared to actual site disturbance to evaluate their predictive power. The final models will be validated by use of a second data set.

Results

To date we show disturbance in CSS habitat is correlated with the relative abundance of the two bird guilds. Abundance of the grassy bird guild (blue grosbeak, California towhee, California quail, grasshopper sparrow, lark sparrow, white-crowned sparrow, western kingbird and western meadowlark) increases with increasing exotic cover. Conversely, the abundance of the woody guild (Anna's hummingbird, Bewick's wren, California gnatcatcher, bushtit, song sparrow, spotted towhee, western scrub-jay and wrentit) increases with decreasing exotic cover. Evaluation of the same data using multiple regression techniques further substantiates the results. Additional models will be evaluated during the remainder of 2004, and the best model will tested against an independent data set. The resulting model will provide resource managers with a costeffective tool for assessing habitat quality in CSS.

A Monitoring Strategy for the Gray Vireo in California

Lori Hargrove UC-Riverside Lori.Hargrove@sharp.com

The Gray Vireo is a focal species of the Coastal Scrub and Chaparral Bird Conservation Plan. Much remains to be learned about the range and status of Gray Vireo populations in California. Targeted monitoring efforts such as those described in this article are needed for a better understanding of population trends and habitat requirements for this species.—Editor

The Gray Vireo (Vireo vicinior) is a short-distance neotropical migrant that breeds in montane regions and arid scrubland in sw. U.S. and n. Mexico, and winters in desert scrub primarily in n. Mexico, with local populations in the ex-

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treme sw. U.S. (AOU 1998, Barlow et al. 1999). Population densities are very low throughout most of the range and BBS data are inadequate for any trend assessments (Sauer et al. 2004). The Gray Vireo has been identified as a primary focal species by CalPIF, and as a bird species of special con-



Adrienne Olmstead

cern by CDFG. Although breeding range contraction seems to be occurring in California, Gray Vireo status, distribution, habitat requirements, and possible threats are poorly understood due to the species' patchy distribution and preference for remote and rugged terrain.

In 1944, Grinnell and Miller described the Gray Vireo as "fairly common to locally common in arid chaparral in the mountains and foothills of southern California from the Mexican boundary north to the upper Kern River Basin, and in the Mojave desert from the Providence Mountains north to the Grapevine Mountains in Inyo County." In 1913, Grinnell and Swarth described the Gray Vireo in the San Jacinto Mountains as "common in many localities from 3000 to 6500 feet," with a conservative estimate of "at least 960 individuals." Sites where Gray Vireos are now extirpated include all of Kern County and Joshua Tree National Park. Recently, the Los Angeles County bird atlas revealed only a few scattered pairs in the San Gabriel Mountains (Larry Allen, pers. comm.), and very few records are being reported from San Bernardino or Riverside counties. The total California population was recently estimated at only a few dozen pairs (USDA Forest Service 1994). However, by targeting areas of potential habitat that had not been previously surveyed, the 1997-2002 San Diego County bird atlas revealed the largest populations currently known in California, probably in the low hundreds (Unitt in press).

It is paradoxical that the Gray Vireo is so uncommon and patchily distributed, while the habitat it seems to prefer, chaparral and pinyon-juniper woodland, is so plentiful. There are vast areas of seemingly suitable habitat that are unoccupied in California. Cowbird parasitism is commonly cited as a possible cause, but there are very few records. Other possible threats include nest predation, and habitat conversion and degradation. As Gray Vireos are only found in remote areas, it may be that they are extra-sensitive to any disturbance. In addition, factors in winter habitat should be considered. Bates (1992) found that the Gray Vireo relies heavily on the fruit of elephant trees (Bursera microphylla) in Sonoran desert scrub in winter.

For an effective monitoring strategy, first an updated habitat model is needed to identify target habitat for surveys. Several restrictive factors should be considered in addition to vegetation type, such as fire history, elevation, and aridity. Ideally, monitoring should employ "double sampling" (e.g., Bart and Earnst 2002) where extensive rapid surveys are combined with local intensive surveys. Extensive surveys such as point counts are conducted in targeted habitat to estimate distribution and abundance, and results are used to stratify intensive survey locations. Gray Vireo singing is loud and persistent, allowing for high detectability in rapid surveys (USDA Forest Service 2002). Intensive surveys such as territory mapping improve abundance estimates and produce valuable new data on behavior and ecology. Under the same protocol, many other inland chaparral species could be monitored concurrently, including the Black-chinned Sparrow and Mountain Quail.

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Partners in Flight News and Announcements

Coastal Scrub and Chaparral Bird Conservation Plan

Hardcopies of the Coastal Scrub and Chaparral Bird Conservation Plan are now available. Please contact Kim Kreitinger at: kkreitinger@prbo.org for a copy. This plan is also available electronically on the CalPIF web site at: www.prbo.org/calpif.

Riparian Bird Conservation Plan

Thanks to the Bureau of Reclamation for funding the publication of Version 2.0 of the Riparian Bird Conservation Plan. Hardcopies of this plan will be available by late November 2004. Please contact Kim Kreitinger for copies of the plan.

California All-Bird Workshop

The California All-Bird Workshop was held November 15-16, 2004 at the Radisson Hotel in downtown Sacramento. All-Bird Workshops, aimed at state wildlife biologists, land managers, and their bird conservation partners throughout the United States, provide an orientation to each of the bird initiatives (waterfowl, landbirds, shorebirds and waterbirds) and the various conservation plans. A major goal was to provide state resource managers and their partners with information on the major findings and recommendations found in newly completed national and regional bird conservation plans. Other workshop objectives included providing breakout sessions to identify opportunities for integrated all-bird conservation projects within focus habitats; identifying common objectives between Joint Ventures, bird conservation initiatives, and other conservation programs; and identifying all-bird opportunities to support the State Wildlife Diversity Project.

PRBO Conservation Science and the California Department of Fish and Game co-sponsored this event with help from a generous grant provided by the International Association of Fish and Wildlife Agencies (IAFWA). With this support, we were able to offer registration reimbursements to all state employees that attended. More than 150 people attended the workshop.

Newsletter Publication

Thanks to the California Department of Fish and Game, the USDA Forest Service, and PRBO Conservation Science for funding the publication and distribution of this newsletter. With this help, California Partners in Flight will now be able to distribute copies to all of the governmental agencies in the state that are working to conserve wildlife as well as the offices of our non-governmental partners.

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Stay informed on important CalPIF issues and information. As a member of the listserve, you will be able to post your CalPIF message to the list. Only members can send messages to the list, so you should not receive any spam.

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Mark Your Calendars!

NEXT CALPIF STATEWIDE MEETING;

Tentatively scheduled for early April 2005. This will be a joint meeting with the Oregon/Washington PIF and will focus on coniferous forest issues

San Francisco Bay Flyway Festival; Vallejo, CA January 21-23, 2005

Partners in Flight Western Working Group meeting April 13-15, Utah

Updates to the CalPIF Web Site www.prbo.org/calpif

Maps Updated - The Riparian and Coastal Scrub focal species maps have been updated with 2004 data.

Meeting Minutes Posted - Minutes from the August 2004 Statewide Meeting at Starr Ranch are posted. Read about exciting conservation developments discussed at this meeting.

Letter to Southern California Forests - Read CalPIF's recommendations to the U.S. Forest Service Land Management Plan revision of the Southern California forests.

Dates to upcoming agency management plan revisions.

2004 accomplishments of California Partners in Flight.

Contribute to our Study Areas Database!

CalPIF Executive Steering Committee

Audubon California Dan Cooper dcooper@audubon.org

Bureau of Land Management Paul Roush Paul_Roush@ca.BLM.gov

Bureau of Reclamation Myrnie Mayville mmayville@mp.usbr.gov

California Department of Fish and Game Lyann Comrack LComrack@dfg.ca.gov

Department of Defense Tim Burr burrta@efdsw.navfac.navy.mil

Klamath Bird Observatory John Alexander jda@klamathbird.org

Institute for Bird Populations Rodney Siegel rsiegel@birdpop.org

National Fish and Wildlife FoundationHeather Chaseheather.chase@nfmf.org

Natural Resource Conservation Service Wendell Gilgert Wendell.Gilgert@,ca.usda.gov

 The Nature Conservancy

 Mark Reynolds
 mreynolds@tnc.org

PRBO Conservation ScienceGeoff Geupelggeupel@prbo.orgKim Kreitingerkkreitinger@prbo.org

San Francisco Bay Bird Observatory Sherry Hudson shudson@sfbbo.org

USDA Forest Service John Robinson jrobinson02@fs.fed.us

US Fish and Wildlife Service Debra Schlafmann Debra_Schlafmann@fws.gov

US Geological Survey Barbara Kus barbara_kus@usgs.gov

US Park Service Bill Merkle Bill_Merkle@nps.gov

Wildlife Conservation Society Steve Zack stevezack@msn.com

Ventana Wilderness Society/Big Sur Ornithology Lab Jessica Griffiths jessicagiffiths@ventanaws.org

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The *Flight Log* is a cooperative publication of PRBO Conservation Science, the USDA Forest Service and the California Department of Fish and Game to support and promote the Partners in Flight initiative in California. The Newsletter is generally published twice a year. Your letters, articles, and ideas are needed to help it succeed. To contribute or to receive a copy of the *Flight Log*, contact the Editor, Kim Kreitinger, at kkreitinger@prbo.org or (415) 868-0655 ext. 320.



PIF California Coordinator Kim Kreitinger PRBO Conservation Science kkreitinger@prbo.org

(415) 868-0655 ext. 320 **PIF California Co-Chairs**

Debra Schlafmann USFWS Debra_Schlafmann@fws.gov 916/414-6464

Geoffrey Geupel PRBO Conservation Science geupel@prbo.org (415) 868-0655 ext. 301



USDA Forest Service Pacific Southwest Region 1323 Club Drive Vallejo, CA 94592 707-562-8737



California Department of Fish and Game 4949 Viewridge Avenue San Diego, CA 92123 858-467-4208



PRBO Conservation Science 4990 Shoreline Highway Stinson Beach CA 94970 Telephone (415) 868-1221 www.prbo.org

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Look for an electronic version of this newsletter and Partners in Flight news, announcements, and links at the CalPIF web site at www.prbo.org/calpif

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