North American Bird Bander

Volume 36 | Issue 1 Article 18

2011

# Abstracts from the Scientific Program WBBA Annual Meeting

John D. Alexander

Sandy DeSimone

Jason Beason

Renee L. Cormier

David F. DeSante

*See next page for additional authors*

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## Authors

John D. Alexander, Sandy DeSimone, Jason Beason, Renee L. Cormier, David F. DeSante, Pablo Elizondo, C. John Ralph, Kim Klementowski, Ginny Short, Wade Leitner, Diego Garcia Olaechea, Josee Rousseau, Christine L. Southwick, and Jared D. Wolfe

## Abstracts from the Scientific Program
## WBBA Annual Meeting
## 1-2 Oct 2010
## Orange County, California

The abstracts are arranged by the last name of the first author, and include all those submitted. Titles only are given for those papers without abstracts.

**John D. Alexander.** Klamath Bird Observatory, Ashland, Oregon
"Tri-National bird conservation: Saving our songbirds and the importance of demographic data."

In 2010, Partners in Flight (PIF) is celebrating its 20th anniversary. PIF has also released the first continental species assessment and tri-national vision for bird conservation for Canada, the United States, and Mexico: "Saving our Shared Birds." This conservation plan highlights the need for full life-cycle migratory bird conservation efforts that are informed by the best available science. I will share Partners in Flight's inspirational 20th anniversary video and discuss the importance of bird banding within the framework of limiting factor analyses that have become a priority for the PIF Science Committee, as well as the initiatives' Western Working Group.

**John D Alexander**, Barbara W. Massey, and Daphne E. Swope. Klamath Bird Observatory. Ashland, Oregon.
"Where do they go: High and low elevation Song Sparrow movements and stable isotopes."

There is a predictable pattern of hydrogen isotope ratios along both latitudinal and altitudinal gradients. This ratio is transferred from water in the environment to the keratinous tissues of a bird during growth. Therefore, the relative location of an individual can be determined through the analysis of feather and hallux samples. The isotopic ratio of the feather sample can represent the breeding grounds, and the isotopic ratio of the hallux sample can represent an individual's location several months before sampling. In order to learn more about the migration patterns of different populations of resident and migratory species, feather and hallux samples were taken from individuals during mist-netting efforts and analyzed for hydrogen isotope ratios. Samples were collected at both high and low elevation sites during breeding seasons and in low elevation sites during the winter. A preliminary analysis indicates a difference between the isotopic signatures of basic feathers grown at high elevations versus basic feathers grown at lower elevations. Comparisons between feather and hallux samples collected from individuals at low elevations during the winter showed no measurable difference, suggesting these birds are year-round residents. Comparisons between feather and hallux samples from breeding individuals collected at high and low elevations, although not statistically significant, show a greater difference for high elevation breeders, suggesting that these birds move more than the low elevation breeders. Understanding fine-scale movement patterns of residents and altitudinal migrants is important for conservation efforts. For example, clarifying intraspecific differences in the movements of resident or short-distance migratory conservation focal species that breed at both high and low elevations will provide insight into the possible impacts of climate change on these species.

**Sandy DeSimone.** Starr Ranch Sanctuary, Audubon California, Trabuco Canyon, California.
"Audubon's Starr Ranch Sanctuary: Wildlife and work."

**Jason Beason**. Rocky Mountain Bird Observatory, Brighton, Colorado.
"Banding Black Swifts in Colorado."

Rocky Mountain Bird Observatory (RMBO) and the U.S. Forest Service (USFS) began a statewide inventory in 1998 to map the distribution of the Black Swifts *(Cypseloides niger)* in Colorado. This inventory resulted in the documentation of 88 confirmed breeding sites for the species in the state. Another result of the inventory was the discovery of five locations where it is possible to capture and band Black Swifts. To date, 140 Black Swifts have been banded in Colorado and repeat visits to these

locations have enabled researchers to add to existing knowledge about site fidelity, natal dispersal, and longevity of this difficult-to-study species. We have observed a recapture rate of 23.6% (n=33), which demonstrates the site fidelity of the Black Swift. Also noteworthy, 8.6% (n=12) of the banded Black Swifts have been recaptured more than twice. In 2009, RMBO and the USFS deployed four light-level geo-locators on adult Black Swifts in an attempt to study migration patterns and, to learn for the first time, where the species migrates to during winter months. In 2010, three of the four geo-locators were recovered and the data are showing that the three swifts behaved similarly while migrating and over-wintered in approximately the same location. This information will be critical to guide land managers in protecting Black Swift populations throughout their life cycle.

**Renée L. Cormier**, Megan E. Elrod, Diana L. Humple, Thomas Gardali, Rae E. Goodman, and Nathaniel E. Seavy. PRBO Conservation Science, Bolinas, California.
"Highlights from a long-term mist-netting station: new research from the Palomarin Field Station."

A long-term mist-netting station has been in operation at PRBO Conservation Science's Palomarin Field Station in Bolinas, California, since 1966. With chronically under-funded long-term studies such as this one, and the enormous amount of data generated, it is important to find efficient ways to produce scientific publications and generate excitement over monitoring data. Here, we give two examples of examining existing data sets through (1) internship-driven data projects and (2) graduate student research. Additionally, we highlight how coupling new technologies with existing monitoring can provide new insights and generate broad interest. We focus on three manuscripts in progress: (1) Incidence of eccentric molt increases with fledge date; a study led by a Palomarin intern, (2) Avian body size changes over time; an example of graduate student research, and (3) Tracking migrants through their annual cycle using light-level geolocator tags; couple existing banding projects with new technology.

**David F. DeSante,** James Saracco, and Phil Nott. The Institute for Bird Populations, Point Reyes Station, California. Presenter: Danielle Kaschube.
"Harnessing the power of cooperative bird monitoring: an update from the MAPS and MoSI Programs."

Using data from the MAPS (Monitoring Avian Productivity and Survivorship) Program, we assessed demographic contributions to BCR (Bird Conservation Region)-scale spatial variation in MAPS population trends for 27 migratory Neotropical-Nearctic species of landbirds. We estimated population trends and vital rates (adult apparent survival rates, recruitment rates, first year survival, and productivity indices). Species for which first-year survival was important in explaining spatial variation in trends tended to have declining populations, species for which adult survival was important tended to have stable trends, and species for which productivity was important tended to have stable or positive trends. Results indicate that recruitment of young birds is the means whereby spatial variation in recruitment drives spatial variation in lambda. Results indicate that (1) enhancing survival (especially first-year) will be important for slowing declines and stabilizing populations, (2) enhancing productivity may be necessary to recover populations whose declines have been arrested, and (3) identifying relationships between vital rates and winter habitat and weather will be critical for migratory bird conservation. Through MAPS and other broad-scale standardized mist-netting efforts, such as MoSI (Monitoreo de Sobrevivencia Invernal), we aim to provide insights into proximate and ultimate causes of population change. Interesting patterns emerge from MAPS regional estimates of population change. For example, some years seem to reflect large-scale climate phenomena, such as the El Niño of 1997-1998, where populations increased across regions, but many years also show little correspondence among regions. Overall differences can be related to differences in vital rates which can relate to differences in conditions in wintering areas. Collaborations with other

programs help us understand migratory connectivity based on biological samples from banding stations. Simple measurements, such as wing chord, also shed light on connectivity. Large scale bird-banding data from cooperative programs have also been instrumental in driving innovation in analytical techniques; e.g., Bayesian methods allow predictions of survival at finer spatial scales.

**Pablo Elizondo** and C. John Ralph. Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica; U.S.D.A. Forest Service, Pacific Southwest Research Station, Arcata, California; and Klamath Bird Observatory, Ashland, Oregon.
"Banding and monitoring networks in Costa Rica: establishment of a national banding scheme."

Bird monitoring efforts in Costa Rica date from mid 1970s, based on the use of federal and custom made bands. In 2008, a group of bird banders and conservationists decided to create the Costa Rica Bird Banding Network and its National Banding System. Here we present the progress of this network and the resulting banding initiatives within the country. To date, 10,000 bands with the inscription "AvesCR.org" have been distributed freely to projects in nine regions and over 30 constant-effort mist-netting sites. Recently, hummingbird bands have been incorporated into the scheme. Capacity building efforts involving education of Latin Americans have been an important part of the program. Currently, students from Costa Rica receive formal training in advance monitoring techniques following the standards of the North American Banding Council. The network is based at the National Institute of Biodiversity (INBio).

**Pablo Elizondo** and C. John Ralph. Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica, U.S.D.A. Forest Service, Pacific Southwest Research Station, Arcata, California, and Klamath Bird Observatory, Ashland, Oregon.
"Quetzals and the Costa Rica Bird Observatory: a new cooperative initiative for bird conservation."

In 2009 we proposed the creation of a bird observatory in Costa Rica as a center for the facilitation, promotion, and development of bird conservation programs in Costa Rica. Global warming, habitat destruction and fragmentation imposed important challenges in the way research is conducted, requiring maximization and optimization of recourses. Here we present the progress of the establishment of the headquarters, office and lodging facilities in the highlands of Costa Rica, conceived to host bird researchers into a more cooperative model that focuses on both migrant and resident species. Three different geographical stations are part of the Costa Rica Bird Observatory: Tortuguero, Madre Selva, and INBio. The main headquarters is located at the Madre Selva Station in the Cerro de la Muerte in the Cordillera of Talamanca, and has the iconic species of the highlands, the Quetzal.

**Kim Klementowski** and Ginny Short. Coachella Valley Center for Natural Lands Management, Thousand Palms, California.
"The Burrowing Owl and its use of artificial burrows on the CNLM Johnson Ranch and Skunk Hollow preserves, 2007–2010."

In 2008, Center for Natural Lands Management (CNLM) staff initiated a habitat enhancement study on two of their western Riverside preserves with financial assistance from the California Department of Fish and Game. The objective was to compare the use of artificial Burrowing Owl (*Athene cunicularia*) burrows among several habitat treatments. The habitat enhancement treatments including mowing, burning, and grazing were replicated in three blocks on Johnson Ranch and Skunk Hollow preserves. Each treatment was represented with two plots in each block, plus a control, resulting in 21 experimental plots. Artificial burrows were installed in each of the 21 plots in Nov 2008. Use of the burrows was monitored through the use of motion-activated wildlife cameras, direct observation, and inspection of burrow conditions (presence of pellets). Based on these observations, 19 of the 21 burrows (90%) were confirmed to have been used or visited by owls. In 2010, we banded at both natural and artificial burrows to facilitate tracking of burrow

use over time. Thirteen birds in total were banded in 2010. By fall 2010, biologists have confirmed three breeding pairs with chicks at three artificial burrows. An additional fourth breeding pair had utilized two-to-three artificial burrows within the same vicinity during the non-breeding season, but then moved to a natural burrow located about 20 m from one of the artificial burrows. In addition, there were two additional pairs at natural burrows on the Johnson Ranch Preserve. Juvenile owls have been observed using both natural and artificial burrows. The provision of artificial burrows in areas previously known to be inhabited by Burrowing Owls appears to have been successful in providing attractive breeding conditions.

**Wade Leitner.** Tucson, Arizona.
"A new network of banding stations on the Santa Cruz River in southern Arizona."

Tumacacori National Historical Monument has hosted a single banding station (TUMA) for 14 years. This station has produced extensive data concerning species richness, abundance distributions, species accounts and molt migration. However, basic data on recruitment and dispersal require the establishment of a set of sister stations. According to data drawn from stations both within and outside of the TUMA MAPS network, recapture of a hatch-year bird is far less likely than recapture of birds first banded later in life for most of the abundant species. Notably, the non-migratory species have much greater probabilities of recapture. The three most obvious hypotheses to explain this difference are: (1) Migration for hatch-year birds is far more risky than for second-year or older birds; (2) Hatch-year birds of migrant species are less likely to survive either before migration or on the wintering grounds; and (3) Hatch-year birds do not return to their natal sites long enough to be recaptured.

In any case, between species variation of recapture probability is far less for after-hatch-year birds than for either second-year or hatch-year birds. When second-year and after-second-year birds are lumped together, the probability of recapture is at least three times the hatch-year rate. This suggests that once a bird has established a breeding site, it tends to show high site fidelity. Thus, given that a hatch-year bird that survives to return will likely have come from the more successful pairs, it is very likely that a returning bird would find its natal territory occupied–most likely by its parents. If the average dispersal distance from natal site to breeding site is similar, then one could reasonably infer the extent to which hatch-year birds suffer greater mortality from migratory behavior. Of course, body size and foraging behaviors will change the scale of movement between species, so a direct comparison of distances dispersed would be ill advised. It might, however, be possible to do such a comparison by measuring distance dispersed in terms of home range or territory size. To that end, the TUMA MAPS network was established and has recorded its first data on between and, it turns out, within station dispersal.

**Diego García Olaechea**. CORBIDI (Centro de Ornitologia y Biodiversidad), Lima, Peru and Klamath Bird Observatory, Ashland, Oregon.
"Highlights in establishing a bird banding program for Peru."

Peru is one of the 10 most diverse, or megadiverse, countries on the planet due to its wealth in ecosystems, species, genetic resources, and cultures. Peru is also considered to have the second highest number of bird species in the world, after Colombia. A total of 1,840 species have been recorded, of which 105 are endemic to the country. Although there have been research projects involving bird banding in Peru since 1950, they have been few and isolated. Without any coordination or a data management plan, the data collected stays with the project and may be lost as projects disband or go defunct.

Centro de Ornitología y Biodiversidad has begun the development of a national bird banding program for Peru with the support of two British organizations: The Wetland Trust and Porzana Ltd, and a 2010 grant from the (US) Neotropical

Migratory Bird Conservation Act. The basic objectives of this program are to improve understanding of migratory and non-migratory bird occurrence, distribution, biology, and behavior throughout Peru and to contribute to the regional knowledge of seasonal distribution of birds. Additional objectives include having well-trained banders (and trainers), having a thoughtful designed data-management plan and developing meaningful monitoring stations. Initial steps involve starting a committee with anyone interested in banding in Peru, define a data intake protocol, define database management, training for more banders and trainers, and to get long-term efforts going.

**C. John Ralph,** Jared Wolfe, and John Alexander. Redwood Sciences Laboratory and Klamath and Humboldt Bay Bird observatories; Peter L. Ralph: University of California, Davis; and Judit Szabo: Charles Darwin University, Australia.
"Age ratios and routes of migrants along the California coast: predicting vagrants in your nets."

When we catch vagrants, rare birds out of their range, they are the exceptions to the rules that help us understand the rules; that is, what decisions migrating birds make. Seeing unusual species attracts visitors to banding stations and gets banders excited about constant-effort mist-netting. From data in the Landbird Monitoring Network of the Americas (LaMNA) that consists of 1,300 constant-effort mist-netting stations, we are seeking to understand adaptive strategies in migrants that relate to spatial factors (i.e., sub-populations differing behaviorally by age and sex, or different genetic factors across the landscape) and temporal factors (different timings of life-history events throughout the year). Most vagrants turn up on the coasts of oceans or of large lakes. Regular long-distance migrants like Swainson's Thrush, Yellow Warbler, and Golden-crowned Sparrow that turn up on the coast are mostly young, are disoriented, and have low weights. In this paper we explore if these coastal migrants are analogues of vagrants. We explore the age ratios of fall migrants for regional migration patterns and strategies. Based on experimental research, we have found that most vagrants have deviant directional tendencies: they migrate at the right time but in the wrong direction. We found that a higher rate of vagrancy on the west coast of California is influenced mostly by a higher population of the species in North America ($P < 0.001$), a closer distance to nearest breeding population ($P < 0.01$), and a closer distance to the population center of the species ($P < 0.01$). These three variables explain 47% of the occurrence of vagrants, an exceptionally good fit. In the future, with the huge data sets from LaMNA, we will be able to tease out multiple strategies and patterns, finding, for example, that different species, and different age classes, are doing different things in different regions. Most importantly, we are adding other variables, such as condition (fat load and weight) and molt rate from growth bars, to our arsenal of analytical metrics.

**Josée Rousseau**. Humboldt Bay Bird Observatory, Arcata, California and Klamath Bird Observatory, Ashland, Oregon.
"Life Histories of the Rufous Hummingbird derived from banding data from Landbird Monitoring Network of the Americas (LaMNA)."

The movement of Rufous Hummingbirds (*Selasphorus rufus*) through the Klamath-Siskiyou Bioregion was assessed using unbanded records from the Landbird Monitoring Network of the Americas (LaMNA). A total of 2,808 records from 1992 to 2009 and 74 banding stations were standardized as number of Rufous Hummingbirds per 100 net-hours at each station. The within-year recapture rate, determined through using information from rectrix feather clipping, is less than three percent, showing a highly mobile population. Adult males first arrived in coastal California in mid-February, were not captured in the region by early May, and left the region by the end of July. Adult females arrived shortly after the adult males, at the end of February, and the last ones left the region in mid-September. The hatch-year birds, both male and female, were present in the region from the end of May until the end of September. Although the

literature states the fall migration takes place to the east of the Rocky Mountains, these results suggest that at least some Rufous Hummingbirds are going through the Klamath-Siskiyou Bioregion during the fall migration.

**Christine L. Southwick** and Daniel Froehlich. Puget Sound Bird Observatory, Seattle, Washington. "Urban winter color banding project."

The Puget Sound lowlands host many populations of wintering songbirds, but little is known about how these populations use the urban environment that characterizes much of the Interstate 5 corridor. Puget Sound Bird Observatory has initiated a color-banding study to look at the territory size of wintering Dark-eyed Juncos (*Junco hyemalis*), Fox Sparrows (*Passerella iliaca*), and Black-capped and Chestnut-backed chickadees (*Poecile atricapillus* and *P. rufescens*), their social organization, and their site fidelity.

After a pilot season in the spring of 2008, PSBO has color-banded a total of 171 juncos, 17 Fox Sparrows, 191 Black-capped Chickadees, and 55 Chestnut-backed Chickadees at a total of five sites. Preliminary results show strong site fidelity and year-round territoriality for the chickadees, high winter site-fidelity for juncos with dramatic turnover early in the winter and return of local breeders in early/late February.

Fox Sparrows are strikingly dependent on particular vegetation types, notably invasive Himalayan Blackberry. Fifteen of the Fox Sparrows caught by this study were using the blackberry brambles. There were no Fox Sparrows caught in sites without blackberry. The near future of this long-term project will emphasize re-sighting efforts and patterns of returns and habitat use at sites in single family tracts and in large urban parks. Public outreach to neighbors, schools, and the public to generate awareness of the needs of individual birds is also a critical component of this project. Volunteers during the 2008-2009 season (including pilot) totaled 32 volunteers for 628 hours; the 2009-2010 season had 58 volunteers for 598 hours, for a study total of 1,226 hours and counting (casual re-sighting under one hour not counted).

**Scott Thomas** and Peter H. Bloom. Sea and Sage Audubon, Mission Viejo, California, and University of Idaho, Moscow, Idaho
"Monitoring the return of Ospreys to Orange County with banding and digital photography."

The authors have worked with the Sea and Sage Audubon Society in Orange County banding and studying local raptors for about 25 years. Ospreys (*Pandion haliaetus*) are one of the many raptor species that are banded and tracked for information about breeding, philopatry, and dispersal in a largely urban landscape that is intermixed with many large parks and open space reserves in and around the county. Nesting Ospreys all but disappeared from the coastal southern California area around the turn of the 20th century. However, thanks to the efforts of conservation organizations, volunteers, and wildlife agencies, Ospreys are once again breeding along the coast; and thanks to banding efforts and digital photography, we have some interesting data about their first few nests in Orange County.

**Jared D. Wolfe**. Louisiana State University, Baton Rouge, Louisiana and U.S.D.A. Forest Service, Pacific Southwest Research Station, Arcata, California.
"Results from sixteen years of bird banding in northeastern Costa Rica."

The Tortuguero Integrated Bird Monitoring Project (TIBMP) was started in 1994 to study migrant birds, resident birds, and provide training opportunities for Latin American biologists and students. After 16 years of bird monitoring, TIBMP has been recognized as the longest-running bird banding effort in Costa Rica. Utilizing our long-term dataset, we have begun documenting relationships between climate and avian physiology and demographics. For example, we found that frugivorous migrants and resident birds may be more physiologically susceptible to climatically induced changes in fruit and insect resources in young forest relative to mature forest. Based on

these results, we constructed migrant habitat use models which indicated that migrant insectivores used vegetative structure as a cue because of inherent difficulties associated with directly assessing arthropod availability; conversely, frugivores directly used fruit as a cue to select habitat. Our ability to detect a bird species' physiological and demographic response to a changing climate illustrates the importance of long-term bird banding efforts in tropical and temperate latitudes.

**Jared D. Wolfe**. Louisiana State University, Baton Rouge, Louisiana.

"Bluebonnet Bird Monitoring Project: Winter and migrant bird banding in central Louisiana."

Bird monitoring and banding efforts positively influence local communities and informed scientific discourse. Bird banding provides demographic estimates, information pertaining to individual physiological condition, and the identification of important phases of the avian life cycle while providing unique environmental outreach opportunities. Despite the scientific and cultural importance of bird banding operations, prior to our efforts detailed here, no contemporary wintering or migratory bird banding effort existed in central Louisiana. In collaboration with governmental and non-profit organizations, I initiated a bird banding operation in Baton Rouge, Louisiana, in March 2010 called the Bluebonnet Bird Monitoring Project (BBMP). Since that time we trained numerous volunteers and have laid the foundation for multiple studies focused on bird parasite connectivity, avian-fruit phenological associations and in-depth demographic estimates of resident and migrant birds. In addition to landbirds, we have partnered with National Audubon to monitor the frequency of oiled water birds impacted by the Deepwater Horizon spill. We routinely invite school-aged children to participate in all our monitoring activities thereby preparing the next generation of informed conservation ambassadors. During our first six months of operations, we have provided environmental outreach activities to over 200 Baton Rouge school-aged children. With increased domestic and international partnership, we will continue to train the next generation of bird advocates and produce sound scientific data pertaining to the health of our bird communities.

**Jared D. Wolfe.** Louisiana State University, Baton Rouge, Louisiana and U.S.D.A. Forest Service, Pacific Southwest Research Station, Arcata, California.

"Not your mama's molt talk: Theory and application."

Molt is an integral part of the avian life cycle; yet, it remains understudied relative to migration and breeding. Recent theoretical advances pertaining to the evolution of molt have significantly advanced our ability to recognize molt homologies across a diversity of avian taxa. Understanding molt theory and nomenclature will facilitate an improved ability to categorize age in captured birds. Part I of 'not your Mama's molt talk' will cover the annual molt cycle, micro-ageing using molt, recently proposed ageing schemes using molt, and recent theoretical advances and controversies.

Accurately determining the age of captured birds ultimately improves demographic estimates which can lead to informed management decisions by tracking, for example, productivity of birds in different habitats. Micro-ageing landbirds requires a firm understanding of molt and plumage succession relative to age. This talk will go into an overview of phylogenetically conserved molt patterns, and how to use such patterns to age birds, and using many temperate and tropical photographic examples. Special attention will be given to understudied bioregions, such as the Neotropics.