Western Bird Banding Association

Western Regional News

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2017 WBBA ANNUAL MEETING SCIENTIFIC SESSION SATURDAY, 30 SEPTEMBER

Presenting author is listed in bold.
*Indicates student author

9:00-10:00: *Plenary Presentation:* Mexico's Fantastic Bird Caves and Lifestyles Among the Swifts.

Dr. David Whitacre
Treasure Valley Math and Science Center, Boise, ID
davewhitacre@gmail.com

Dr. Whitacre has studied songbirds and raptors in various places, especially in Tikal, Guatemala, where he directed a study of the forest raptor community for several years. At our meeting, he will return to his roots studying cave-nesting swifts in tropical Mexico. He will introduce us to a third great cave-nesting bird syndrome—that of two *Streptoprocne* swifts that form tremendous colonies in some of Mexico's impressive pit-caves. He will focus on the differing lifestyles represented among the world's 80-odd swift species, with a special focus on foraging ecology.

10:00-10:15: Long-term Monitoring of Bird Populations in Puerto Rico.

Judith Toms[1], John Faaborg[2], and Wayne Arendt[3]
[1]Independent, [2]University of Missouri, [3]US Forest Service
judith.toms@zoho.com

The Guánica Avian Monitoring Project was established in southwest Puerto Rico in 1973. We use standardized, constant-effort mist-netting to monitor non-breeding populations of resident and migratory bird species. Our data reveal long-term population declines in several species, and suggest that changing rainfall patterns may be driving these trends. The Project also demonstrates the value of long-term monitoring programs, even if they are relatively low effort.

10:15-10:30: Field Notes on Post-Breeding Snowy Plover Banding Efforts.

Alexa DeJoannis[1], Mark Colwell[1], and Sean McAllister[2]
[1]Humboldt State University, [2]North Coast Field Biologists
Alexa.Dejoannis@humboldt.edu

Western Snowy Plovers (*Charadrius nivosus nivosus*) are federally threatened, and researchers throughout their coastal range monitor the population as part of the Species Recovery Plan. That effort includes color-banding birds whenever possible. During a series of six banding sessions from August to November 2014, we collected molt data on banded birds. We caught 31 plovers; we observed pre-basic molt in after-hatch-year birds, and pre-formative or no molt in hatch-year birds. Shorebirds are much easier to capture during the breeding season, especially since they generally walk to their nests. Most local plovers had ceased breeding activity in July, and they were massed into wintering flocks when we deployed mist-nets or noose-mats. We had some success with both devices, though in our final sessions, we were unable to capture any birds. It is possible that the flock had become too wary.

11:00-11:15: Banding Above the Clouds: A Summer in Pursuit of the Brown-capped Rosy-Finch.

Joel Such* and T. Luke George
Bird Conservancy of the Rockies
jbsuch@gmail.com

Largely nesting in remote and inaccessible alpine locations, the Brown-capped Rosy-Finch *(Leucosticte australis)* has been insufficiently studied during the breeding season. A near endemic to Colorado, this species appears to be undergoing a rapid decline in population. In association with collaborative partners, the Bird Conservancy of the Rockies initiated a research project focusing on this species of concern. With goals to capture, band, and collect blood and feather samples, methods were pioneered in order to realize the objectives. Through trial and error, the first ever Brown-capped Rosy-Finches were captured and processed on their breeding grounds. With a successful season in the rearview mirror, data obtained will begin unlocking the mysteries and many unanswered questions pertaining to the Brown-capped Rosy-Finch.

11:15-11:30: Microhabitat Use by Cerulean Warblers *(Setophaga cerulea)* in Indiana State Forests.

***Claire Nemes**[*1]* and Kamal Islam[2]
[1]Klamath Bird Observatory, [2]Ball State University
c.e.nemes@gmail.com

The Cerulean Warbler *(Setophaga cerulea)*, a canopy-nesting Neotropical migrant, has experienced substantial population decline in recent decades, primarily due to habitat loss and degradation throughout its range. In Indiana, where the species is considered state endangered, breeding populations persist in hardwood forests in the southern portion of the state. Intensive nest searching and color banding have allowed us to map out male territories and describe the microhabitat features that characterize Cerulean Warbler nest sites, nest patches, and territories in this region, as well as which attributes influence nest success. Nest patches and territories were found to have several similarities, including close proximity to roadways, a high amount of forest canopy cover, and location in relatively steep slopes. However, nest patches were influenced by topographic position and had characteristics of more even-aged forest stands, while territories were generally placed on northeast-facing slopes and possessed vegetation more typical of uneven-aged stands. This research is a contribution to the Hardwood Ecosystem Experiment, a long-term collaborative research project studying the impacts of differing management practices in the flora and fauna of Indiana state forests.

11:30-11:45: An Overview of 25 Years of Bird Banding by Klamath Bird Observatory.

Luiza Figueira Rodrigues and Robert Frey
Klamath Bird Observatory
lfr@klamathbird.org

Since 1993, Klamath Bird Observatory has conducted long-term constant effort mist netting at a network of stations within the Klamath-Siskiyou Bioregion of southern Oregon and northern California. The 35 banding stations were operated from a few months to 25 years, representing a variety of habitats in our region. A key component of the long-term monitoring was the bird banding training provided to over 250 interns from 17 countries. We present an overview of these 25 years of banding with most common and most unusual species captured, interesting cases, total numbers, and some regional population trends.

11:45-12:00: Influence of Audio Lure During Spring and Fall Migration in Southwestern Alberta.

Cyndi M. Smith and Peter Achuff
Calgary Bird Banding Society
cyndi.smith9@gmail.com

In the spring and fall of 2014. we tested the effectiveness of an audio lure, with differing lengths of playback time, for attracting migrants to a banding site. The site consisted of human-modified habitats (buildings, lawn, pasture, deciduous shrubs and trees, coniferous trees, and a pond) surrounded by agricultural land. We utilized a repeated 3-day cycle of treatments: day 1 (silent) had no audio lure, day 2 (short audio) the audio lure turned on 1.5 hr (± 15 min) before

local sunrise, and day 3 (long audio) the audio lure turned on 4 hr (± 15 min) before local sunrise. On audio lure days, we used a speaker to continuously broadcast songs and/or calls of 7 species (varied by season) until we closed the nets. We operated up to 10 mist nets on as many days as possible in spring (2 May to 3 June) and fall (10 August to 17 September). Nets were opened at sunrise and operated for 6 hr, weather permitting. In spring, we operated for 27 days (9 cycles), for 1,436 net hours, and captured 665 birds of 41 species. In fall, we operated for 30 days (10 cycles), for 1,685 net hours, and captured 747 birds of 39 species. Most species (5 of 7 in spring; 5 of 8 in fall) broadcast on the audio lure were captured in significantly higher numbers on audio lure days than on silent days. Of 8 non-target species captured in the spring, 5 were more numerous on audio lure days, and 7 of the 8 had higher numbers on short audio days than on long audio days; in fall, only 2 of 6 non-target species had higher numbers on short audio days. We will discuss pros and cons of using audio lures.

12:00-12:15: Alien Finder: A Method to Search for Foreign Recoveries in Large Datasets.

Pedro Martins[1], *C. John Ralph*[1,2], *John Alexander*[1], *and Peter Ralph*[3]
[1]Klamath Bird Observatory, [2]Humboldt Bay Bird Observatory, [3]University of Oregon
pvm@klamathbird.org

The study of bird migration has increased in the last decade with the advent of new technologies, especially so with geolocators. Before such innovations, captures of individuals in different stations were one of the few sources of information for describing bird movements. Despite its rarity, recoveries of foreign banded birds still are an important source of information on bird movements, especially because no extra effort or money is needed to gather this information during ongoing long-term monitoring projects. However, this information can be difficult to detect in massive datasets that have been collected over many years. We present a method for estimating the probability of a bird being a foreign recovery based on band number, species, location, capture date, and survival. The possible foreign captures are then revised, checking on the original physical data for data accuracy and the band number prefix checked for band size. In a preliminary analysis, we found at least five foreign recovery probabilities in a subsample of the Klamath Bird Observatory long-term monitoring database. The data will be sent to the Bird Banding Laboratory for confirmation and to gather more information about the individuals' origins. We expect to share this approach and encourage other banding operations to employ similar methods on their databases.

13:30-13:45: Origins, Evolution, Speciation, and Ecology of Observatories of Birds.

C. John Ralph
Klamath and Humboldt Bay Bird Observatories, USFS Pacific Southwest Research Station
cjralph@humboldt1.com

Most of us have been associated one way or another with the entity called a "Bird Observatory". In the Americas, they have been a force for 80 years, and by our calculations they have generated a data universe of about 30 million landbird banding records, and perhaps 100 million censuses. These efforts followed a hallowed tradition going back to the very first 'modern' Bird Observatory, founded in 1910 on the German island of Heligoland. What I term "Observatories" have several things in common … they are monitoring, education, or research organizations (or all three) in pursuit of knowledge and conservation. At all the Bird Observatories in the Americas, the underlying theme has always been ***Long-term Bird Monitoring Science***, with counts of various kinds, and banding – traps and nets, usually at the core.

What is distinctive about a Bird Observatory is "one stop shopping" for information and expertise about birds. The data they take often extends the commonly-held image of bird monitoring with insight on large scale demographics, movements, and conservation applications.

I look at the phenomenon of Bird Observatories as an evolutionary ecologist might, with each Observatory a result of its genes, its environment, and its habitat.

Among the several hundred Observatories in the Americas are a staggering panoply of governance models, financial well-being (from

budgets of a few thousand dollars a year to several millions!), personnel (up to a couple of hundred), and many names in addition to "observatory" (think of Bird Studies Canada, Manomet Center for Conservation Science, Powdermill Avian Research Center, Point Blue Conservation Science, etc.)

I will discuss some of these models of Observatories in the Americas and their counterparts elsewhere, and look to the future. Several alternate futures are available, with stations enthusiastically joining into networks, and exploring different financial and scientific models. Critical to looking forward is looking back, while nowadays banding data from the small to the largest banding are mostly rigorously entered into computer data bases, often in 'real time', many of the 'heritage' data are not yet entered. This potential treasure trove of information extends our knowledge back in time so as better to predict our favorite bird's place in whatever the planet's future environments.

13:45-14:00: An Integrated Population Model for Multi-Scale Inferences about Population Dynamics of North American Landbirds.

Danielle Kaschube[1], James F. Saracco[1], Farshid S. Ahrestani[1], John R. Sauer[2], Keith Pardieck[2], and J. Andrew Royle[2]
[1]The Institute for Bird Populations, [2]USGS Patuxent Wildlife Research Center
dkaschube@birdpop.org

Integrated population models (IPMs) are designed to combine different data sets to estimate the dynamics of bird populations such as population change and vital rates and improve the precision of estimates derived from an individual data set. This IPM combined the capture-recapture data from the Monitoring Avian Productivity and Survivorship (MAPS) and count data from the North American Breeding Bird Survey (BBS) programs. Both programs are large scale, long term bird monitoring programs but data is collected at different sites, at different scales, and each program brings its own inherent observer biases. The intent of the IPM was to facilitate a unified model framework, improve precision of estimates and include latent parameters. The IPM was applied to data from Gray Catbird and Wood Thrush, and found at multiple spatial scales, that estimates of population change, adult survival, and detection and residency probabilities were similar to the estimates calculated from the stand-alone BBS and CJS models. However, using the IPM modeling allowed the estimation of a latent recruitment parameter. Population change rates correlated more with recruitment than survival for both species, and the relationship for Wood Thrush was stronger than for Gray Catbird.

14:00-14:15: Tropical Bird Molt: Adaptation to new Ecological Roles.

Jared Wolfe[1] *and Erik Johnson*[2]
[1]USFS Pacific Southwest Research Station, [1]Humboldt State University, [2]Audubon Louisiana
jdw21@humboldt.edu

The recent publication of *Molt in Neotropical Birds: Life History and Aging Criteria*, a book that details the molt strategies (variation in the timing, duration and extent of feather replacement) for nearly 190 Amazonian species of birds, has shed light on previously unknown patterns of molt in tropical bird communities. In this talk, Jared Wolfe, co-author of the book, will discuss how variation in molt strategy is often associated with a species' ecology, suggesting that differences in molt may actually reflect important adaptations to new ecological roles throughout the tropics.

14:15-14:30: What do we get out of working for free?

Emily Aarsvold*
Humboldt Bay Bird Observatory
eca136@humboldt.edu

Volunteer internships are a controversial practice, especially in the field of wildlife biology. Some consider them indispensable experiences that could not be acquired any other way, a coming of age requirement for the budding biologist. Others believe that most volunteer internships ask too much and are, in reality, only an option for the privileged. Where does an internship that asks for a little bit of your time stretched over a long period of time place on this scale? What are the benefits to volunteering time to wildlife research? An informal survey was created to gain some insight into the impact that being a volunteer bander at Humboldt Bay Bird Observatory has on the volunteer banders' skill set and career trajectory.

15:00-15:15: Stable Isotope Analyses Suggest Fall Salmon Resource Subsidies Influence Hatch-Year Pacific Wrens.

Marlene A. Wagner*[1,2], Eric Hertz[1], Kirsten A. Wilcox[1], and John Reynolds[1,2]
[1]Simon Fraser University, [2]Hakai Institute
mawagner@sfu.ca

Resource subsidies that cross ecosystem boundaries can have strong and unforeseen ecological impacts. Marine-derived nutrients from Pacific salmon can be transferred to riparian forests through diverse food web pathways, fertilizing forests and increasing invertebrate abundance, which may, in turn, affect breeding birds. At our study sites in the Great Bear Rainforest of British Columbia, stream side bird abundance and diversity increased with salmon biomass. To explore hypotheses surrounding this phenomenon, we measured invertebrate prey abundance, and collected morphological data while target banding an obligate insectivore, the Pacific Wren (*Troglodytes pacificus*). We compared nitrogen ($\delta^{15}N$) and carbon ($\delta^{13}C$) isotope ratios in feather samples to determine the contribution of marine-derived nutrients to wrens, and showed that body condition increases with $\delta^{15}N$. Combined results suggest that fall spawning salmon provide significant legacy benefits to songbirds during the spring breeding season. This work provides new evidence that salmon positively impact terrestrial ecosystems and emphasizes the need for holistic ecosystem-based management of salmon fisheries.

15:15-15:30: Breeding Songbird Abundance is Correlated with Growing-Season Precipitation on the Western Great Plains.

Amber Carver*[1], David Augustine[2], Susan Skagen[3], and Michael Wunder[1]
[1]University of Colorado Denver, [2]USDA Agricultural Research Service, [3]Bird Conservancy of the Rockies
amber.carver@ucdenver.edu

Habitat heterogeneity on the Great Plains is generated through disturbance. A key component of the disturbance regime is precipitation, which fluctuates widely from year to year in that ecoregion. Precipitation regulates plant community composition, and fluctuations in soil moisture correspond with changes in habitat. This poses survival challenges to organisms that rely on specific Great Plains habitat types. Potentially adaptive responses include generalization and nomadism. That is, species may have evolved either to tolerate a wide array of conditions or to relocate in response to shifting habitat. Our study addressed the extent to which generalization and nomadism apply to ground-nesting songbirds. We selected two contrasting species: one that nests in short, sparse vegetation [McCown's Longspur (*Rhynchophanes mccownii*)]; and one that nests in tall, dense vegetation [Lark Bunting (*Calamospiza melanocorys*)]. These two species often use the same habitat patches but nest in different microhabitats. First, we quantified the relationship between bird abundance and rainfall, based on eBird records and mark-recapture results. Second, we quantified the relationship between rainfall and habitat structure, based on vegetation measured during a nest monitoring project. Last, we quantified the relationship between habitat structure and nest abundance, based on the same nest monitoring dataset. We found that breeding season precipitation was positively correlated with Lark Bunting abundance and negatively correlated with that of McCown's Longspurs. Vegetation height and density increased with breeding season precipitation. As those increased, the abundance of McCown's Longspur nests decreased while that of Lark Bunting nests increased. Lark Buntings nested in a wider array of microhabitat conditions than McCown's Longspurs did. Together, these findings suggest both species are nomadic, responding differently to the disturbance regime. Lark Buntings use a combined strategy of generalization and nomadism, while McCown's Longspurs rely mostly on nomadism.

15:30-15:45: Tropical Bird Observatories: Uses and Applications for Science and Conservation.

***Pablo Elizondo*[14],** C. John Ralph[23], and Jared D. Wolfe[23]
[1]Costa Rica Bird Observatories, [2]USFS Pacific Southwest Research Station, [3]Klamath Bird Observatory
jpelizondo@pifcostarica.org

The tropics are home to about two-thirds of the world's biodiversity, and the birds that inhabit these regions suffer, in many cases, from deforestation and habitat loss. In order to properly manage and preserve birds and their ecosystems, we depend on reliable scientific information, which can provide estimates on survivorship, condition and demographics, leading to informed conservation strategies at a regional scale. Bird observatories are a key to conservation of these bird species.

Bird observatories function as specialized centers for generating scientific information relevant to the understanding of the full life history parameters of importance. This includes the population dynamics of multiple migratory and resident bird species, the habitats they occupy, and limiting factors for species conservation, and also act as disseminators of information and promoters of environmental education programs as well as implementing specific and successful conservation strategies.

The role of the observatories also has to do with the creation of regional capacity in the training of the new generations of biologists and ecosystem managers. The Costa Rica Bird Observatories (CRBO) has many accomplishments. It has: trained over 500 biologists in advanced scientific bird monitoring techniques; authored more than 50 scientific papers; implemented various species conservation programs, including the first payment for ecosystem services based on birds in the region; and maintains a strong initiative for environmental education with different audiences at the local, regional, and national level.

CRBO currently operates 15 stations, country-wide and year-round, supporting specific research, education and conservation initiatives, that have a strong focus on declining species. We think we have shown that the use of relevant and rigorously collected scientific information, in combination with strong community involvement, communication and market based incentives, has led to successful experiences in bird conservation through bird observatories. The CRBO model has an interesting history and our experiences may well be applicable to other countries and regions.

POSTER SESSION

Using Upper Mandible Lining Color to Age Black-Capped Chickadees *(Poecile atricappilus)*: Is It Reliable?

Michael Krzywicki, Megan Fylling, and Tricia Rodriguez
University of Montana Bird Ecology Lab
michael.krzywicki@mso.umt.edu

Black-capped Chickadees *(Poecile atricapillus)* are occasionally difficult to age and as suggested in Pyle (1997), the degree of color in the upper mandible mouth lining can be used to help determine age in chickadees. We tested whether mouth lining color can be used in the absence of a reliable skull or other diagnostic age characteristic. We scored color of mouth lining of 145 known-age Black-capped Chickadees during fall migration seasons of 2015-2017 in the Bitterroot Valley in western Montana. We detected a significant difference in mouth lining color between adults and juvenile birds ($p = 0.01$), but variation within these age groups is relatively high. Our recommendation is to use mouth color as an aging criterion for chickadees with great caution or strictly as a complementary confirmation of age.

A New Measurement to Separate Male and Female Anna's Hummingbirds *(Calypte anna).*

David Rankin and Christopher Clark
University of California Riverside
david.rankin@ucr.edu

While adult male and female Anna's Hummingbirds *(Calypte anna)* are not hard to differentiate, juveniles of either sex closely resemble each other until they begin molting for the first time. Measurements of wing, tail, and bill overlap widely, while plumage features are subtle and can be variable. Here we propose a new measurement that differs between male and female Anna's Hummingbirds; the keel measurement. Males measure, on average, 1.9 mm larger than females (19.8 mm for males vs 17.9 mm for females), with 8% overlap. Keel length in males was positively correlated with exposed culmen length and mass, but not wing chord or tail length. For females, keel length was only correlated with exposed culmen length.