



Founded in 1925

Western Regional News

Featured Highlights of the 2014 Western Bird Banding Association Annual Meeting

The 89th meeting of the Western Bird Banding Association (WBBA) was held Thursday, 18 Sept through Sunday, 21 Sept in Arcata, California. Hosted by C.J. and Carol Ralph, the Humboldt Bay Bird Observatory (HBBO) and Klamath Bird Observatory, the meeting setting was in a gorgeous location on the HBBO grounds on the Ralphs' property overlooking an estuary and fields bordering Humboldt Bay. The total number of registered attendees was approximately 75 hailing mostly from California but also from Arizona, Colorado, Nevada, New Mexico, Oregon, Utah, Washington, British Columbia, Mexico, and Peru. Attendees arriving on Thursday were treated to ample amounts of food served family style at the Samoa Cookhouse, "the last surviving cookhouse in the West." A social gathering around the campfire at HBBO followed.

Friday's events began with early morning mist netting with HBBO banders followed by walking excursions into the surrounding dune and ocean shore habitats. Many interesting and informative workshops were held in the afternoon and included: using geolocators, raptor banding techniques, cavity nesting birds monitoring techniques, band adjustment and removal, and bird first aid.

The annual WBBA board meeting was also held Friday afternoon. The board discussed and acted on several things including approving the next budget, reviewing membership statistics, selecting a 2015 annual meeting location in British Columbia

and selecting potential candidates for board positions for 2014-2015. Minutes from the board meeting will be available on the WBBA website in the future. The board also approved a \$1000 research grant to be awarded to Micah Scholler, University of British Columbia. The title of his project is: **Linking Longevity to the Slow Pace of Life of Neotropical Birds.**

Friday evening attendees were entertained by the local bluegrass band, The Compost Mountain Boys, while munching on a wonderful catered meal prepared with locally produced foods.

The Scientific Session was held on Saturday at the Mad River Rapids RV Park. The sessions were attended by registered WBBA participants, student interns and a few guests. In total during the meeting about 30 interesting and informative oral presentations, workshops, and posters were presented. Abstracts are presented elsewhere in *North American Bird Bander*.

Also on Saturday, the General Membership Meeting was held where a new slate of officers and Board members was elected:

Jared Wolfe - President
Howard Browers - Immediate Past President
Marlene Wagner- 1st Vice President
Wade Leitner - 2nd Vice President
Chrissy Kondrat-Smith - Secretary
Pat Leitner - Treasurer
Danielle Kaschube - Membership Chair
Walter Sakai - NABB Editor
Mike Boyles - At-large Board Member
Allison Nelson - At-large Board member
Holly Garrod - At-large Board Member

Judith Toms - At-large Board Member
Pablo Elizondo - At-large Board Member

The Saturday evening banquet events were held at the HBBO in the Ralphs' barn. A competitive silent auction featuring books, T-shirts and wildlife prints netted over \$500 which helps fund WBBA's research and monitoring grant program. Our keynote speaker was Dr. Jared Wolfe who delighted the audience with his recent banding work in West Africa entitled: **Bird Banding in the Country Least Known to Science: Adventures in Equatorial Guinea.**

The 2015 meeting is currently being planned and will be held in Vancouver, British Columbia. Details will be provided as they become available. As we wholeheartedly welcome our new officers and board members, we want to thank outgoing board members C.J. Ralph and Josée Rousseau.

We especially want to thank our current Webmaster Kay Loughman who is retiring from the Board and WBBA activities after 26 years of service. Kay began banding in 1986 and spent 10 years as a subpermittee with Coyote Creek Field Station (now part of San Francisco Bay Bird Observatory). Kay joined WBBA in 1987 and attended her first annual meeting in 1988 in Arcata. She quickly jumped into WBBA support activities by serving as an Archivist from 1988-1991, charged with cataloging and storing historical WBBA documents. In subsequent years, Kay has served as an At-Large Director (1991-93, 2006-2013), Secretary (1994-1996), and Editor (2001-2006).

Kay was instrumental in the development and oversight of the WBBA website beginning in 2003. She became the official Webmaster in 2007 where she worked on upgrading the website and adding new pages including Donate to WBBA, past Board Meeting minutes, all issues of *News from the Bird Banders* and *Western Bird Bander*, and the column of announcements we now see on the right side of the page. Also, as part of her Webmaster duties Kay has been responsible for getting Volumes 1-30 (1976-2005) of our *North American Bird Bander* journal uploaded into the Searchable Ornithological Research Archive (SORA) thus making the

information in those volumes readily available via the internet. She was co-organizer for the 1998 annual meeting and, based on that experience, wrote the "Hosting a WBBA Meetings Guidelines" which has been an indispensable document for planning the annual meeting. Kay had a thorough understanding of the history and workings of WBBA including the Bylaws and often helped to keep board meetings on track.

We will miss Kay and wish her well.



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*Howard Browers,
Immediate Past President*

ABSTRACTS

Advancing bird conservation beyond the borders: the case of the San Pancho Bird Observatory in Nayarit, Mexico (talk).

*Camacho, Aracely*¹ and Luis Morales²*

¹Klamath Bird Observatory, Ashland, OR

²San Pancho Bird Observatory, Nayarit, Mexico

The San Pancho Bird Observatory (SPBO) is a non-profit, grassroots organization based in San Francisco, Nayarit, Mexico. SPBO is dedicated to advance bird and habitat conservation in the southern Nayarit coast region. SPBO's non-advocacy approach to conservation is based on bird population monitoring, education, ecotourism and the creation of national and international partnerships.

In the scope of a "full life-cycle" conservation strategy that includes not only birds but also people, SPBO's conservation strategy is based on integrating education, scientific monitoring and community development. SPBO's programs are

oriented to improve the habitats for birds and people by delivering programs that facilitate the development of community-based ecotourism and scientific-monitoring programs. An example is the partnership created between Klamath Bird Observatory (KBO) and SPBO through Partners in Flight's Western Working Group which has resulted in the participation of two bird-banding interns through the U.S. Forest Service International Program. Other remarkable achievements of such international partnerships is the \$12,000 grant provided by the Rotary International Foundation to SPBO to develop capacities for bird conservation at nine communities of the central-southern Nayarit coast and the trinational partnership to advance the understanding of migratory connectivity of Neotropical birds between Environment Canada, Simon Fraser University (British Columbia, Canada); KBO and SPBO. The coastal habitats at the Nayarit-Jalisco coast are facing major challenges resulting from a new four-lane highway under construction and potentially the development of a commercial port financed by China at the famous birding "mecca" of San Blas. Increasing support and efficiency of bird-conservation partnerships is critical.

Walk-in nest traps as a method for capturing McCown's Longspur (talk).

Carver, Amber

University of Colorado
Denver, Littleton, CO

Parent bird physical condition is a potentially important factor influencing nesting outcome. In studying the impact of livestock grazing regime on shortgrass passerines, one of my goals is to estimate the importance of parent condition for the nest survival of McCown's Longspur (*Rhynchophanes mccownii*), a species of conservation concern in Colorado and Nebraska. Mist-netting is not feasible for many grassland birds. To capture adult birds, I used a walk-in trap placed over the nest. During the first season of my two-year project (May to Jul 2014), I located nests through weekly rope-dragging in study pastures at the Central Plains Experimental Range in northern Colorado. I encountered 336 nests belonging to four species. Of these, 27 belonged to McCown's Longspur, and 16 failed before I could attempt trapping. Of the remaining 11, I successfully captured nine. I applied metal and color bands and recorded physical data. Though limited, these results suggest

that walk-in traps are effective for this species. No injuries occurred and stress was minimal. I recommend trapping early in the nesting cycle to obtain a maximal sample size. Color bands do not appear useful for this species; it spends most of its time walking through grass, and its tarsi are rarely visible.

Hummingbird banding as an essential, invisible tool in experimentation (talk).

Clark, Chris

University of California
Riverside, CA

Hummingbirds are excellent research subjects for a range of modern behavioral, physiological, ecological and evolutionary scientific questions, both in captivity and in the wild. In the lab, I provide examples of how they rapidly acclimate to captivity and are excellent for short-term experiments. At the end of an experiment, as an alternative to euthanizing them, they may be banded and released at the site of capture. In the field, I provide examples of studies in which territorial individuals are easily caught with feeder traps and can be marked for re-identification or manipulated for an experiment. In both of these paradigms, these uses of bird banding may not be mentioned in the methods sections of papers, making invisible its use as a scientific tool.

Small band adjustment and removal (workshop).

*Clark, Kaitlin** and the Klamath Bird Observatory staff
Klamath Bird Observatory
Ashland, OR

The session will address adjustment and removal of small aluminum butt-end bands commonly used in songbird banding. Best-practice application, useful tools and their use, and adjustment/removal technique will be discussed. The session will be interactive with demonstrations, participant practice, and open discussion.

A new training aid for avian census outside of the breeding season (talk).

*Cruikshank, Ian, Ann Nightingale, and Judith D. Toms**

Rocky Point Bird Observatory
Victoria, BC, Canada

Census routes provide an important complement to

banding in many monitoring programs because they detect species that are rarely caught in nets. However, outside of the breeding season, observers lack the well-known bird songs most commonly used to identify individuals. This poses great challenges for organizations trying to recruit or train skilled observers, particularly those that depend on volunteers. Rocky Point Bird Observatory has now developed a set of CDs that document calls for the species commonly encountered on southern Vancouver Island, with additional tutorials that will aid beginners in learning how to identify bird calls.

Molt in individuals: A study of pre-alternate molt timing in a population of marked Snowy Plovers in northern California (talk)

*DeJoannis, Alexa^{*1}, Sean E. McAllister², and Mark A. Colwell¹*

¹Humboldt State University
Arcata, CA

²Eureka, CA

Feathers define birds. Plumage has allowed birds to colonize most of Earth's surface. Durable and strong, the feather coat is nonetheless prone to gradual degradation from abrasion, ultraviolet radiation, and ectoparasites. It is a costly investment that requires periodic renewal to maintain optimal waterproofing, insulation, buoyancy, display, and flight. Most species molt completely, or grow an entirely new coat, on an annual basis. Some also insert a second, incomplete molt between these complete molts. The pre-basic molt is typically complete, resulting in the basic plumage. The pre-alternate molt, if present, involves only some of the feathers and results in the alternate plumage. Researchers have learned a great deal about molt in different species from the observation of wild birds, and the examination of both preserved specimens and captured birds. But neither of these methods allows researchers to follow molt in individuals of known history in the wild. Western Snowy Plovers (*Charadrius nivosus nivosus*), a federally threatened population living along the west coast of North America, are color-banded in a long-term effort to monitor their breeding success and survival in accordance with the species' Recovery Plan. We plan to photograph the color-banded plovers in the largest wintering flocks in Humboldt County, CA, twice a month from Jul 2014 to Apr 2015, to detail the timing of their pre-alternate molt during one cycle. Images

will show plovers shedding their duller, basic plumage for the alternate plumage, characterized by black to brownish-black patches in the forecrown, auriculars, and the sides of the neck. This population offers a rare opportunity to document molt in wild-living individuals and correlate molt initiation and duration with covariates such as sex, age by year, age by hatch date, local residency vs. breeding elsewhere, and reproductive success measured in fledglings over the past season. This study will describe the timing of pre-alternate molt in snowy plovers of northern coastal California. Molt is an essential and important process in the annual cycles of birds, with potentially major carry-over effects in other aspects of the annual cycle and, therefore, merits attention in the interests of conservation and natural history.

Results from mist netting and banding efforts at the Biological Station Santa Eulalia, Huarochirí, Lima, Peru 2012-2013 (talk).

*Díaz Campo, Alexis^{*1,2}, F. Hernández Camacho¹, E. Berrocal¹, Y. Tenorio¹, J. Salvador¹, T. Poma¹, K. Chumpitaz¹, C. Santo¹, and L. Alza¹.*

¹Centro de Ornitología y Bioversidad, Lima, Peru

²Klamath Bird Observatory, Ashland, OR

Results from mist netting and banding efforts at the Santa Eulalia Biological Station (Huarochirí, Lima, Peru) between Jun 2012 and Dec 2013 are presented. The station is located between 2,300 and 2,400 meters above sea level in the western basin of the Andes Mountains. The predominant type of habitat is tropical montane desert scrub with growing areas framed by Andean climate zone. Ten 12-m nets were operated for a period of three consecutive days per month. Standard biometrics as described in Ralph et al. (1996) were collected. A total of 557 individuals of 27 species of 14 families were banded—3 of these endemic to Peru. Recaptures were comprised of 14 species of nine families, representing 13% of all banded species. The sampling effort was 4,180 net hours. Seasonal variation in abundance and richness of bird species, as well as physiological variation, was documented. The highest capture rates occurred in Aug and Nov 2012 and in Mar, Aug and Dec 2013. Active molt was documented in 21% of banded birds between the months of Jun to Aug. Also in these months, as many individuals were recorded without fat reserves. Due to seasonal weather variation between dry and wet seasons in the Santa Eulalia River Basin, we suspect the climatic

variation impacts the local bird's physiology. Despite its high biodiversity, little is known of the birds in Peru. Limited survey and banding efforts are occurring in some areas, but more work is necessary to document the avian diversity as well as the ecology and physiology of Peruvian birds. We recommend further evaluations at different levels of altitudinal gradients to better understand natural history, distribution, and population dynamics of common birds in the different evaluation points.

Singing a different tune: The effects of avian blood parasites on song in Nuttall's White-crowned Sparrow (*Zonotrichia leucophrys nuttalli*) (poster).

Emmerson, Dena

San Francisco State University
San Francisco, CA

Bird populations around the world are experiencing rapid and alarming rates of decline. A major contributing factor is Haemosporidia, a globally distributed order of blood parasites. These avian parasites have been implicated in migration and reproduction disruption and even in catastrophic extinction events. However, the effects of these parasites on song, a critical means of avian communication, have been significantly understudied. In this project, I am investigating the effects of haemosporidian parasites on the song of male Nuttall's White-crowned Sparrows (*Zonotrichia leucophrys nuttalli*), a common bird with a well-studied song. I first determined the infection prevalence of resident Bay Area sparrows through blood sampling, microscopy, PCR, and DNA sequencing. Resighting by color bands, I then recorded and digitally analyzed audio of male song. Blood and audio samples were paired and evaluated to determine differences between infected and uninfected birds, the results of which will be presented at the 2014 WBBA meeting. I hypothesize that infection will negatively affect song performance, decreasing rate, consistency and length of both overall songs and individual notes. A holistic understanding of avian host-parasite interactions is critical for effective long-term conservation and management to halt rates of species decline.

Bird first aid workshop (workshop).

Frey, Robert

Klamath Bird Observatory
Ashland, OR

The session will address injuries encountered during mist netting and banding of songbirds, covering, prevention, recognition of symptoms or signs, and treatment. The injuries covered will include capture-related stress, tarsus fracture, intertarsal joint dislocation, wing strain, and lacerations. The session will be interactive with treatment demonstrations, participant practice, and open discussion.

Aging passerines by eye chroma characteristics (talk).

Garrod, Holly

Humboldt State University
Arcata, CA

Multi-year monitoring of bird populations via banding provides useful demographic data, permitting the estimation of survival rates and life-history differences between adults and juveniles. The usefulness of this demographic information stems from the ability to age birds in the hand. While several reliable aging techniques exist, eye color is a very reliable criterion that is not often considered. I developed a quantitative method for examining eye color differences. Using mist nets to capture and band birds, I photographed eye color in a standard light box setting and used photo software (GIMP) to determine the red, green and blue values. Hatch-year and after-hatch-year birds' eye colors differed for Fox Sparrow, Myrtle Warbler, and Hermit Thrush, thus far. I am continuing this analysis on other species, including resident tropical birds captured in the Dominican Republic. I plan to continue analyses to compare eye colors I observed with Munsell soil chart values, using this to prepare a guide for use by anyone in the field.

Myiarchus Research Project in Nayarit, Mexico (talk).

Gellman, Steve

Myiarchus Research Project
Kneeland, CA

In the fall of 2013 through spring of 2014, the first field season for the "Myiarchus Research Project" was completed in Southern Nayarit, Mexico, on the status, distribution, and nesting ecology of four sympatric *Myiarchus* flycatchers: Ash-throated Flycatcher (*Myiarchus cinerascens cinerascens*), Nutting's Flycatcher (*Myiarchus nuttingi inquietus*), Dusky-capped Flycatcher (*Myiarchus tuberculifer*

querulous) and Brown-crested Flycatcher (*Myiarchus tyrannulus magister*). This taxonomically difficult group was chosen for research due to its status as stable populations that can tolerate significant landscape disturbance. A summary of the first season's results includes acoustic inventories, foraging preferences, population densities, dates of dispersal, nesting ecology and inter/intraspecific associations. Challenges of trapping and banding are discussed.

Nesting ecology of Nutting's Flycatcher (talk).

Gellman, Steve¹ and Erik Penaloza^{*2}

Myiarchus Research Project

¹Kneeland, CA

²Guadalajara, Mexico

Nutting's Flycatcher (*Myiarchus nuttingi*), is a common inhabitant in thorn scrub and open forests from Sonora, Mexico, to Northern Costa Rica (Lanyon, 1961, 1978) and a secondary cavity nester. In the Bahia de Nayarit region they are generally found in moderate numbers during the non-breeding season along the coastal agricultural, thorn forest, and river wash intergrades but are more common higher in the mountains up to the edge of the pine/oak forest. During the breeding season, Apr/May, they arrive in the coastal dry riparian zones in greater numbers and are the only *Myiarchus* of the four sympatric *Myiarchus* to nest in these bottom areas. They primarily utilize wooden fence posts that have decaying cavities or secondary excavations by woodpeckers like the Golden-cheeked Woodpecker. From 1 Apr to 5 May 2014, agricultural/thorn forest interface areas were searched for all *Myiarchus* species nests. Nest search protocol was used and found 22 active nests of Nutting's flycatchers utilizing fence posts along secondary and tertiary roads, places of high disturbance. Of the 22 nests recorded, 19 were in a natural post hole, two in woodpecker excavations, and one in a split intersection of a fencepost. Average clutch size was four eggs. Nestlings were attended by two adults bringing a range of food items from insects (64%), reptiles (3%), arachnids (1%) to fruits (3%). Nest linings were mostly mammal hair, feathers and vegetable fiber with a primary filler plug of dung. During the survey we found other taxa using the cavities such as mice, bats, black iguanas, lizards, and scorpions. San Blas Jays, a known predator, was observed examining fence post cavities. Extreme disturbance had no

effect on egg laying or feeding of nestlings. Trapping techniques at the nest sites were developed, as well as plans for banding adults and young during the 2015 season.

Eliminating band number damage caused by metal pliers: A new polymer banding plier (poster).

Goodell, John M.

High Desert Museum

Bend, OR

Steel banding pliers are a simple, cost-effective tool bird banders have used since the inception of bird banding in North America. Most of these pliers are machined from high carbon steel or stainless steel needle-nose pliers available at any hardware store. Unfortunately, most steel used in pliers exhibit hardness values 8-10 times seen in aluminum. Additionally, the coefficient of friction of steel sliding on aluminum is relatively high. This differential hardness and friction between steel and aluminum occasionally results in abrasion and damage to the band's numbered surface, possibly producing unreadable numbers at recapture. Furthermore, unseen oxidation of the steel plier surface results in dramatically higher friction with aluminum. Alternatively, certain types of polyethylene are over 10 times more resistant to abrasion than carbon steel, displaying a remarkably low coefficient of friction against metals and are self-lubricating. Used in banding operations, these pliers performed exceptionally and were cost-effective to build. We will discuss polyethylene and plier materials, plier design, construction and use in the field. Several prototypes will be available for examination and use.

Individually selective trapping and banding methods for monitoring resident color-banded bird populations (workshop).

Harvey, Derek P.

Humboldt State University

Arcata, CA

Bird banding practices provide valuable insight into the ecological and conservation needs of many migratory species. There are similar and additional benefits obtained by implementing individual color-bands to wild populations of resident species. Such studies offer newfound information on the variation in the morphological, physiological, and behavioral phenotypes individuals express throughout their life histories. Since 1998, Dr. Jeff Black

and his graduate students of Humboldt State's Wildlife Department have been banding and monitoring local populations of Steller's Jays (*Cyanocitta stelleri*) in the Arcata, McKinleyville, and Eureka areas as well as Redwood National and State parks. Steller's Jays are long-lived species, forming long-term pairs that work together to raise young and defend year-round territories. A combination of their brilliant plumage, bold foraging behaviors and stable territorial patterns make them a useful species to study by both professional and citizen science research programs. Using three methods of individually selective trapping in junction with applying unique color-bands combinations, we have investigated a multitude of research questions regarding these remarkable birds. In this research population alone we have characterized patterns of personality types, pair formations, mate fidelity, optimal foraging, caching effort, home-range sizes, breeding success, nest predation rates, plumage morphology, and impacts of parasitic infections. These and future questions generate valuable information about the degree of individual variation in the ecological plasticity of avian species inhabiting human-altered landscapes.

Innovative problem solving in wild Steller's Jays (*Cyanocitta stelleri*) (talk).

Harvey, Derek P* and Jeffrey M. Black
Humboldt State University
Arcata, CA

Many species of animal display individual variation in their ability to innovate, which is often measured by problem-solving performance. Previous research suggests problem-solving performance improves over time and is influenced by multiple ecological factors, but this has rarely been described in wild subjects. Steller's Jays (*Cyanocitta stelleri*) often need to solve novel problems to gain access to human-generated food sources; however, variation in this behavior has yet to be empirically tested. This study examines patterns of innovative problem solving in Steller's Jays using a wild, color-banded population in Arcata, CA. Using a year of field trial data, we described individual variation when solving a novel experimental feeding task, determined if this performance changed over time, and explored which ecological factors best predicted performance. We used Generalized Mixed Effects Models to model how jay performance is influenced by multiple individual, social, and environmental factors;

models were ranked using an information-theoretic approach. These results will further enhance our understanding of the role innovation plays in individual behavioral plasticity, social learning, invasion success, extinction risk, environmental adaptation and broader ecological changes in populations over evolutionary time.

Raptor banding techniques (workshop).

Hull, Buzz

Golden Gate National Parks Conservancy
San Francisco, CA

Buzz will cover function and of multiple raptor capture methodologies including: bow-net function, Dho-gaza, and Bal-chatri. The demonstration will also cover how to safely apply lock-on bands. Buzz will also introduce *Buteo* molt and ageing techniques using specimens.

The World Bird Research Portal: An open source platform for the sharing of bird identification and molt data (talk).

Jones, Jason

Vancouver Avian Research Centre
Vancouver, BC, Canada

For the past six years the Vancouver Avian Research Centre (VARC) has been monitoring birds (primarily using mist nets) utilizing old-field habitats in Colony Farm Regional Park in suburban Vancouver, BC, Canada. Over this time, we have captured more than 35,000 birds of 92 species in approximately 60,000 mist-net hours. Our primary finding is that these old-field habitats represent a critical landscape feature for birds in the Lower Mainland of British Columbia, both as breeding habitat and migratory stopover habitat. In addition to VARC's research mandate, we maintain a strong commitment to public education and to the sharing of scientific data and understanding. To that end, VARC has developed an online portal—World Bird Research—designed to provide comprehensive information on ageing birds in the hand using molt and plumage criteria using high-resolution photographs. VARC's aim is to create a worldwide, moderated open source platform for the sharing of bird identification and molt data. Designed as a study tool, the World Bird Research portal will be a valuable guide in the field for use at banding stations and an important teaching/training tool for labs and classrooms. In this presentation, I will provide an overview of VARC's monitoring

results and a demonstration of the data and information contained within the World Bird Research portal.

Introduction to, and application of, the Wolfe-Ryder-Pyle (WRP) ageing system (talk).

Kaschube, Danielle, Peter Pyle, and Erin Rowan*
The Institute for Bird Populations
Point Reyes Station, CA

The most common ageing and molt classifications system used in North America is based on the calendar year, in which birds change age classes from Hatch Year (HY) to After Hatch Year (AHY) on January 1st. Many tropical species breed across January 1st and cannot be aged with a calendar-based system; e.g., a bird hatched Dec 31 is an AHY on Jan 1st. To combat this problem, the Wolfe-Ryder-Pyle (WRP) system uses molt cycles (e.g.; first, second, third, definitive, etc.) and plumages (e.g., juvenile, formative, alternate, and basic) to define the age class of individuals. This system does not depend on the calendar year, and age brackets assigned to each bird are more specific than those assigned by the calendar-based system. The Tropical Monitoring Avian Productivity and Survivorship Program (TMAPS) has been applying and tailoring the WRP system in American Samoa. To most-effectively apply WRP age codes, the molt strategy of each species needs to be determined; i.e., whether or not the preformative molt is absent, partial, or complete; whether or not pre-alternate molts exist; and whether or not the prebasic molt can be incomplete. From there the list of acceptable WRP codes is narrowed for each species and verification programs are devised to ensure that only those codes are used. The WRP system works just as effectively for North American species. We present the molt strategies of several American Samoa and North American species as a demonstration of how to apply acceptable WRP codes.

Modeling Common Raven (*Corvus corax*) abundance in Snowy Plover (*Charadrius nivosus*) habitats in coastal northern California (talk).

Lau, Matthew
Humboldt State University
Arcata, CA

Nest predation by Common Ravens (*Corvus corax*) in Humboldt County is one of three factors limiting recovery of the listed population of the Snowy

Plover (*Charadrius nivosus*). To better manage Common Ravens, it is important to understand factors that influence their spatial distribution. I utilized 10 years of point count data in a Geographic Information System to explore and model Common Raven activity across Snowy Plover breeding habitats in Humboldt County. I conducted a Kendall's Coefficient of Concordance test to examine Common Raven population trends and a Hot Spot analysis to examine spatial patterns in distribution. Finally, I used Generalized Additive Mixed Models to model Common Raven abundance at sites surveyed for breeding Snowy Plovers; models were ranked using an information-theoretic approach. Overall, Common Ravens varied in abundance across sites and this variation was consistent across years. Furthermore, Common Raven numbers showed conspicuous hot and cold spots across sites, indicating strong spatial patterning. Preliminary modeling has revealed that humans, garbage, and low-intensity urban areas are potentially driving this spatial distribution. These results will highlight manageable environmental and/or anthropogenic variables that determine Common Raven abundance.

Genetics and geolocators to establish migratory connectivity (workshop).

Nelson, Allison
San Francisco State University and
San Francisco Bay Bird Observatory
San Francisco, CA

Migratory connectivity is the degree to which breeding and wintering populations of the same species are geographically associated. The collection of blood samples provides innumerable opportunities to improve understanding of connectivity through genetic analysis. Continually improving geolocation technology can help identify an individual's location throughout the annual cycle. In this workshop you will learn techniques for collecting blood samples, making slides for microscopy and see how geolocators are attached and harnesses are made.

Clarifying the migratory connectivity of the Hermit Thrush (*Catharus guttatus*) through examination of combined geocator, morphological and blood parasite data(talk).

Nelson, Allison^{1, 2}, Diana Humple³, Renee Cormier³, Josh Scullen², Nathaniel Seavy³ and Ravinder Sehgal¹.*

¹San Francisco State University
San Francisco, CA

²San Francisco Bay Bird Observatory
San Francisco, CA

³Point Blue Conservation Science
Petaluma, CA

Geographic overlap in morphological characteristics has long confounded ornithologists in their effort to define subspecies of the Hermit Thrush (*Catharus guttatus*) and clarify the species' migratory connectivity. To identify the breeding grounds of birds wintering in the San Francisco Bay Area, 32 geolocators were deployed on Hermit Thrushes captured in winter 2012-2013 at banding stations operated by Point Blue Conservation Science and San Francisco Bay Bird Observatory. Ten tags were retrieved in winter of 2013-2014. Blood samples were collected and up to nine different morphometrics were recorded for tagged birds and additional Hermit Thrushes wintering in the Bay Area. We will use combined morphological and geocator data to determine if North and South Bay populations should be assigned to one, two, or more populations and evaluate whether connectivity established using geolocators is consistent with that inferred from subspecies definitions. Blood samples have been utilized to sex Hermit Thrushes and identify blood parasites which cause malaria-like pathologies. By comparing the spatial structure of bird populations with the genetic structure of the parasite lineages infecting Hermit Thrushes, we will identify potential locations of parasite transmission and determine if blood parasites can be used as connectivity markers.

Evaluation of using outer iris color to age Wrentits (talk).

Sakai, Walter
Santa Monica College
Santa Monica, CA

Both Pyle's *Identification Guide to North American Birds Part I* and *The Birds of North America* note that Wrentits can be aged by the color of the outer iris, brownish gray in Hatching Year (HY) birds and reddish brown or maroon in After Hatching Year (AHY) birds. In Zuma Canyon in the Santa Monica Mountains of southern California, we noticed that this general "rule" did not always follow; that is, known HY birds had maroon irises, and known AHY birds had brownish gray irises. So we began testing this hypothesis using standard

paint color chips. We found that 28% of newly banded AHY birds in Jan-Mar and 25% of recaptured birds from previous years (thus AHY) had brownish outer irises. There were also HY birds that had maroon outer irises. Banders also had difficulty in determining outer iris color in a third of the birds. We also realized there was a compounding factor. Color is often in the eyes of the beholder. The line separating brownish gray to reddish brown or maroon was quite fuzzy.

American Kestrel: An overview of a ten-year nest box project in eastern Merced County (talk).

Simmons, Steve^{*1}, Jim Dunn², and Nancy Sage³

¹Merced, CA

²West Sacramento, CA

³Stockton, CA

The American Kestrel (*Falco sparverius*) is a small, common falcon for which there is evidence of long-term gradual, but sustained, population declines throughout most regions of the US. We report in detail on a ten-year (2003-2012) nest box and banding project focused on the American Kestrel and carried out on a large cattle ranch in eastern Merced County, CA. We describe the riparian and upland grasslands habitats on the ranch, and the location of boxes within these habitats. We describe the history of our project and the methods and specifics of data collected including the software tools we developed and use. We provide detailed annual statistics showing the overall growth of the kestrel population over the ten-year span of the project. As examples, we show growth in the adult base from four kestrels captured in 2003 to over 120 in the most recent year for which we have data, and growth in fledged kestrels from 34 to 289. This last data point from 2012 represents a 22.5% increase over our previous best year. Using an interface between our software and Google Earth, we provide an interesting graphical view of the year-over-year nesting habits of some of the kestrels.

Techniques used to monitor cavity-nesting birds (workshop).

Simmons, Steve^{*1} and Bill Ralph²

¹Merced, CA

²Raymond, CA

Steve will demonstrate how to use a diversity of boxes to conserve and study cavity-nesting birds. A

review of the procedures developed to prevent nest desertions when handling and banding adult cavity-nesting birds. The following species will be covered: American Kestrels, Barn Owls, Western Screech-owls, Burrowing Owls, Wood Ducks, and various passerines. We will discuss problems of recapturing some adult birds year after year and the special in-box traps and dummy traps to capture different species. Many tools and inventions developed to capture cavity-nesting birds will also be displayed and discussed. Also, some information on dispersal data of HY birds from the natal site will be discussed, such as the importance of Barn Owls in agriculture.

Specimen wing preparation for banders (workshop).

Smith, Chris

Humboldt Bay Bird Observatory
Arcata, CA

Although study skins may be somewhat technical and time consuming, preparing wings is simple and often takes <five minutes. Wings are amazing tools for teaching molt limits to students and can be used for research purposes as well. Demonstration will include how/when to remove meat from wings and how to pin them open. Locating the gonads within birds in order to determine sex data (to make information on the wing tag more informative) will be shown as well.

Molt and ageing/sexing criteria for a tropical *Setophaga*, the Adelaide's Warbler (talk).

Toms, Judith D.^{*1}, Wayne J. Arendt², Lori S. Eggert³, and John Faaborg³

¹Rocky Point Bird Observatory
Victoria, BC, Canada

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Luquillo, Puerto Rico

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The ability to age and sex birds in the field can be important for many types of ecological studies, but reliable ageing and sexing criteria are unknown for many tropical species. Establishing the pattern and timing of molt is also important for understanding the life history of a species, because molt is an Oct. - Dec. 2014

energetically costly process. Adelaide's Warblers are endemic to Puerto Rico. We find that although the molt pattern is consistent with temperate *Setophaga*, the timing of molt shares some similarities with tropical species. In addition, we establish reliable ageing and sexing criteria for this species.

Fishes in the forest: Banding as a tool to determine influences of salmon on songbirds (talk).

Wagner, Marlene A.* and John D. Reynolds

Simon Fraser University
Burnaby, BC, Canada

Pacific salmon provide a complex cross-ecosystem link between ocean, freshwater, and terrestrial systems. When marine-derived nutrients from spawning salmon are transferred to riparian forests through various food web pathways, they increase invertebrate abundance and enhance plant structure and composition, thereby subsidizing resources that are important to birds. We found and monitored nests of the Pacific Wren (*Troglodytes pacificus*) during the breeding seasons of 2012-2014 across a wide range of salmon-spawning biomass (0-0-3.2 kg salmon/m²) on 14 discrete streams along the remote Central Coast of British Columbia. To test for salmon-derived nutrients in their diet, we captured fledglings and territorial male wrens to collect morphometric data as well as examine isotopic signatures in their feathers, feces, and potential prey within individual nesting territories. This talk will highlight preliminary results as well as discuss predictions for subsequent laboratory analyses aimed at comparing stable isotopes, body condition, nesting success, and food abundance among territories and streams across our study sites. This work will further elucidate the holistic ecological importance of salmon to terrestrial ecosystems in the Pacific Northwest and provide new information to inform ecosystem-based management.

BioMonitoring and habitat management on the San Andres National Wildlife Refuge, New Mexico (talk).

Weisenberger, Mara

San Andres National Wildlife Refuge
Las Cruces, NM

The San Andres National Wildlife Refuge encompasses 57,215 acres within the southern portion of the San Andres Mountains in south central New Mexico and is approximately 20 miles northeast of Las Cruces. A vegetation gradient exists with Chihuahuan Desert in the lower elevations, desert grasslands above and, in some higher elevations and northern facing slopes, piñon-juniper and oak woodlands.

In 1992, the Refuge began a comprehensive biological monitoring program to build baseline data for several taxa. Included in that program was an effort for developing a list of documented resident and migratory avian species that inhabited the Refuge in various seasons. Year-round monthly point count surveys were conducted from 1992-1996 in multiple habitats on the Refuge. Because point count surveys are biased toward singing birds, we were missing some of the migratory and secretive species. Subsequently, mist netting and bird banding began in 1995 to compliment the point count surveys. Banding was focused during spring and fall migration periods. Exceptions to those time periods were for educational demonstrations. To date, 44 new species have been documented on the Refuge since the bio-monitoring program began in 1992.

Habitat management programs include extensive invasive species treatment and prescribed burns. Saltcedar (*Tamarix chinensis*) is the primary invasive plant species treated in sensitive desert riparian habitat critical for nesting habitat for Neotropical migrants and other species of birds. Prescribed burns are conducted to mimic lightning-caused burns and restore habitat at the landscape scale.

Influence of second growth and forest fragmentation on the behavior and demography of Amazonian birds (talk).

Wolfe, Jared

Klamath Bird Observatory
Ashland, OR and
U. S. Forest Service, Arcata, CA

Matrixes of regenerating forest interspersed between bird populations are believed to encourage the recolonization of previously depauperate tropical forest fragments. Determining the actual ecological value of regenerating forest for tropical birds is critical given projected increases in the quantity of second growth throughout the

Neotropics. In this study we used point counts, capture data, telemetry and behavioral observations to determine the influence of regenerating forest and fragmentation on bird survival, movements, flock dynamics and community composition in the central Amazon approximately 80 km north of Manaus, Brazil. Bird communities in forest fragments with adjacent mature second growth were significantly more diverse relative to similar-sized fragments lacking adjacent second growth. Within fragments, birds generally avoided entering young second growth, with the exception of frugivorous species, until second growth matured. Similarly, mixed-species flocks were less cohesive in mature and young second growth relative to primary forest and forest fragments. Bird survival also differed significantly between sites where most species in mature second growth exhibited lower survival relative to counterparts in primary forest. Our results suggest that the ecological value of regenerating forest is largely age-dependent where community structure and movement, but not survival and flock dynamics, associated with mature second growth resembles that of primary forest.

Using the WRP system to classify bird age (workshop).

Wolfe, Jared

Klamath Bird Observatory
Ashland, OR
and U. S. Forest Service
Arcata, CA

The Wolfe-Ryder-Pyle (WRP) system is a precision age classification system based on a bird's molt and plumage cycle. The WRP system is particularly useful for species that lack breeding seasonality or breed across January 1st. In this workshop, Jared will lead interested participants through a step-by-step introduction to the theory and application of WRP.

Bird banding in the country least known to science: Adventures in Equatorial Guinea (keynote).

Wolfe, Jared

Klamath Bird Observatory
Ashland, OR and
U. S. Forest Service
Arcata, CA

Virtually unknown to ornithologists, the Central African nation of Equatorial Guinea has vast tracts of pristine Congolese forest which is home to a dizzying array of wildlife. Recent discovery of oil there has turned one of the world's poorest nations (per capita) into the richest one in Africa. Rapid development is occurring and bird populations, subspecies, and species are at risk of being lost

before they are even discovered. A group of ornithologists, funded by the National Geographic Society, has begun a long-term partnership with the Equatoguinean government to document unknown and sensitive avifauna. Jared Wolfe, a member of the Equatorial Guinea Bird Initiative team, will introduce you to the birds, forest, and people of Equatorial Guinea, arguably the country least known to science.
