39th Annual Conference of the Western Field Ornithologists

Hosted by San Diego Field Ornithologists

San Diego, CA • 8–12 October 2014

Science Program

10 and 11 October 2014 • Marriott Liberty Station-San Diego

Schedule of Presentations and Identification Challenges

Friday, 10 October 2014

Afternoon Session – Liberty Salons A&B

12:15–12:20. Welcoming Remarks by WFO President ED PANDOLFINO.

12:20–12:25. Introduction to Symposium on Avifaunal Change in Western North America by DAVE SHUFORD.

12:25–12:40. ARTER, SUSAN, AHARON SASSON, and PHILIP UNITT. **Zooarchaeology and ornithology: Avifaunal change from a prehistoric perspective**.

12:40–12:55. GARRETT, KIMBALL L. **Introducing change: A current look at naturalized bird species in western North America**.

12:55–1:10. BOONE, JOHN and ELISABETH AMMON*. **Long-term declines in resident pinyon-juniper woodland birds as a function of landscape-scale change**.

1:10–1:25. RAPHAEL, MARTIN G., GARY A. FALXA, DANIEL A. AIROLA, PETER A. STINE, and ROGER D. HARRIS. **Breeding bird populations during fifty years of post-fire succession in the Sierra Nevada**.

1:25–1:40. PURCELL, KATHRYN and SYLVIA MORI. **Avian population trends and predicting response to climate change based on 27 years of data from California oak woodlands**.

1:40–1:55. SEAVY, NATHANIEL E., DIANA L. HUMPLE, RENÉE CORMIER, ELIZABETH PORZIG, and THOMAS GARDALI. **Evidence of climate change impacts on landbirds in western North America: A review and recommendations for future research**.

1:55–2:10. **Break**.

2:10–2:25. YANCO, SCOTT W. and BRIAN D. LINKHART. **Habitat selection by breeding Flammulated Owls in a post-fire environment**.

2:25–2:40. HARGROVE, LORI and PHILIP UNITT. **Avifaunal change driven by large-scale wildfires in Southern California: fire fugitives vs. fire followers**.

2:40–2:55. DOSTER, ROBERT H. and W. DAVID SHUFORD. **Recent population trends of Ring-billed and California gulls in the western United States**.

2:55–3:10. BOONE, JOHN and ELISABETH AMMON*. **Waterbird population trends in western Great Basin terminal lakes**.

3:10–3:25. EVENS, JULES G., ANTHONY BRAKE, HARVEY A. WILSON, ROBIN LEONG, and ALLEN FISH. **The history of Osprey population change in the western United States, through a lens of the San Francisco Bay area**.

3:25–3:40. ROCKWOOD, R. COTTON, LISA T. BALLANCE, BENJAMIN S. HALPERN, REG WATSON, LAURENT LEBRETON, MICHELLE PALECZNY, and VASILIKI KARPOUZI. **Changing patterns and intensity of anthropogenic threats to seabirds in the North Pacific**.

3:40–4:00. **Break**.

4:00–5:30. Photo Identification: Expert Panel, moderator ED HARPER.

Saturday, 11 October 2014

Afternoon Session – Liberty Salons A&B

12:15–12:20. Welcoming Remarks by WFO President ED PANDOLFINO.

12:20–12:35. PYLE, PETER. **Introducing the Hawaii Bird Records Committee**.

12:35–12:50. RECHEL, JENNIFER. **Using GIS to map unique patterns of species richness and abundance from long-term bird census data**.

12:50–1:05. JOHNSON, RICK. **Study to identify individual Northern Spotted Owls by voice at Point Reyes National Seashore as a potential monitoring method**.

1:05–1:20. FLOYD, TED. **Warbling Vireos in Colorado and Wyoming: Ontology recapitulates philology**.

1:20–1:35. **Break**.

1:35–1:50. FISCHER, JULIAN B., ROBERT A. STEHN, and ROBERT M. PLATTE. **Coordinated aerial and ground surveys document long-term recovery of geese and eiders on the Yukon-Kuskokwim Delta, Alaska, 1985–2013**.

1:50–2:05. ELY, CRAIG E. and BRIAN J. McCAFFERY. **Long-term variation in timing of arrival of shorebirds to the Yukon-Kuskokwim Delta, Alaska**.

2:05–2:20. WALLACE, MICHAEL. **Management challenges to re-establishing California Condors in areas of their former range**.

2:20–2:35. ORMSBY, ZACHARY, JEFFREY L. LINCER, SAM VELOZ, and DENNIS JONGSOMJIT. **Raptors and climate change: Literature, retrospective studies, and modeling**.

2:35-2:50. ERICKSON, RICHARD A. and KIMBALL L. GARRETT. **Joseph Grinnell meets eBird: 100 years of latitudinal range changes in birds of the Californias**.

2:50-3:05. UNITT, PHILIP and LORI HARGROVE. **Southward and downslope extensions of ranges of birds in southern California**.

3:05-3:20. COLLINS, PAUL W., H. LEE JONES, and TYLER M. DVORAK. **The breeding avifauna of California's Channel Islands**.

3:20-3:35. WILLIAMS, SARTOR O. III. **Recent distributional, seasonal, and numerical changes in the avifauna of New Mexico**.

3:35–4:00. **Break**.

4:00–5:30. Sound Identification: Team Challenge, moderators NATHAN PIEPLOW and M. MONICA MALONE.

Banquet and Evening Program – Liberty Hall

6:30–9:30. Keynote Address by ED PANDOLFINO. **History of Western Field Ornithologists**. (See Featured Speakers)

* presenting (when not lead author)

Featured Speaker

Keynote Address
Saturday, 11 October. 6:30 p.m. Liberty Hall Ballroom.

PANDOLFINO, ED. **History of Western Field Ornithologists**. *1328 49th Street, Sacramento, CA 98519; ERPfrom CA@aol.com.*

It all started right here in San Diego in 1969. Ed will take us through the rich history of WFO, starting with the notion, hatched from the minds of Guy McCaskie and Pierre Devillers, that we ought to try to understand the actual status of rare birds in California. We'll see how that notion gave rise to:

- the California Bird Records Committee, the first bird records committee in the country;
- the creation of *Western Birds*, publishing peer-reviewed research under the guidance of only TWO editors in its 45 years of continuous publication; and
- an organization supporting field ornithology through publications, education, and youth scholarships for nearly half a century.

Bring your retro fashion sense because we'll be seeing photos of many of the people who started and built this organization "as they were" way back when.

Ed Pandolfino has been president of WFO for the past two years and on the WFO board since 2006. After a checkered and inconsistent college experience that included dropping-out and touring Europe as a drummer for a Rock & Roll band, Ed finally settled down and earned a Ph.D. in Biochemistry at Washington State University. He spent over twenty years working in various management positions in the medical device industry. Since retiring in 1999 he has devoted his life to birds, working on habitat conservation and avian research. Ed has served on the boards of the San Francisco Bay Bird Observatory and Sierra Foothills Audubon Society, and is one of the Regional Editors for *North American Birds* for Northern California. In the past several years, he has rediscovered his "inner scientist," and has published more than two dozen papers on status and distribution of western birds. He is co-author with Ted Beedy and artist Keith Hansen of *Birds of the Sierra Nevada: Their Natural History, Status, and Distribution* published by U.C. Press in 2013

Abstracts of Scientific Presentations

ARTER, SUSAN, AHARON SASSON, and PHILIP UNITT. **Zooarchaeology and ornithology: Avifaunal change from a prehistoric perspective**. *San Diego Natural History Museum, P.O. Box 121390, San Diego, CA 92112-1390; birds@sdnhm.org*.

Skeletal remains are commonly recovered from archaeological deposits, both historic and prehistoric. Zooarchaeology, the study of animal bones from archaeological sites, sheds light not only on human use of wildlife but on its past distribution and abundance, a perspective that complements and extends the historical record. Remains of birds from southern California reflect many notable avifaunal changes. Bones of the flightless sea duck *Chendytes lawi* from >12 coastal sites attest to human exploitation of this species for ≥8000 years before it was driven to extinction ~2400 years ago. Bones of the Short-tailed (*Phoebastria albatrus*) and at least one of the two smaller North Pacific albatrosses from numerous sites confirm they once occurred along the California coast in greater numbers. The abundance of remains of the Short-tailed Albatross on San Nicolas Island suggests the possibility of a nesting colony. Identification of an Ancient Murrelet (*Synthliboramphus antiquus*) from a site in San Diego dating back 8900 years suggests ocean temperatures were lower in prehistoric times. At Carrizo Marsh in the Anza-Borrego Desert, excavation of the Butterfield Stage stop, used in the 1850s, yielded multiple bones of both sexes of the Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*), implying a former colony. It produced ≥12 species of ducks and geese, confirming a wetland more substantial than today's small remnant. Remains of the American Crow (*Corvus brachyrhynchos*) from the San Diego Presidio, occupied in the late 18th and early 19th centuries, indicate that species occurred in an area where it was absent in the historical record until the 1980s. Identification of these specimens requires comparison with comprehensive collections of bird skeletons, as at the San Diego Natural History Museum. Until now, the fields of archaeology and ornithology have barely overlapped, so the evidence of archaeology has yet to be truly integrated in interpreting avifaunal change. Increased interdisciplinary study will enhance our understanding of birds' ever-changing distributions.

BOONE, JOHN and ELISABETH AMMON. **Long-term declines in resident pinyon-juniper woodland birds as a function of landscape-scale change**. *Great Basin Bird Observatory, 1755 E. Plumb Lane #256A, Reno, NV 89502; boone@gbbo.org*.

Analysis of Breeding Bird Survey data indicates that, in the western states, most of the songbird species that are year-round, predominantly granivorous residents of pinyon-juniper woodlands are undergoing long-term population declines. Foremost among these is the Pinyon Jay (*Gymnorhinus cyanocephalus*), a flocking, cooperatively-breeding species whose population has declined ~4% annually over the last several decades. Paradoxically, these declines have occurred despite the fact that pinyon-juniper woodlands have been expanding in extent for at least a century. In contrast to the declining granivorous species, most insectivorous, migratory breeding birds of pinyon-juniper woodlands have stable population trends. Over the last four years, the Great Basin Bird Observatory has conducted extensive field research on Pinyon Jays to attempt to determine the likely causes of ongoing declines. This work has included twelve years of Nevada statewide point-count monitoring, observational habitat use studies and radio telemetry studies in Idaho and Nevada, and intensive nest studies in Nevada. Our findings indicate that the Pinyon Jay has a strong association with woodland-shrubland ecotones, where wooded patches are scattered and variable in age and structure, and a notable aversion to the interiors of large, dense woodland patches. Transitional areas have become proportionally rarer on western landscapes over the past century-plus, as pinyon-juniper woodlands have aged and become denser and more uniform. This finding suggests a mechanism explaining the decline of the Pinyon Jay and other pinyon-juniper birds, and has significant implications for current pinyon-juniper management practices.

BOONE, JOHN and ELISABETH AMMON. **Waterbird population trends in western Great Basin terminal lakes**. *Great Basin Bird Observatory, 1755 E. Plumb Lane #256A, Reno, NV 89502; boone@gbbo.org*.

Within the Great Basin, watersheds have no outlet to the ocean, and drain into terminal lakes. In the western Great Basin, the two largest terminal lakes are Walker Lake (130 km^2 surface area), associated with the Walker River watershed, and Pyramid Lake (487 km^2 surface area), which is the terminus of the Truckee River system. Several other, but smaller, terminal lakes exist in the region. The Pyramid Lake water supply is protected by the Truckee River Operating Agreement, which ensures sufficient inflow to maintain the lake at its current water level. The water level of Walker Lake, in contrast, has dropped approximately 150 feet since 1882 as a result of agricultural water diversions. This represents nearly a 75% reduction in lake depth. As a result, concentration of total dissolved solids in Walker Lake has increased substantially, to a point where the lake's fishery is in danger of complete extinction. Walker Lake was once an important migration stopover site for migrating Common Loons (*Gavia immer*), but their numbers, along with the numbers of other piscivorous waterbirds, have declined dramatically. At the same time, populations of bird species that feed on salt-tolerant invertebrates, such as the Eared Grebe (*Podiceps nigricollis*), have increased, rendering the avifauna of Walker Lake more and more like that of the Great Salt Lake in Utah or Mono Lake in California. By combining historical data with more recent systematic waterbird surveys, the Great Basin Bird Observatory has documented the waterbird changes on several terminal lakes, which can be interpreted as a function of their differing water management regimes.

COLLINS, PAUL W.[1], H. LEE JONES[2], and TYLER M. DVORAK[3]. **The breeding avifauna of California's Channel Islands**. [1]*Santa Barbara Museum of Natural History, 2559 Puesta Del Sol, Santa Barbara, CA 93105*; *pcollins@sbnature2.org*. [2]*Bloom Biological Inc., 22672 Lambert St., Suite 606, Lake Forest, CA 92630*; *bzbirdman@gmail.com*. [3]*Catalina Island Conservancy, P.O. Box 2739, Avalon, CA 90704; tdvorak@catalinaconservancy.org*.

Intensive conservation efforts on the Channel Islands during the past 30 years to remove feral herbivores and nonnative predators such as rats and cats have facilitated the recovery of habitats adversely affected by overgrazing and led to better protection within this improved environment for the islands' breeding avifauna. Additionally, some species that disappeared as breeders from the islands as a result of PCB contamination have returned or been reintroduced. In response to these conservation efforts, ecosystems on the islands are changing, contributing to changes in the breeding avifauna. Data on the breeding avifauna of the Channel Islands come from a variety of published and unpublished sources including U.S. Fish and Wildlife Service breeding bird surveys, point count breeding-season monitoring surveys, eBird checklists, personal communications, and field notes from birders, resource managers, and researchers. We review and update information on the breeding avifauna of the islands and discuss the factors that have led to changes in their avifauna. In all, we can account for 108 species (33 aquatic/marine species and 75 terrestrial species) that have nested or are suspected to have nested on the Channel Islands. Conservation programs have resulted in the removal of Golden Eagles (*Aquila chrysaetos*), Wild Turkeys (*Meleagris gallopavo*), and Common Peafowl (*Pavo cristatus*) from the islands and the reestablishment of Peregrine Falcons *(Falco peregrinus)* and Bald Eagles *(Haliaeetus leucocephalus)*. Twenty-seven species have been confirmed or are suspected to have nested for the first time on the Channel Islands. New species breeding on the islands include 3 species of waterfowl, 1 grebe, 1 heron, 1 eagle, 2 hawks, 1 rail, 1 shorebird, 3 seabirds, 1 dove, 1 poorwill, 1 owl, and 11 passerines. New breeding records for individual islands ranged from a low of 4 each on Anacapa and Santa Barbara islands to a high of 20 on Santa Catalina Island and 22 on San Clemente Island.

DOSTER, ROBERT H.[1] and W. DAVID SHUFORD[2]. **Recent population trends of Ring-billed and California gulls in the western United States**. [1]*U.S. Fish and Wildlife Service, Migratory Bird Program, 2800 Cottage Way, Sacramento, CA 95825; rob_doster@fws.gov*. [2]*Point Blue Conservation Science, 3820 Cypress Dr. # 11, Petaluma, CA 94954; dshuford@pointblue.org*.

Ring-billed Gulls (*Larus delawarensis*) occur widely across North America, but California Gulls (*L. californicus*) primarily inhabit the western half of the continent. Populations of both species have increased throughout the 20th and early 21st centuries. In recent years, Ring-billed Gulls have experienced their greatest increases in the eastern two-thirds of the United States, whereas California Gulls have increased steadily throughout the West. Here we update the population status of both species with emphasis on changes in the past 30 years. We incorporate results from broad-scale, multi-state surveys for these two species, drawing from the recently completed Western Colonial Waterbird Survey as well as other more localized survey efforts. We document recent shifts in breeding distribution, describe reasons for population increases, and highlight key management issues in particular areas within the ranges of the two species.

ELY, CRAIG E.[1] and BRIAN J. McCAFFERY[2]. **Long-term variation in timing of arrival of shorebirds to the Yukon-Kuskokwim Delta, Alaska**. [1]*Alaska Science Center, U.S. Geological Survey, 4210 University Dr., Anchorage, AK 99508*; *cely@usgs.gov*. [2]*Yukon Delta National Wildlife Refuge, U.S. Fish and Wildlife Service, P.O. Box 346, Bethel, AK 99559*.

We present information on long-term variation in timing of arrival of shorebirds (family *Charadriidae*) to their breeding grounds on the Yukon-Kuskokwim Delta, Alaska, from 1977 to 2008. We document timing of first arrival of 13 shorebird species, with extensive data on Western Sandpipers (*Calidris mauri*), Dunlin (*Calidris alpina*), Black Turnstones (*Arenaria melanocephala*), Red-necked Phalaropes (*Phalaropus lobatus*), Black-bellied Plovers (*Pluvialis squatarola*), and Bar-tailed Godwits (*Limosa lapponica*). Black-bellied Plovers were the earliest-arriving shorebird, generally showing up the first week of May, whereas Red Phalaropes (*Phalaropus fulicarius*) were the latest to arrive, nearly two weeks later. Timing of arrival of most species was strongly correlated with measured environmental variables, including date of river break-up, disappearance of snow, and increase in ambient air temperature. Timing of first arrival was positively correlated with timing of nesting in species for which nesting data were available. Weather conditions on final spring staging areas were significantly correlated with conditions on the breeding ground and timing of arrival, and hence provided reliable cues for final departure to nesting areas. Spring phenology, as indicated by date of break-up of the Kashunuk River, advanced significantly during the study, although the trend was less pronounced in the later years.

ERICKSON, RICHARD A.[1] and KIMBALL L. GARRETT[2]. **Joseph Grinnell meets eBird: 100 years of latitudinal range changes in birds of the Californias**. [1]*LSA Associates, 20 Executive Park, Suite 200, Irvine, CA 92614; Richard.erickson@lsa-assoc.com*. [2]*Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007*.

The geographic ranges of birds and other organisms are expected to shift northward in the northern hemisphere in response to the Earth's warming climate. To conduct an early test of this prediction we examined ~100 years of literature concerning the ranges of >600 avian taxa recorded in the states of California, Baja California, and Baja California Sur, and in their offshore waters. The generally north-south alignment of these states over ~2500 km (>20° of latitude) along the west coast of North America is well suited for our inquiry. Breeding ranges, wintering ranges, and migration/dispersal were all considered. Making our analysis possible was the series of avifaunal summaries prepared primarily by Joseph Grinnell for these regions early in the 20th century. The vast majority of "changes" from the ranges reported by Grinnell and others are attributable to a combination of greater observer coverage and the accumulation of knowledge and records with the passing of time. Other changes are the results of habitat alterations by humans and the overall decline or increase in populations of certain species, including those recovering from market hunting, the millinery trade, and general persecution (e.g., raptors). The remaining range changes, both northward and southward,

are considered in more detail and grouped into several categories for further discussion. It may be too soon to detect some northward shifts already underway or soon to occur. Also, we recognize that bird population responses to climate change are far more complicated than this one latitudinal analysis can address.

EVENS, JULES G.[1], ANTHONY BRAKE[1], HARVEY A. WILSON[1], ROBIN LEONG[1], and ALLEN FISH[2]. **The history of Osprey population change in the western United States, through a lens of the San Francisco Bay area**. [1]*Avocet Research Associates, P.O. Box 839, Point Reyes Station, CA 94956; avocetra@gmail.com*. [2]*Golden Gate Raptor Observatory, Building 201, Fort Mason, San Francisco, CA 94123*.

The Osprey (*Pandion haliaetus*) population in the western United States has grown dramatically in the historic period due to anthropogenic change, particularly decreases in persecution, development of water resources, and conservation efforts. In this paper, we summarize these broad-scale changes, and discuss the dynamics of a colony monitored in western Marin County over the past three decades and the recent colonization of the San Francisco Bay Estuary. A colony at Kent Lake Reservoir, Marin County, California, founded in the mid-1960s, has been monitored annually since 1981 to determine occupancy and activity levels and document nest site characteristics. Beginning in the late 1990s, Osprey nest sites began to appear around the perimeter of San Francisco Bay. In 2012 and 2013, this incipient tidelands population was monitored to determine its size and reproductive status. In this paper we present the results of those two complementary studies, and compare and discuss the differing influences that affect these two Osprey subpopulations—one on a relatively remote and undisturbed freshwater reservoir, the other along the shoreline of a heavily urbanized estuary.

FISCHER, JULIAN B., ROBERT A. STEHN, and ROBERT M. PLATTE. **Coordinated aerial and ground surveys document long-term recovery of geese and eiders on the Yukon-Kuskokwim Delta, Alaska, 1985–2013**. *U.S. Fish and Wildlife Service, Migratory Bird Management, 1011 East Tudor Rd., Anchorage, AK 99503; julian_fischer@fws.gov*.

Standardized breeding surveys were initiated on the Yukon-Kuskokwim Delta, Alaska (YKD), following waterfowl population declines in the 1960s and 1970s. Since 1985, coordinated aerial and ground surveys at this critical North American waterfowl production area have provided annual monitoring data at two scales of geographic extent and intensity of coverage. Aerial surveys provide broad-scale breeding pair and total bird population indices along the entire YKD coastal zone, while ground surveys provide finer scale estimates of breeding phenology, egg production, nesting effort, habitat use, and predation within core breeding habitats. The extensive coverage of the aerial survey also provides objective data for expansion of the ground-based sampling, while the nest survey contributes to a better understanding of variation in aerial survey observations including detection rate. Together these surveys provide information needed to implement waterfowl management and recovery plans, assess waterfowl distribution across the YKD landscape, measure nesting phenology relative to changes in climate, develop waterfowl vulnerability assessments, characterize inter-specific relationships, and quantify bias in aerial survey data. We describe patterns of long-term population growth and stability of Cackling Geese (*Branta hutchinsii minima*), Greater White-fronted Geese (*Anser albifrons frontalis*), and Emperor Geese (*Chen canagica*) indicating population sizes that now approach or exceed Pacific Flyway population objectives. Similarly, we describe significant growth in the western Alaska population of Spectacled Eiders (*Somateria fischeri*) following the species' listing as Threatened under the Endangered Species Act.

FLOYD, TED. **Warbling Vireos in Colorado and Wyoming: Ontology recapitulates philology.** *American Birding Association, 1618 W. Colorado Ave., Colorado Springs, CO 80304; tfloyd@aba.org*.

The widespread Warbling Vireo (*Vireo gilvus*) comprises two main populations, eastern *gilvus* ("Eastern Warbling-Vireo") and western *swainsoni*[*i*] ("Western Warbling-Vireo"). Both have occurred in Colorado, although their status has until recently been little studied and even less well understood. In 2011, I documented by sound spectrogram the occurrence of at least ten Eastern Warbling-Vireos in eastern Boulder County, a location earlier presumed to be

occupied by Western Warbling-Vireos. Since that time, I have continued to document by spectrographic analysis of their songs both Eastern and Western warbling-vireos east of the Continental Divide in Colorado and Wyoming. Most sing songs like Eastern Warbling-Vireos, although some sound like Western Warbling-Vireos, and many sing imperfect Eastern Warbling-Vireo songs. At the very least, the song of the Eastern Warbling-Vireo is widely established in eastern Colorado and eastern Wyoming—a result that is contrary to the conventional wisdom from just a few years ago. Various questions arise. Have Eastern Warbling-Vireos always been present in the region, but undetected? Or are they recent invaders? What are the determinants, e.g., microhabitat, of the presence or absence of Eastern Warbling-Vireos? Then there are the big questions, including this fundamental ontological question: Are these birds "really" Eastern Warbling-Vireos? A corollary is methodological: Are modern methods – digital photography, spectrographic analysis, and eBird reports – for identifying and documenting warbling-vireos circular? Warbling-vireos in eastern Colorado and eastern Wyoming are indisputably fascinating. However, their biological story is far from resolved. Emerging methods and paradigms in field ornithology may or may not be adequate for ascertaining the truth about vireos in Colorado and birds everywhere.

GARRETT, KIMBALL L. **Introducing change: A current look at naturalized bird species in western North America**. *Section of Ornithology, Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007; kgarrett@nhm.org*.

Both purposeful and unintentional introductions by humans of bird species to regions outside their natural ranges have long impacted avifaunas, although not all populations of introduced bird species actually attain ecologically invasive status. The ~20 years since the last comprehensive review of introductions in western North America have seen the continuation of a trend toward establishment of bird species imported for aviculture and the pet trade in urban regions and other highly-altered landscapes; simultaneously, purposeful introductions of game species have largely ceased. Here I review the current status of introduced bird species in western North America with an emphasis on patterns which have emerged in the past quarter century regarding the establishment, population trends, distributional changes and habitat associations of non-native species. These trends include strong declines or total extirpation of several introduced species (notably Crested Myna, *Acridotheres cristatellus* and Spotted Dove, *Streptopelia chinensis*), increasing numbers and diversity of psittacids in urban and suburban landscapes, and the establishment or continued expansion of several estrildid and ploceid finches, including one obligate brood parasite. Although observational databases such as eBird have greatly enhanced our ability to monitor the distribution and population sizes of introduced bird species, there is little uniformity through the West in how non-native species are monitored and at what point they are included in avifaunal lists. I conclude with suggestions for implementing more thorough and uniform standards for tracking introduced bird species.

HARGROVE, LORI and PHILIP UNITT. **Avifaunal change driven by large-scale wildfires in Southern California: fire fugitives vs. fire followers**. *San Diego Natural History Museum, 1788 El Prado Balboa Park, San Diego, CA 92101; lhargrove@sdnhm.org, punitt@sdnhm.org*.

In southern California, the area burned annually by wildfires is expected to increase 9–15% by 2100. In 2002 and 2003, ~4000 km^2 burned in the region's largest fires in over a century, including the Cuyamaca Mountains, a sky island with isolated populations of montane birds. The San Diego Bird Atlas, based on 1997–2001 fieldwork, allows comparison of the region's pre-fire and post-fire avifauna. We established 39 survey routes in 23 atlas squares that burned 2002–2003, plus seven routes in nearby unburned habitat as controls. Over the following five years, we surveyed these routes repeatedly, 4× in spring/summer and 3× in winter, and, using distance sampling protocols, estimated differences in probability of detection in burned vs. unburned habitat. Breeding species much reduced in abundance post-fire (fire fugitives) included Pygmy Nuthatch (*Sitta pygmaea*), Mountain Chickadee (*Poecile gambeli*), Brown Creeper (*Certhia americana*), and Steller's Jay (*Cyanocitta stelleri*); those that increased most (fire followers) included Dusky Flycatcher (*Empidonax oberholseri*), Lazuli Bunting (*Passerina amoena*), Rufous-crowned Sparrow (*Aimophila ruficeps*), and Lawrence's Goldfinch (*Spinus lawrencei*). Some species, such as Black-chinned Sparrow

(*Spizella atrogularis*), have responded negatively at lower elevations that have burned frequently, but positively at higher elevations where forest has been converted to chaparral. Thus, for these species, fire is driving upward elevational shifts. Winter distributions are affected as well; for example, after the fire House Wren (*Troglodytes aedon*) and Lincoln's Sparrow (*Melospiza lincolnii*) wintered in the Cuyamaca Mountains where they were formerly absent. Three species were extirpated: Red-breasted Sapsucker (*Sphyrapicus ruber*), Red-breasted Nuthatch (*Sitta canadensis*), and Golden-crowned Kinglet (*Regulus satrapa*), representing northward contractions of breeding ranges that had only recently extended so far south. At the southern tip of their ranges in the Cuyamaca Mountains, White-headed Woodpecker (*Picoides albolarvatus*) and Brown Creeper are also at risk of range contraction. For such species, distributed discontinuously on sky islands, we may expect large-scale fires to cause contractions of ranges by quantum steps.

JOHNSON, RICK. **Study to identify individual Northern Spotted Owls by voice at Point Reyes National Seashore as a potential monitoring method**. *P.O. Box 981, Inverness, CA 94937; rwjohnsonmail@gmail.com.*

Several *Strix* species (*S. varia, S. woodfordii, and S. nebulosa*) produce individually identifiable calls that can be used in acoustic monitoring of breeding owls. This study reports data suggesting individuality is also a characteristic of male Four Note Location Calls (FLC) of Northern Spotted Owls (*Strix occidentalis caurina*) at Point Reyes National Seashore (PRNS) in Marin County, California. In this research project, I recorded owls while accompanying field biologists as they they conducted the standard PRNS monitoring protocol. Owls were recorded on historic breeding territories, including at sites of five previously banded owls that were re-sighted during the study period (2006-2012). I created spectrograms, estimated pitch contours, and measured frequency and timing of the calls. Half the recordings were done in 2006, but the number of recordings varied widely by site and year. Sufficient samples were recorded at four sites to do Multivariate Analysis of Variance and Regularized Discriminant Analysis (RDA) using randomized balanced subsamples. With 5-fold cross validation, RDA matched calls to site with a mean success rate of 96%. Permuted Discriminant Function Analysis indicated that differences by site after controlling for site-day similarities had a probability of .002 or less of occurring by chance. One banded owl was re-sighted over a five year period, and the 17 FLC recorded at its site classify correctly using RDA. Graphical analysis and simulation runs suggested that individually identifiable calls occurred at four additional study sites with smaller sample sizes. Discussion topics include need for further study and potential usefulness of acoustic monitoring in situations where Barred Owls also occur since they display individual vocal identity as well.

ORMSBY, ZACHARY[1], JEFFREY L. LINCER[2], SAM VELOZ[3], and DENNIS JONGSOMJIT[3]. **Raptors and climate change: Literature, retrospective studies, and modeling**. [1]*Researchers Implementing Conservation Action (RICA), 7764 Pickering Circle, Reno, NV 89511; zacormsby@gmail.com.* [2]*RICA, 9251 Golondrina Dr., La Mesa, CA 91941.* [3]*Point Blue Conservation Science, 3820 Cypress Drive, #11, Petaluma, CA 94954.*

Future climate models indicate that California and the west's terrestrial ecosystems will be exposed to substantial future climate change with some contemporary climate conditions disappearing from the landscape while novel climate conditions are likely to emerge. As with many species groups, there will likely be high variability of the response across raptor species to climate change. However, sampling design limitation have reduced the strength of inferences in many cases, creating major gaps in our understanding of the likely impacts of climate change on raptors. Most of the data sets currently in use are derived from retrospective studies and monitoring, which were not originally designed to address current climate-related questions. We provide an overview of the literature involving raptors and climate change, discuss what raptor research has demonstrated with respect to climate change, and examine what tools are available to fill the information gaps important to raptor conservation. Using available models, we will illustrate the utility of these new tools in predicting a plausible range of climate change impacts on raptors in parts of western North America.

PURCELL, KATHRYN[1] and SYLVIA MORI[2]. **Avian population trends and predicting response to climate change based on 27 years of data from California oak woodlands**. [1]*USDA Forest Service, Pacific Southwest Research Station, 2081 E. Sierra Avenue, Fresno, CA 93710; kpurcell@fs.fed.us*. [2]*USDA Forest Service, Pacific Southwest Research Station, 800 Buchanan Street, Albany, CA 94710; sylviamori@sbcglobal.net*.

Using 27 years of point count data collected at the San Joaquin Experimental Range, CA, we examined population trends for 35 oak woodland bird species, modeled the importance of weather and climate variables on annual variability in bird abundance, and assessed the response of birds to changing climate conditions. We used both linear regression and non-parametric regression (spline-smoothing the year effect) to examine population trends. To model responses to weather and climate variables, we used generalized additive models for Poisson-distributed response (counts) with non-parametric smoothing functions as a first exploratory approach. We then considered three parametric mixed generalized linear models, Poisson, Quasi-Poisson, and negative binomial, to estimate the variance of the overdispersion. Abundance of most species varied greatly over the study period, emphasizing the importance of long-term studies. Populations of twelve species increased over the study period: Red-tailed Hawk (*Buteo jamaicensis*), American Kestrel (*Falco sparverius*), California Quail (*Callipepla californica*), Anna's Hummingbird (*Calypte anna*), Acorn Woodpecker (*Melanerpes formicivorus*), Nuttall's Woodpecker (*Picoides nuttallii*), Common Raven (*Corvus corax*), Violet-green Swallow (*Tachycineta thalassina*), White-breasted Nuthatch (*Sitta carolinensis*), Bewick's Wren (*Thryomanes bewickii*), European Starling (*Sturnus vulgaris*), and House Finch (*Haemorhous mexicanus*). Five species decreased in abundance, but among them only Blue-gray Gnatcatcher (*Polioptila caerulea*), Western Meadowlark (*Sturnella neglecta*), and Bullock's Oriole (*Icterus bullockii*) present cause for concern. Five species were sensitive to high temperatures but more species were sensitive to low temperatures. Response to precipitation varied, with some species' populations increasing following wet years, and others following dry years. More species decreased in population following El Niño years than increased. Surprisingly, more species increased in population following drought years than decreased. Our results provide information on current trends in avian abundance in California oak woodlands and help predict how species might respond to locally changing climatic conditions. Understanding the possible biological consequences of climate change will provide guidance needed to help plan for such changes.

PYLE, PETER. **Introducing the Hawaii Bird Records Committee**. *The Institute for Bird Populations, P.O. Box 1346, Point Reyes Station, CA 94956; ppyle@birdpop.org*.

After decades of discussion and deliberation there was finally enough interest and available local expertise to form a Hawaii Bird Records Committee (HBRC). In March 2014 a four-person organizing group discussed formation of the HBRC, including who would perform the at-times thankless duty as Chair, a task none of the four was willing to undertake. Eric VanderWerf was contacted in April 2014, agreed to be chair, and immediately embarked on selecting committee members and drafting by-laws. Seven HBRC members were identified as willing to serve, draft by-laws were developed, reviewed, and finalized by HBRC members, and these by-laws were submitted to the Western Field Ornithologists (WFO) for consideration of HBRC's becoming an official WFO standing committee. By-laws were modeled after those of the California Bird Records Committee, with numerous small changes to better suit the unique situation in Hawaii. Members' initial terms are open-ended, with limited terms a possibility in future years. Geographical scope will include all Hawaiian Islands, including Midway Atoll (not officially part of the state of Hawaii), and pelagic waters out to 200 nautical miles from any point of land. The next identified task of the HBRC will be to establish an official Hawaiian Islands bird list. It will be modeled after the list developed in 2009 for the Robert L. Pyle on-line monograph at the Bishop Museum website, including taxonomic updates in nomenclature, consideration of no less than 16 reports of new species to the Hawaii list since 2009, and consideration of several other species that were not officially accepted for the 2009 checklist.

RAPHAEL, MARTIN G.[1], GARY A. FALXA[2], DANIEL A. AIROLA[3], PETER A. STINE[4], and ROGER D. HARRIS[5]. **Breeding bird populations during fifty years of post-fire succession in the Sierra Nevada**. [1]*USDA Forest Service, Pacific Northwest Research Station, 3625 93rd Ave. SW, Olympia, WA 98512; mraphael@fs.fed.us*. [2]*U.S. Fish and Wildlife Service, 1655 Heindon Rd., Arcata, CA 95521*. [3]*Northwest Hydraulic Consultants, 3950 Industrial Blvd. 100c, West Sacramento, CA 95691*. [4]*USDA Forest Service, Pacific Southwest Research Station, Room 121, The Barn, 1 Shields Rd., University of California, Davis, CA 95616*. [5]*10 Echo Ave., Corte Madera, CA 94925*.

We summarized breeding bird counts done in series of 3 to 5 successive years spanning a period from 1966 to 2014 on two Sierra Nevada mixed conifer forest plots, one that had burned in 1960 and an adjacent unburned control plot. During this period, shrub cover increased from 43% to 71% on the burned plot, while cover of herbs and grasses decreased from 62% to 10%. Tree cover increased from 7% to 27%, and the density of larger snags decreased from 26 to 1 stems per ha. On the unburned plot, tree cover decreased from 77% to 69% and numbers of snags increased from 9 to 31 stems per ha. Bird populations changed in response to these vegetation changes. Mean numbers of foliage-searching birds during successive survey periods increased from 1.6 to 13.5 territories/plot on the burned plot and from 9.2 to 16.4 territories on the unburned plot. Bark-gleaning birds decreased from 1.7 to 0.8 on the burned plot but increased from 2.0 to 5.9 on the unburned plot. Timber-drilling birds decreased from 1.3 to 0.3 territories on the burned plot but increased on the unburned plot from 0.5 to 1.2 territories. Changing vegetation structure resulted in predictable trends related to the foraging and nesting habitat associations of these birds.

RECHEL, JENNIFER L. **Using GIS to map unique patterns of species richness and abundance from long-term bird census data**. *USDA Forest Service Pacific Southwest Research Station, Conservation of Biodiversity, 4955 Canyon Crest Drive, Riverside, CA 92507; jrechel@fs.fed.us*.

The field study of birds and mapping of observations can benefit from using geographic information systems (GIS) to further explain the mechanisms of avian species richness and abundance. A GIS was used to analyze bird data in the southern California Mediterranean ecosystem. Observations were recorded in the San Gabriel and San Jacinto mountains starting in 1997 (continuing through 2022) from 190 bird counting stations. Traditionally, mapping of bird census data is done by overlaying the counts on vegetation maps represented by polygons. While this approach is simple, it assumes that all species richness and abundance values in the polygons are the same, or uniform. By mapping the non-uniform, or atypical values, locations of unusually high or low values in species richness or abundance are identified. Standard deviation addresses the spatial variation in the data and explains patterns of bird activity in geographic space, specifically where resident or migrant bird activity is high, moderate, or low across vegetation types or elevation gradients. Bird field data were compared in numeric (field data) space and geographic (GIS) space. Initial results of a subset of census data in geographic space show critical limits of migrant abundance and richness at elevations below 1200 m in the San Gabriel Mountains and 1900 m in the San Jacinto Mountains. Resident birds were more broadly distributed throughout all vegetation types and elevation ranges, with little spatial variation in species richness and abundance. Future research includes spatially correlating maps using temporal (long-term) data to evaluate differences in species richness and abundance over time.

ROCKWOOD, R. COTTON[1], LISA T. BALLANCE[1,2], BENJAMIN S. HALPERN[3], REG WATSON[4], LAURENT LEBRETON[5], MICHELLE PALECZNY[6], and VASILIKI KARPOUZI[6]. **Changing patterns and intensity of anthropogenic threats to seabirds in the North Pacific.** [1]*Scripps Institution of Oceanography, University of California, San Diego, 9500 Gilman Dr., La Jolla, CA 92093-0208; rrockwood@ucsd.edu*. [2]*Southwest Fisheries Science Center, NMFS, NOAA, 8901 La Jolla Shores Dr., La Jolla, CA 92037*. [3]*Bren School of Environmental Science and Management, University of California, Santa Barbara, CA 93106-5131*. [4]*Institute of Marine and Antarctic Studies, University of Tasmania, Private Bag 49, Hobart, Tasmania 7001, Australia*. [5]*Dumpark Ltd., 2/88 Riddiford St., Wellington 6021, New Zealand*. [6]*UBC Fisheries Centre, The University of British Columbia, Vancouver, BC V6T 1Z4, Canada*.

Given that many species of seabird spend a majority of their time at sea, the threats they encounter there are likely to have significant importance for survival, health and breeding success. Many at-sea anthropogenic threats are not well studied, and almost always are addressed in isolation, though additive or synergistic effects are undoubtedly important. We created a spatially explicit map of at-sea anthropogenic threats specific to seabirds for the North Pacific (equator to 66°N latitude). The map combines threats into a single cumulative representation of eight threat categories. These include three categories related to fisheries: bycatch, trophic disturbance through biomass removal, and direct competition, and five categories of pollution: organic chemicals, inorganic chemicals, large oil spills, maritime transport pollution, and marine debris. We analyze the map to reveal the areas of highest and lowest cumulative threat, as well as regions of highest and lowest number of individual threats. In addition, we assess threat by Exclusive Economic Zones of nations, compare these across nations, and discuss these in relation to the rankings of 'priority countries for seabirds' as reported by Croxall *et al*. (Bird Cons. Intern. 22:1–34). Current and historical threats in the North Pacific appear to place some ecosystems of vital importance to seabirds at especially high risk. All of these anthropogenic impacts occur in the context of an ecosystem in flux due to climate change, which has largely unknown consequences for seabirds. Using two mapped climate change categories – sea surface temperature anomaly, and wind pattern change – we discuss the potential impacts of climate change and the interaction with other threats. Finally, to put the patterns of threat into perspective, we review the changes to individual stressors through time and the implications that the expected threat trajectories have for seabird health and survival.

SEAVY, NATHANIEL E., DIANA L. HUMPLE, RENÉE CORMIER, ELIZABETH PORZIG, and THOMAS GARDALI. **Evidence of climate change impacts on landbirds in western North America: A review and recommendations for future research**. *Point Blue Conservation Science, 3820 Cypress Dr. #11, Petaluma, CA 94954; nseavy@pointblue.org*.

In the coming decades, the ecology of western North America will be dramatically altered by climate change. Already, these changes are evident in the recent record of higher temperatures throughout the West. The degree to which rising temperatures and other aspects of climate change have already impacted ecological systems is not well understood. In efforts to understand the ecological consequences of environmental change, birds are often used as indicators of ecological conditions. As a result, there have been a number of research efforts to link changes in bird populations to recent climate change. However, attributing changes in bird populations to climate change is complicated by the response of bird populations to other sources of environmental variation. Here, we review the evidence for climate-change impacts on landbirds in western North America, focusing on studies that have linked climate change to (1) changes in the phenology of migration, reproduction, and molt, (2) changes in geographic distribution, (3) changes in population size, and (4) changes in morphology and physiology. Using this review, we highlight important gaps in our knowledge of how climate change may be impacting bird populations in western North American and how this information can help us prepare for rapidly changing conditions in the future.

UNITT, PHILIP and LORI HARGROVE. **Southward and downslope extensions of ranges of birds in southern California**. *San Diego Natural History Museum, P.O. Box 121390, San Diego, CA 92112-1390; birds@sdnhm.org*.

In a period of a warming climate, the general expectation is that ranges of organisms in the Northern Hemisphere should be tending to shift northward and upslope. Among the birds of southern California, however, there are at least 30 counter examples of species as diverse as the Common Merganser (*Mergus merganser*), Downy Woodpecker (*Picoides pubescens*), Hermit Thrush (*Catharus guttatus*), and MacGillivray's Warbler (*Geothlypis tolmiei*). Many of these range shifts are well known and previously described in the literature, yet they have not been viewed as manifestations of a broader pattern. Over 80% of the species of birds spreading south or downslope in southern California inhabit forest or woodland. The one previous paper to consider possible mechanisms for such counterintuitive range shifts emphasized the role of release from competition at the downslope edge of a species' range. Among southern California birds spreading south or downslope, however, factors likely contributing to the change include (1) the increased density of montane forests, (2) urban adaptation, and (3) importation of water and establishment of reservoirs. The increased

density of forests, both trees and undergrowth, is attributed largely to suppression of fires, and the role of fire is supported by the disappearance from the Cuyamaca Mountains of three of the species that had recently pioneered south after those mountains burned almost totally in 2003: Red-breasted Sapsucker (*Sphyrapicus ruber*), Red-breasted Nuthatch (*Sitta canadensis*), and Golden-crowned Kinglet (*Regulus satrapa*). Forests in the Sierra Nevada have also become denser over the last century, presumably increasing the populations of dense-forest species and increasing the pool of potential colonists to spread to southern California. Through the planting of ornamental trees, vast areas of urbanized lowlands that were formerly treeless scrub are now attractive to arboreal birds. Some species of urban adapters, within their original ranges, have increased in the remaining wilderness, e.g., Anna's Hummingbird (*Calypte anna*) and Nuttall's Woodpecker (*Picoides nuttallii*), suggesting that the process of adapting to a new habitat enabled these species to expand their niches more broadly.

WALLACE, MICHAEL. **Management challenges to re-establishing California Condors in areas of their former range**. *Institute for Conservation Research, San Diego Zoo Global, 15600 San Pasqual Valley Rd., Escondido, CA 92027; mwallace@sandiegozoo.org.*

As they neared extirpation in the early 1980s, the California Condors (*Gymnogyps californianus*) remaining in the wild were removed and placed in the Los Angeles and San Diego zoos for captive breeding, in the hope of eventually releasing offspring back into the wild. Physiological and behavioral pair management and advances in incubation techniques induced the 27 captive condors to produce young at many times their natural reproductive rate. Birds from the resultant genetically and demographically managed populations have been released at five sites within their former range, using hacking techniques developed on Andean Condors (*Vultur gryphus*). The 1996 recovery plan goals of having two geographically distinct self-sustaining populations of 150 birds each, with a third population in captivity, look to be met within the next few years. Over half of the California Condor population now resides in the wild, and it produces a dozen chicks annually, approaching self-sustaining population levels. However, while captive reproduction has been successful, not all mortality factors have been sufficiently mitigated in the wild. Birds in the first release cohort suffered four deaths from collisions with power lines over a two-year period. That risk has been minimized by implementing a power pole aversion program developed at the Los Angeles Zoo, but other risks remain. Hunter-killed animals shot with lead ammunition have proven particularly dangerous for condors, with morbidity and mortality from lead ingestion occurring predictably around the hunting seasons. Legislation (in California) and education programs (in Arizona and Baja California) are gradually making a difference in condor survivorship. But changing human hunting/shooting culture over to using the recently available, non-lead ammunition has proven slow and difficult. Wind turbines have killed many species of raptors but, so far, no condors. GSM transmitter-based early warning systems are being developed to help mitigate this potential condor mortality factor.

WILLIAMS, SARTOR O. III. **Recent distributional, seasonal, and numerical changes in the avifauna of New Mexico**. *Division of Birds, Museum of Southwestern Biology, University of New Mexico, Albuquerque, NM 87131; sunbittern@earthlink.net.*

Situated centrally in the southwestern U.S., New Mexico has a large and varied avifauna of some 540 species, of which some 300 are known to breed, 160 are transient and/or wintering species, and 80 are considered vagrants. Analysis of this avifauna for the past 40 years (from the mid-1970s forward), using all available data sources, has revealed a number of striking examples of progressive change, including in breeding ranges, wintering distributions, migration timing, and population numbers; many of these trends appear to have accelerated within the past two decades. Distributional changes were most evident in breeding range expansions, subdivided into species expanding southward, westward, northward (the great majority), and eastward. Seasonal changes were evidenced by species lingering late and/or returning early plus increased presence of species previously unknown or accidental in winter, northward shifting of species previously restricted in winter to southern New Mexico, and decreasing presence of northern species wintering in northern New Mexico. Progressively increasing numbers have been documented in species historically absent or understood as rare or uncommon transient/wintering species but now found in conspicuously greater numbers.

Climate change, generally manifested as a progressive warming trend in New Mexico and beyond, is likely the ultimate factor behind most of these changes, as opposed to anthropogenic habitat changes. However, the specific mechanisms driving change in each species vary, and the great majority of these mechanisms remain to be identified.

YANCO, SCOTT W.[1] and BRIAN D. LINKHART[2]. **Habitat selection by breeding Flammulated Owls in a post-fire environment**. [1]*ClearPath Environmental, LLC, 11295 Pauls Dr., Conifer, CO 80433; syanco@clearpathenvironmental.com.* [2]*Dept. of Biology, Colorado College, 14 East Cache La Poudre St., Colorado Springs, CO 80903.*

Anthropogenic activities since European settlement have led to changes in fire behavior across pine (*Pinus* sp.) forests of western North America, resulting in fires that have burned greater areas at higher intensity than occurred historically. Despite the potentially significant consequences of such fires on landscape structure and function, the effects of altered fire regimes on the behavior and ecology of birds in western forests remain under-studied. We sought to determine how the 2002 Hayman Fire, which burned the largest area (560 km^2) in Colorado fire history, affected habitat selection at multiple spatial scales by Flammulated Owls (*Psiloscops flammeolus)* that recolonized the burn area from 2004 to 2012. After returning from spring migration, males (n=5) established breeding home-ranges in areas containing significantly more low-severity burn, and less high-severity burn, than was present across the entire burn scar. Home-ranges of males had a mean size of 13.1 ± 3.2 ha, similar to what was observed in a nearby, unburned pine forest. However, home-range sizes in the burn scar were positively correlated with the proportion of high-severity burn. Burn severity did not appear to be an important factor for selection of any of the micro-sites associated with foraging or day-roosting behaviors, or of nesting habitat characteristics. Our results indicated that habitat selection patterns were altered by the fire only at the scale of the home-range, while at the micro-site scale, habitat selection mimicked patterns observed in unburned forests. These data suggest a certain level of inflexibility in habitat selection, such that owls resettle only in areas where post-burn landscapes resemble a pre-settlement fire regime. Further study is needed to determine the generality of these findings across pine forests in the western U.S., and to better understand long-term demographic responses among bird populations to altered fire regimes.

Presenter Biographies

Elisabeth Ammon has been the Executive Director of GBBO since 2005. Her career has covered habitat restoration planning for riparian birds, development of a statewide landbird monitoring program for Nevada, and a wide variety of conservation planning efforts. She earned a Ph.D. from the University of Colorado, Boulder.

Susan Arter is Co-Director of the Zooarchaeology Laboratory at the SDNHM. She holds a B.A. and M.A. in anthropology. She has conducted zooarchaeological research in the Middle East and U.S. Currently her research focuses on San Diego County vertebrate remains ranging from Late Holocene prehistoric to 19th Century historic sites.

Paul Collins has been associated with the Santa Barbara Natural History Museum since 1973, and since 2001 has been the museum's curator of vertebrate zoology. Paul holds both B.A. and M.A. degrees from the University of California, Santa Barbara. He is currently working on a book on the birds of the California Channel Islands.

Rob Doster is a biologist with the U.S. Fish and Wildlife Service in the agency's Migratory Bird Program. He received his B.A. in biology from Hendrix College and his M.S. in zoology and Ph.D. in biology from the University of Arkansas. Rob and his wife Lisa currently live in Chico, CA.

Craig Ely is a wildlife research biologist with the USGS Alaska Science Center in Anchorage, where he studies migratory birds and specializes in factors influencing the population dynamics of migratory waterfowl.

Richard Erickson has long studied bird distribution in California, and accordingly is a devotee of the late Joseph Grinnell. With a shift in his primary bird interests to the Baja California Peninsula ~15 years ago, he was fortunate that the avifauna there had been summarized by Grinnell as well.

Jules Evens has worked as a field biologist in the San Francisco Bay area for over three decades. His research focuses on tidal wetlands, avian population trends, and species at risk. He is the author or co-author of three contributions to the California Natural History Guides (UC Press): *An Introduction to California Birdlife* (2005) with Ian Tait; *The Natural History of the Point Reyes Peninsula* (3rd edition, 2008), and *Birds of Coastal Northern California* (2014) with Rich Stallcup.

Julian Fischer is a Supervisory Wildlife Biologist for the U.S. Fish and Wildlife Service, Migratory Bird Management, based in Anchorage, AK. There, he works with a team of biologist-pilots, waterfowl biologists, and biometricians that focuses on waterfowl population surveys throughout the state of Alaska.

Ted Floyd is the Editor of *Birding* magazine, published by the American Birding Association (ABA), and is broadly engaged in other ABA activities, especially education and outreach. Floyd is the author of many articles and several books, including the *ABA Field Guide to Birds of Colorado* (2014). He serves on the Board of Colorado Field Ornithologists, and is a past member of the WFO Board.

Kimball Garrett has been the Ornithology Collections Manager at the Natural History Museum of Los Angeles County since 1982. He is a past-president of WFO and served on the California Bird Records Committee for 27 years. Several of his publications deal with naturalized bird species in western North America.

Lori Hargrove is analyzing post-fire survey data to synthesize avian responses to fire in southern California. Awarded her Ph.D. from UC Riverside in 2010, she is currently with the San Diego Natural History Museum, also leading the museum's San Jacinto Centennial Resurvey as well as a study of the Gray Vireo.

Rick Johnson is retired from software development and volunteers for varied nature projects, including his study of vocal signatures of Spotted Owls at Point Reyes. He served as project coordinator for the San Mateo Breeding Bird Atlas and was on the stakeholder group for Marine Protected Areas along California's North Central Coast.

Zachary Ormsby is a desert ecologist with over ten years in the field researching raptors. He is currently working as a research associate for Lincer and Associates, a field biologist for H.T. Harvey and Associates, and a raptor biologist for Bloom Biological, Inc. He recently documented the first account of hybridization between a Warbling Vireo and a Red-eyed Vireo.

Kathryn Purcell received her Ph.D. in ecology, evolution, and conservation biology from the University of Nevada, Reno, and M.S. in wildlife from Humboldt State University. She has studied birds and bird communities from low-elevation oak woodlands to high elevation conifer forests. Much of her research focuses on how to maintain healthy populations of birds in the face of human disturbance and climate change.

Peter Pyle is an ornithologist and marine biologist who has studied the ecology of birds, pinnipeds, and sharks in California, Hawaii, and throughout the Pacific. He specializes in bird molt and its use in ageing birds. He currently works for the Institute for Bird Populations in Point Reyes Station, California.

Martin G. Raphael is a Senior Research Wildlife Biologist and Team Leader with the USDA Forest Service's Pacific Northwest Research Station in Olympia, WA. He is actively involved in the development of monitoring plans for the Northern Spotted Owl and Marbled Murrelet in the Pacific Northwest.

Jennifer Rechel has used GIS for over 30 years. She has degrees in wildlife and forestry and a Ph.D. in geography from the University of California, Riverside. Her research focus is on changes in bird populations and habitat use over time in disturbed ecosystems and mapping biodiversity.

Cotton Rockwood is a marine ecologist and NSF doctoral fellow at Scripps Institution of Oceanography. Currently he is focused on seabird conservation in the North Pacific. Cotton’s dissertation uses large-scale data to assess the anthropogenic threats to seabirds at sea where they spend the majority of their lives.

Nat Seavy is the Research Director of the Pacific Coast and Central Valley Group at Point Blue Conservation Science. Nat received his masters and Ph.D. from the Dept. of Zoology at the University of Florida. His research focuses on the ecology and conservation of riparian ecosystems, bird migration, and understanding and preparing for the ecological effects of climate change.

Philip Unitt has served as collection manager or curator of the San Diego Natural History Museum’s department of birds and mammals since 1988 and as editor of *Western Birds* since 1986. He has written or co-authored more than 45 scientific papers and reports, co-authored *Birds of the Salton Sea* (2003), written the San Diego County Bird Atlas (2004), and prepared more than 4000 bird specimens.

Mike Wallace earned M.S. and Ph.D. degrees from the University of Wisconsin-Madison in wildlife ecology, with a focus on developing release techniques for vultures and condors. He worked at the San Diego and Los Angeles zoos developing the breeding program for California Condors, and was the U.S. Fish and Wildlife Service Condor Recovery Team leader for over a decade. He developed and currently manages the condor reintroduction program in Baja California.

Sandy Williams is New Mexico editor for *North American Birds*, editor of *NMOS Field Notes*, and Secretary of the NMBRC. He was responsible for non-game and endangered birds for NM Game and Fish for two decades. He holds degrees from LSU (B.S., M.S.) and Colorado State (Ph.D.) and is currently a Research Associate at UNM's Museum of Southwestern Biology.

Scott Yanco is an avian ecologist and researcher with both ClearPath Environmental and Colorado College. He has worked with several species and ecosystems across the west with a particular focus on pine ecosystems of the intermountain region. He has been studying Flammulated Owls since 2004.

Identification Challenges

Photos: Expert Panel. *Friday, 10 October. 4:00–5:30 p.m. Liberty Hall Ballroom*. Always a favorite and ever popular staple at WFO conferences, a distinguished panel of identification experts will examine and comment on photographs of "mystery" birds. Panelists will analyze photographs of birds and discuss the relevant aspects of each bird and its particular characteristics that lead to an identification. The intent is to provide a real learning experience for audience and panel alike. Panel moderator is **Ed Harper**.

Ed Harper is one of the finest birders and bird photographers in the country. His lively talks and programs are always highly informative and full of humor. An educator at heart, he taught mathematics and field ornithology classes at American River College for 34 years before recently retiring to spend more time in the field. An active birder, he travels widely and he and his wife, Susan Scott, lead birding and natural history tours all over the world.

Sounds: Team Challenge. *Saturday, 11 October. 4:00–5:30 p.m. Liberty Hall Ballroom*. **Nathan Pieplow and M. Monica Malone** return with this pub-quiz style challenge to test participants with the amazing sounds that birds make. Start forming your teams** now! The audience will have plenty of opportunity to participate, too, so come ready to use what you know about bird sounds and to learn even more. WFO logo prizes will be awarded to the winning team!

Nathan Pieplow is the author of the forthcoming *Peterson Field Guide to Bird Sounds*. He is the former editor of the quarterly journal *Colorado Birds* and an author of the *Colorado Birding Trail*. He teaches writing at the University of Colorado in Boulder.

M. Monica Malone, Nathan's fiancée, enjoys reading, writing, and photography, including bird photography.

** Teams can include up to 6 people, but please, no more than two “experts” per team, defined as current or past members of a bird records committee, and/or professional bird tour leaders.