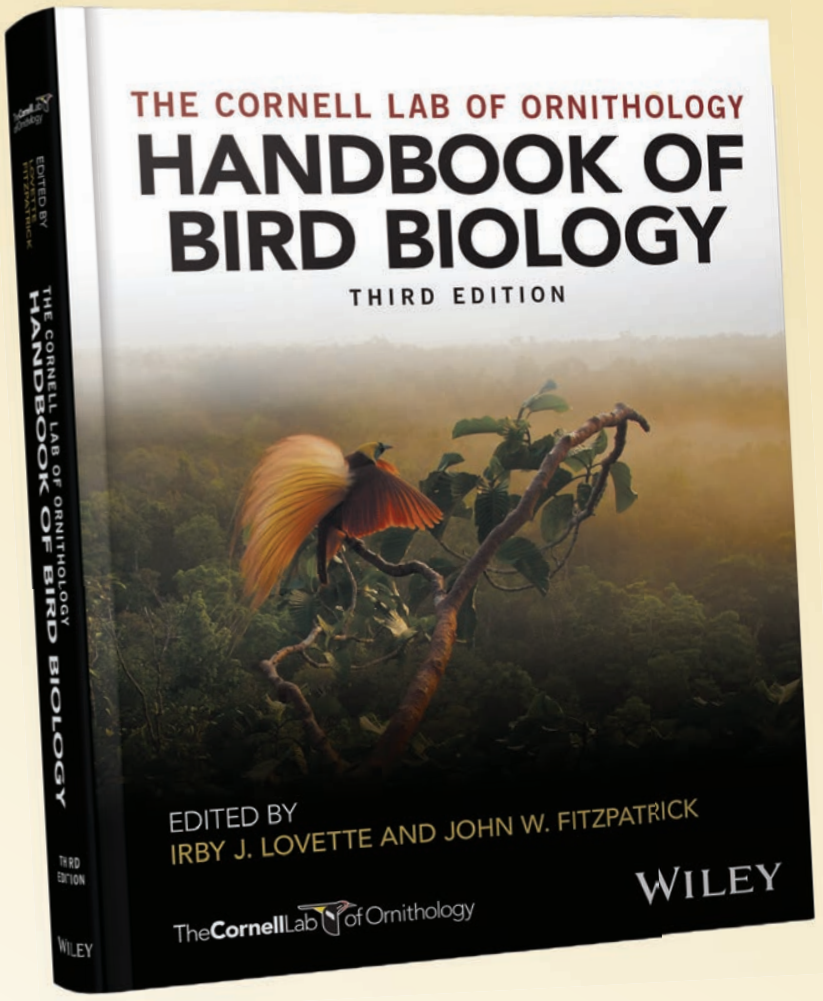
137th Annual Meeting
American Ornithological Society
Birds on the Edge: Dynamic Boundaries

June 24–28, 2019
Anchorage, Alaska
Egan Center
www.amornithmeeting.org
#AOS19AK

AOS
AMERICAN ORNITHOLOGICAL SOCIETY

The Cornell Lab of Ornithology

Inspire Your Students to Learn About Birds!



- ✓ Improve your teaching
- ✓ Bring bird biology to life
- ✓ Encourage life-long learning

The Handbook of Bird Biology is a comprehensive, college-level ornithology textbook for educators and students. Covering all aspects of avian diversity, behavior, ecology, evolution, physiology, and conservation, this in-depth text will transform your students' understanding of the avian world. The fully revised third edition provides:

- **Expanded and updated coverage** written by world-renowned ornithologists
- **Online media library** with free supplementary material
- **Downloadable PowerPoint** containing more than 650 figures ready for classroom use

Available at BirdBiology.org

Educators: Request an evaluation copy at **Wiley.com**.

Students: Explore our online course, "Ornithology: Comprehensive Bird Biology" at **BirdBiology.org**.

Visit the Cornell Lab booth for a FREE lens cloth and a chance to win a copy of the Handbook!

TABLE OF CONTENTS

SPONSORS

PLATINUM LEVEL

The Cornell Lab of Ornithology

GOLD LEVEL

ConocoPhillips Alaska

SILVER LEVEL

USGS
science for a changing world

BRONZE LEVEL

Audubon

NEXT GENERATION LEVEL

Kowa

Audubon
ALASKA

UAA College of Arts and Sciences
University of Alaska Anchorage

WELCOME TO ANCHORAGE, ALASKA!

On behalf of our Local Organizing and Meeting Coordination committees, I welcome you to the 137th meeting of American Ornithology! We are excited to share our spectacular wildlife and the beauty of the Far North during our celebration of the summer solstice. Alaska is amazing this time of year, and you will likely find yourself energized by the long daylight hours. Don't be surprised if you find yourselves scanning the nearby mudflats for early migrants or playing frisbee on the Park Strip during the wee hours of the morning!

We have tried to create a welcoming, inclusive, and family-friendly meeting for all to enjoy. We've also shortened our typical conference by a day so that you will have more time to explore the incredible wilds of Alaska. Our meeting is packed with not only many stimulating scientific sessions but also an array of field trips and networking activities that we hope you will find fun and rewarding.

Alaska serves as a nexus of many migratory flyways. The theme of our conference, *Birds on the Edge: Dynamic Boundaries*, highlights the birds that inhabit the northernmost domains of our continent and display dynamic connections across the globe. Our theme was also inspired by the many threats that birds face here and elsewhere in the world, placing populations on the edge of sustainability, especially where ecological boundaries are shifting rapidly. The theme embodies many of the scientific challenges that unite us as ornithologists: migration ecology, hybrid zones, dispersal, and the evolution of species' ranges in dynamic environments; the health and conservation issues that cross cultural, geopolitical, and ecological boundaries; and the development of innovative tools to advance our scientific investigations, analyses, and communications.

Our conference logo features the Bar-tailed Godwit (*Limosa lapponica*), which represents the many species that are facing profound threats to their survival. This large shorebird, known by indigenous peoples in Alaska as Tevatevaaq/Teguteguaq (Yup'ik) and in New Zealand as Kuaka (Māori), is a fitting ambassador for birds on the edge, as it unites the northern and southern hemispheres annually through the longest nonstop migratory flight documented for any bird. As you participate in this conference, we encourage you to think beyond the conventional boundaries of individual efforts and consider how best to work together to conserve our globally shared species.

Here at the edge of the North American continent, we hope to stimulate a broad discussion of research that spans the breadth of modern ornithology through an outstanding scientific program, which will be dedicated to the late Dr. Brina Kessel, a pioneer in ornithology and a leader in arctic and boreal research. We will also celebrate women and gender diversity in ornithology and foster exchanges of knowledge between western and Alaska Native cultures. Finally, we will explore the critical connection that exists between art and science for generating new knowledge and deepening an understanding of our world. We hope you enjoy the many events that we have put together to build upon these themes and that you are inspired to explore such dynamic dimensions in your own work.

Finally, we extend a warm welcome to our students. This meeting is a place for us all to share our knowledge, our skills, our questions, our vision, and our passion for birds. Together we can continue to build a dynamic society that will have the strength and diversity to tackle the daunting challenges of the future.

Colleen Handel, Chair
Local Organizing Committee
https://amornithmeeting.org #AOS19AK

HONORING BRINA KESSEL

Brina Kessel, 2006, by Gail Buyske

Dr. Brina Kessel (1925–2016) boldly blazed new trails for women in professional ornithology. During our conference we will be celebrating her contributions to ornithology, to Alaska, and to the AOS. Brina was born in Ithaca, New York, and grew up in Storrs, Connecticut, where her parents fostered her interest in birds and natural history from a young age. A hike up Mount Washington in New Hampshire inspired her life-long love of tundra. After earning a B.S. in 1947 at Cornell University, Brina moved to the University of Wisconsin to study with Aldo Leopold, but he suffered a tragic, untimely death soon after she arrived. She then discovered that Wisconsin would not accept women into the Ph.D. wildlife program, so after earning her M.S. in 1949, Brina returned to Cornell to continue her earlier studies on the European Starling with Arthur Allen and earned her Ph.D. in 1951.

Driven by her dual passions for birds and tundra, Brina ventured north to Fairbanks for a position as Instructor in Zoology at the University of Alaska. Brina quickly surmounted gender barriers to become a renowned ornithologist, professor, department head, dean, and curator at the museum. Brina retired in 1997 and was awarded status as Emeritus Professor, Dean, and Curator of Ornithology in 1999. Brina published many scientific papers and books on Alaska's birds, and her research across Alaska's taiga and tundra has proven fundamental to our understanding of northern avian distribution.

Brina earned many scientific honors throughout her career. She was listed in the American Men and Women of Science, named a Fellow of both the American Association for the Advancement of Science and the Arctic Institute of North America, lauded as Woman of the Year by the Fairbanks Business and Professional Women's Club, and given the University of Alaska President's Distinguished Service Award.

Brina also made significant contributions to the American Ornithologists' Union (AOU). In 1968 Brina became the first woman elected to the Council, she was elected Fellow in 1973, and from 1992 to 1994 she served as the second female president of the AOU. Brina hosted the AOU's annual conference not once but twice!

Brina generously endowed the Brina Kessel Excellence in Science Award for undergraduates and the Brina Kessel Fund for Ornithology at the University of Alaska. Brina's equally significant bequest to the AOS endowed the Kessel Student Travel Fund and the Kessel Special Project Fund. Her gift more than doubled the funding for student travel, aided underrepresented students, and funded caregiver grants to help members attend annual conferences. Special projects funded thus far include the *Best Paper in The Auk Award*, the AOS Post-Doctoral Research Program, and the Diversity and Inclusion programs. Her benevolence and vision will serve ornithology for generations to come.

Two of Brina's nieces, Jo and Gail Buyske, generously shared a few personal memories of her. *"…there were birds and bird things as a backdrop to our lives at all times…From her, in the 1960s and 1970s, I understood that it was entirely possible to be an exception to all the rules."*

"Her matter-of-fact approach made a big impression on me from an early age, because it helped me understand that hurdles were challenges to be overcome, not insurmountable obstacles that could prevent you from doing what you wanted to do in life. We hope that her gift will help others with their hurdles and enable them to continue the work that was so important to her in the place that she loved."

EXHIBITORS

NATIONAL AUDUBON SOCIETY
https://www.audubon.org/

RECONYX
http://www.reconyx.com/

CONOCOPHILLIPS ALASKA
http://alaska.conocophillips.com/

AUDUBON ALASKA
http://ak.audubon.org/

THE CORNELL LAB OF ORNITHOLOGY
https://www.birds.cornell.edu/home/

KARL BECKER WATERCOLORS
https://karlbeckerwatercolors.com/

OXFORD UNIVERSITY PRESS
http://global.oup.com/

DRUID TECH
https://www.druidtech.cn/en/

AVINET
https://www.avinet.com/

HOLOHIL
http://www.holohil.com/

LOTEK
http://www.lotek.com/index.htm

JOHNS HOPKINS UNIVERSITY PRESS
https://www.press.jhu.edu/

U.S. FISH AND WILDLIFE SERVICE
https://www.fws.gov/

OLYMPUS
https://www.getolympus.com/us/en/

JOURNAL OF AVIAN BIOLOGY
https://onlinelibrary.wiley.com/journal/1600048x

TECHNOSMART EUROPE
http://www.technosmart.eu/index.php

ENVIRONMENT FOR THE AMERICAS
https://www.environmentamericas.org/

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Tony DeGange

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Mark Hauber
Susannah Lerman
Irene Liu
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Scott Taylor
Sharon Gill

Student & Postdoc Travel and Presentation Awards
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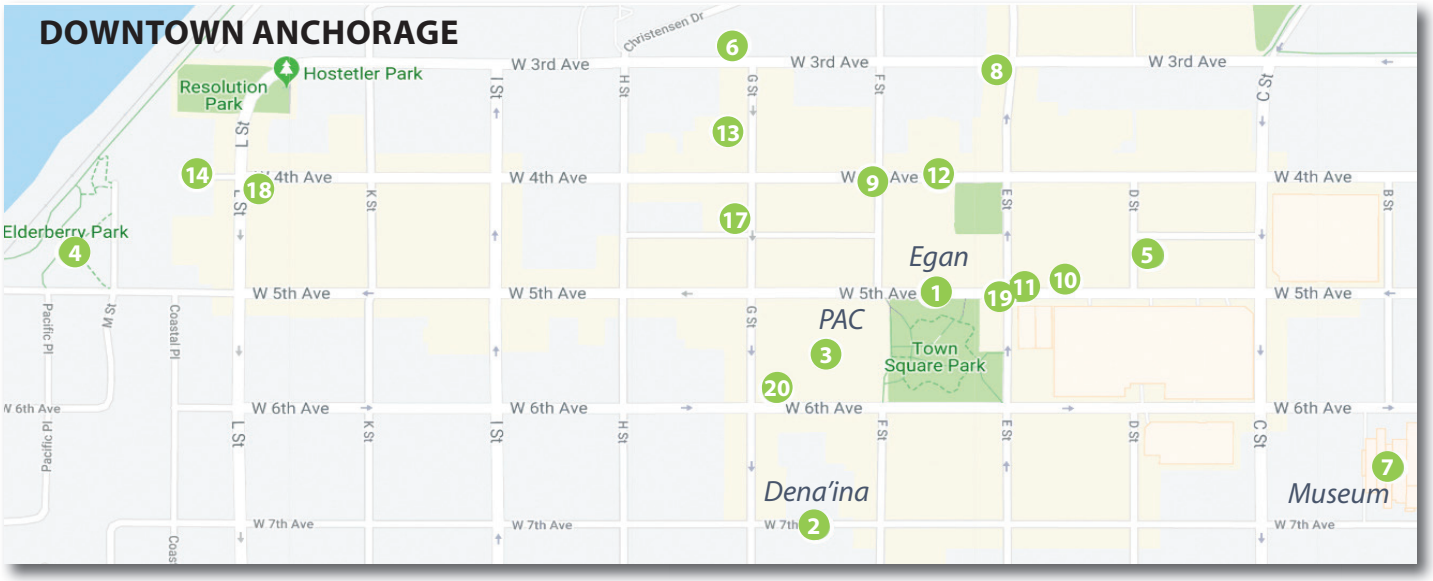
Matt Carling, Co-chair
Jen Walsh-Emond

Thank you to all the judges of student posters and presentations.

ANCHORAGE MAP



Venues

1. William A. Egan Civic & Convention Center
2. Dena'ina Civic & Convention Center
3. Alaska Center for the Performing Arts
4. Elderberry Park
5. International Gallery of Contemporary Art
6. 49th State Brewing Co
7. Anchorage Museum
8. Hilton Anchorage Hotel
9. Alaska Public Lands Information Center

Restaurants with AOS Discounts

10. Ginger
11. Fat Ptarmigan
12. Haute Quarter Grill
13. Crush Bistro & Bottle Shops
14. El Green-Go's

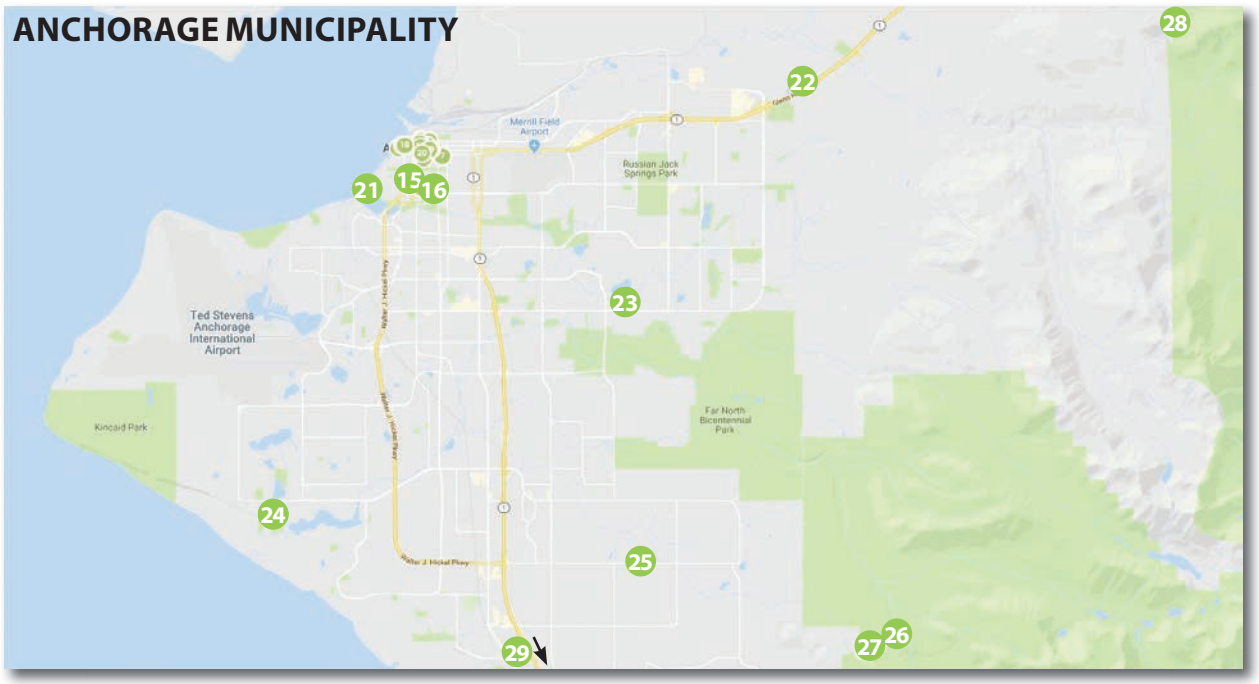
Coffee Shops and Bakeries

15. City Market and L'Aroma Bakery
16. Fire Island Rustic Bakeshop
17. Side Street Espresso
18. Snow City Cafe
19. The Kobuk
20. Kaladi Brothers Coffee Company

Local Field Trips

21. Tony Knowles Coastal Trail
22. Alaska Native Heritage Center
23. Alaska Native Medical Center Gift Shop
24. Campbell Creek Estuary
25. Alaska Zoo
26. Chugach State Park, Glen Alps
27. Chugach State Park, Williwaw Lakes
28. Chugach State Park, Arctic Valley
29. Potter Marsh/Bird Treatment & Learning Center

Show your AOS conference badge at any of these restaurants for 10% discount on yummy food!



REGISTRATION AND INFORMATION DESK

Registration will be located in the lobby of the Egan Center. The hours of registration are: Monday: 4–7 pm, Tuesday: 12 Noon–8 pm, Wednesday: 7 am–6 pm, Thursday: 8 am–5 pm, Friday: 8 am–3 pm.

PRESENTATION-READY ROOM

The O'Malley Room in Summit Hall, on the lower level of the Egan Center, will be the presentation-ready room. If you are giving an oral presentation, you must check in there at least 1 day prior to your talk (or by 7:30 am on Wednesday if your talk is on Wednesday, the first day of the conference). Please test your presentation on site in the presentation room to make sure everything is working. Presentations will be uploaded there to be available for your session but it is your responsibility to have a backup of your talk on a USB drive if the network goes down for any reason.

VENUE INFORMATION

All workshops, meetings, and presentations will be held in downtown Anchorage at the William A. Egan Civic and Convention Center or at the Alaska Center for the Performing Arts (PAC, across the street). The Fellows' dinner, keynote address, and welcoming reception will be held Tuesday evening on the third floor of the Dena'ina Civic and Convention Center, a couple of blocks from the Egan Center.

REGISTRATION FEE & NAME BADGE

Please be sure to wear your badge at all times. Note that the events for which you registered (other than field trips) are denoted on the back of your badge. Drink tickets can be used at any event with a bartender.

CODE OF CONDUCT

Please become familiar with the 2019 AOS Meeting Code of Professional Conduct at https://amornithmeeting.org/code-of-conduct/.

MESSAGE BOARD

This will be maintained near the Registration Desk throughout the meeting. Please feel free to put up messages at any time during the meeting.

COFFEE BREAKS

Coffee breaks for conference attendees will be in the Egan Center each day, Wednesday–Friday, from 10:00–10:30 am and from 3:30–4:00 pm.

EXHIBITORS

Exhibitors are located in LaPerouse and Arteaga Ballrooms with the posters. Exhibit hours are as follows: Wednesday 10 am–9:30 pm, Thursday 8 am–9:00 pm and Friday 8–10:30 am. Please visit them and see what they have to offer!

INTERNET

To access wireless internet at the Egan Center look for "Egan Guest Wi-Fi" and connect (no password required). We will provide details during registration for accessing Wi-Fi at the Performing Arts Center.

EARLY MORNING BIRD WALKS

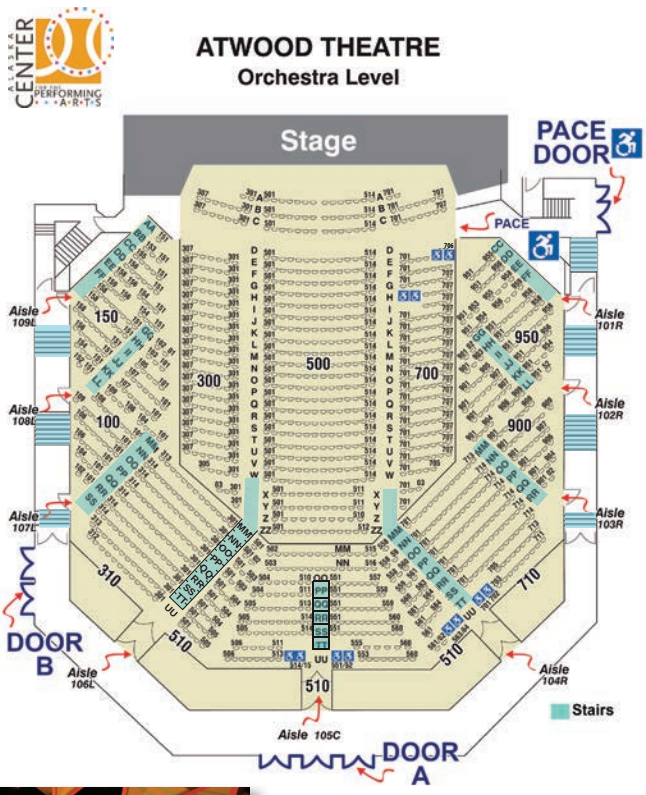
Please join us for free early morning bird walks along the Coastal Trail from Tuesday–Friday during the conference. We will leave from the front lobby of the Hilton Hotel at 6 am and return in time for the plenary sessions. Bring binoculars, water, and a snack.

MEETING PROGRAM APP

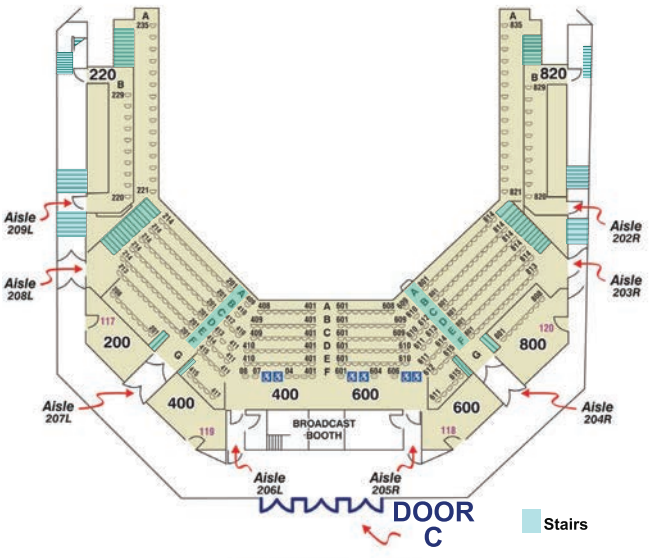
As an alternative to the printed program, an AOS 2019 meeting app will be available through EventPilot. You can download the app on iTunes or Google Play. Enter the code "AOS 19" to load the AOS 2019 Meeting.

ALASKA CENTER FOR THE PERFORMING ARTS

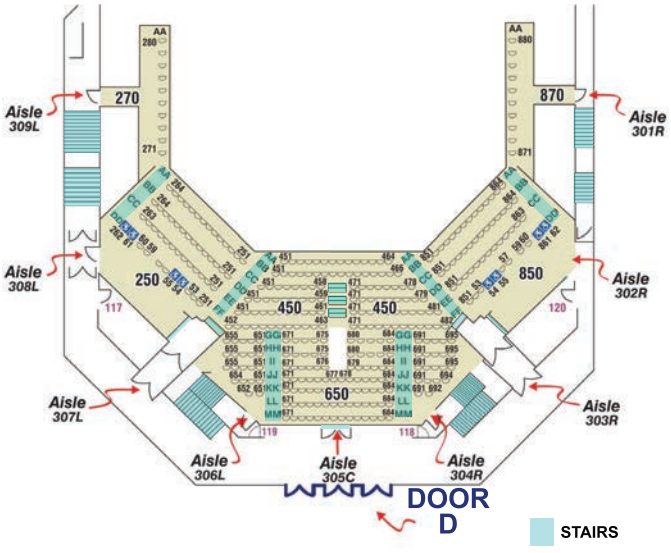
Springtime at the Alaska Center for the Performing Arts



View of inside of Alaska Center for the Performing Arts

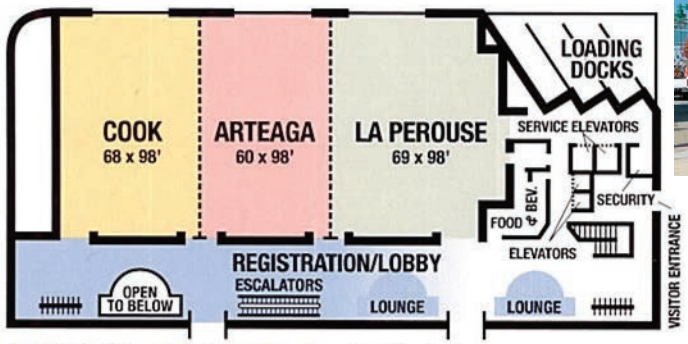


Mezzanine Level

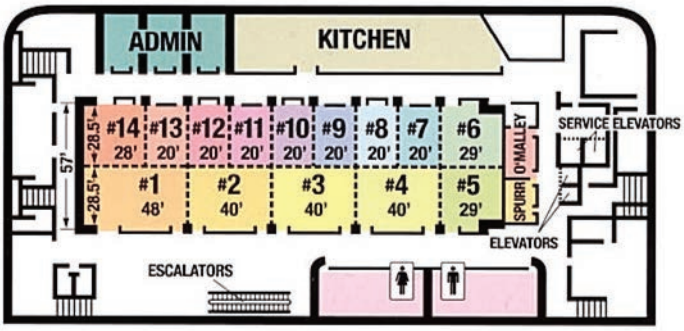


Balcony Level

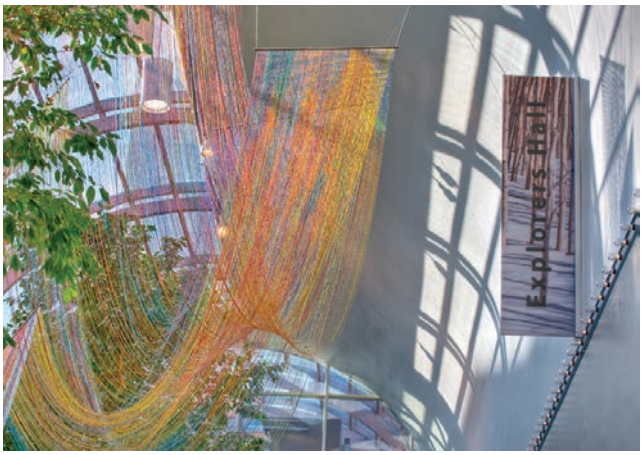
William A. Egan Civic & Convention Center

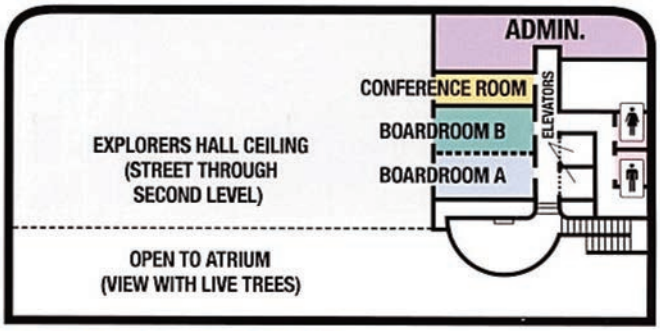


EXPLORERS HALL STREET LEVEL



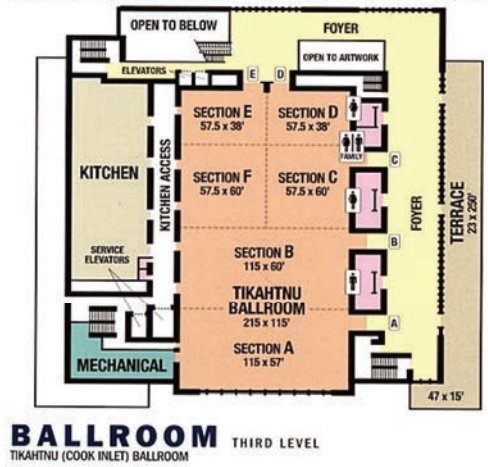
SUMMIT HALL LOWER LEVEL





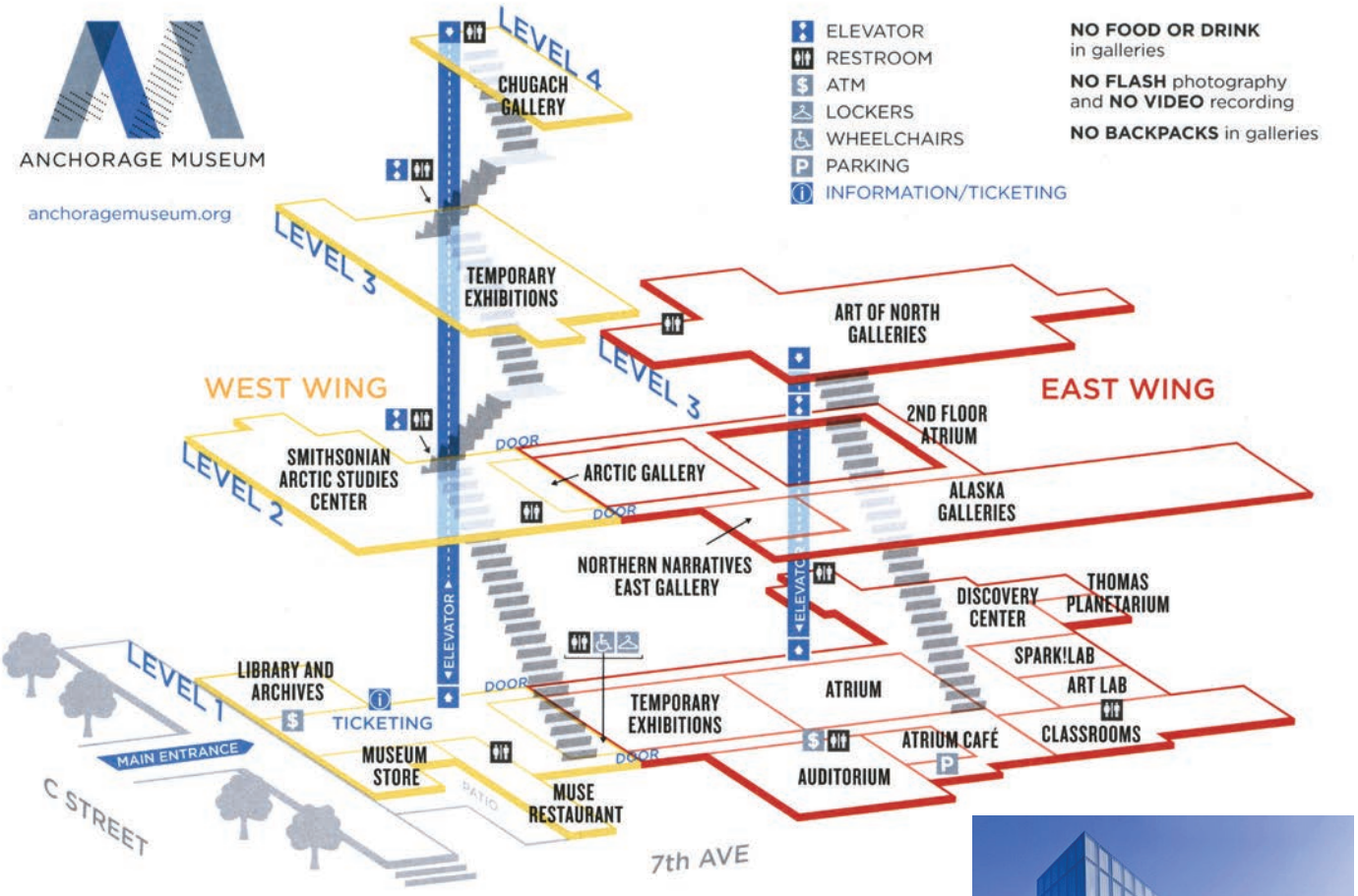
BOARDROOM UPPER LEVEL

Dena'ina Civic and Convention Center



BALLROOM THIRD LEVEL
TIKAHTNU (COOK INLET) BALLROOM

THE ANCHORAGE MUSEUM



WEST WING

LEVEL 1

Museum Store
Authentic Alaska Native art and craft, distinctive jewelry and items inspired by Northern design

Muse Restaurant
Imaginative cuisine offered in a lounge-like setting with outdoor patio

Library and Archives
Books, maps, photographs on Alaska history and ethnography

Amenities
Restrooms with baby changing station, lockers and coat racks; wheelchairs available upon request

LEVEL 2

Smithsonian Arctic Studies Center
Rare Alaska Native heritage objects from the Smithsonian Institution's National Museum of Natural History and National Museum of the American Indian

Arctic Gallery
Temporary exhibitions in this space sponsored by ConocoPhillips

LEVEL 3

Temporary exhibitions

LEVEL 4

Chugach Gallery
Temporary exhibitions

EAST WING

LEVEL 1

Atrium
Art, history and science exhibitions presented on a rotating basis

Discovery Center
Invent in **Spark!Lab**, create in **Art Lab**, and explore physics, earth and life science

Thomas Planetarium
Educational, entertaining films and presentations that explore astronomy and the natural world

Auditorium
Films, lectures and presentations offered throughout the year

Atrium Café
Refreshments and snacks available for purchase

LEVEL 2

Alaska Galleries
The *Alaska* exhibition tells Alaska's story through multiple voices and perspectives

2nd Floor Atrium
Temporary exhibitions

Northern Narratives East Gallery
Temporary exhibitions with a Northern focus

LEVEL 3

Art of the North Galleries
Reflects the regional landscape, themes include exploration, lifestyles and portraits

MONDAY, JUNE 24		
Egan Center	Workshop, full-day	
Various Locations	Field trips	
TUESDAY, JUNE 25		
Egan Center	Workshops, half- and full-day	
Various Locations	Field trips	
Dena'ina Center	AOS Fellows' Annual Meeting	4–5:30 pm
Dena'ina Center	AOS Fellows' Dinner	5:30–7 pm
Dena'ina Center	Keynote Speaker: Caroline Van Hemert	7–8 pm
Dena'ina Center	Opening reception	8–10 pm
WEDNESDAY, JUNE 26		
Performing Arts Center	Plenary and paper sessions	8 am–5:30 pm
Egan Center	Paper sessions	10:30 am–5:30 pm
Egan Center	Poster session I	7:30–9:30 pm
THURSDAY , JUNE 27		
Performing Arts Center	Plenary and paper sessions	8 am–5:30 pm
Egan Center	Paper sessions	10:30 am–5:30 pm
Egan Center	Poster session II	7–9 pm
FRIDAY JUNE 28		
Egan Center	Plenary and paper sessions	8 am–5:30 pm
Anchorage Museum	Closing event	6–9 pm
SATURDAY JUNE 29		
Various Locations	Field trips, full-day	

Birds on Dynamic Boundaries, 24–30 June 2019

Alaska Public Lands Information Center

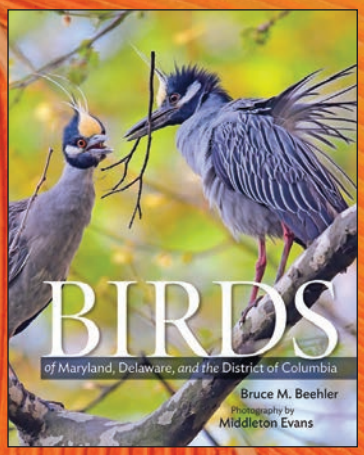
605 W 4th Avenue, Anchorage

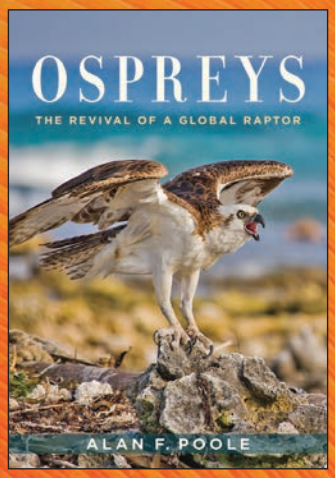
24–30 June (Mon–Sun), 12:30–1:30 pm, Main hall screen area

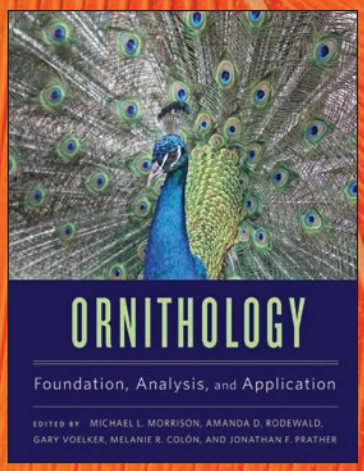
Come experience Alaska's birds through the lenses of the Cornell Lab of Ornithology. A curated selection of short-film documentaries will be shown about the birds of this great land and their journeys across the world.

Bring your lunch!

- Cornell Lab Introduction
- Alaska's Yukon Delta National Wildlife Refuge
- Through the Lens: Yellow-billed Loon
- Birds of the Yellow Sea
- Wetland Loss in the Yellow Sea
- Tracking Alaska's Godwits
- St. Matthew Island Expedition
- Bird Research and Shade-Grown Coffee







Birds of Maryland, Delaware, and the District of Columbia

Bruce M. Beehler
photography by Middleton Evans

More than 600 lush, stunning photos grace this comprehensive handbook to the birdlife of the Mid-Atlantic region.

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edited by Michael L. Morrison, Amanda D. Rodewald, Gary Voelker, Melanie R. Colón, and Jonathan F. Prather

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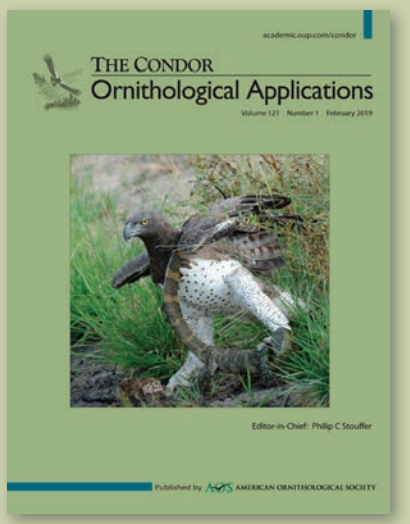

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MONDAY, JUNE 24, 2019		
Time and Location	**Event**	**Food and Drink**
8:00 am *Egan/Summit 1,13,14*	Network Analysis in R (Part 1) **Workshop** *by Daizaburo Shizuka & Allison Johnson*	*Lunch and dinner on your own*
8:00 am *Various*	**Field Trips**	*Depends on trip*
TUESDAY, JUNE 25, 2019		
Time and Location	**Event**	**Food and Drink**
6:00–7:30 am *Tony Knowles Coastal Trail*	**Early Morning Bird Walks** Meet in lobby of Hilton Hotel.	*On your own*
7:00 am–5:00 pm *Various*	**Field Trips** Meet in lobby of Hilton Hotel.	*Depends on trip*
8:00 am *Egan/Summit 1*	Network Analysis in R (Part 2) **Workshop** *by Daizaburo Shizuka & Allison Johnson*	
8:00 am *Egan/Summit 13,14*	Get Spatial! Using R as GIS and Spatial Analyses **Workshop** *by Michael T. Hallworth & Clark Rushing*	
8:00 am *Egan/Summit 2*	Taking the Next Step with R: Data Management, Publication Quality Graphics and Function Building **Workshop** *by Auriel Fournier & Evan Adams*	
8:00 am *Egan/Summit 11,12*	Survival Analysis for Avian Ecologists: Moving Beyond Mayfield **Workshop** *by Jim Rivers & Carl Schwarz*	
8:00 am *Egan/Summit 4*	Analysis Of Point-count Data in the Presence of Variable Survey Methodologies and Detection Error **Workshop** *by Peter Solymos*	
8:00 am *Egan/Summit 7, 8*	Best Practices for eBird Data I: Accessing and Preparing eBird data for Analysis in R **Workshop** *by Matt Strimas-Mackey*	
8:00 am *Egan/Summit 5, 6*	Introduction to Motus WTS: Project Planning, Equipment, and Data Management **Workshop** *by Luke DeGroote, Lisa Kiziuk, Allison Fetterman, Todd Alleger*	
12:00 pm	Lunch	*Many restaurants nearby*
1:00 pm *Egan/Summit 13,14*	Get Spatial! Using R as GIS and Spatial Analyses **Workshop** (continued) *by Michael T. Hallworth & Clark Rushing*	
1:00 pm *Egan/Summit 2*	Taking the Next Step with R: Data Management, Publication Quality Graphics and Function Building **Workshop** (continued) *by Auriel Fournier & Evan Adams*	
1:00 pm *Egan/Summit 11,12*	Survival Analysis for Avian Ecologists: Moving Beyond Mayfield **Workshop** (continued) *by Jim Rivers & Carl Schwarz*	
1:00 pm *Egan/Summit 4*	Analysis of Point-Count Data in the Presence of Variable Survey Methodologies and Detection Error **Workshop** (continued) *by Peter Solymos*	
1:00 pm *Egan/Summit 5, 6*	Sensorgnome for Motus WTS Techniques: Construction & Troubleshooting **Workshop** *by Todd Alleger & Luke DeGroote*	

AGENDA

TUESDAY, JUNE 25, 2019 (CONTINUED)		
Time and Location	**Event**	**Food and Drink**
1:00 pm *Egan/Summit 1*	Navigating Ornithology as an Early Career Professional: Staying Engaged, Employed, and Energized **Workshop** *by Jennifer Walsh, Brian Trevelline, & Emily WIlliams*	
1:00 pm *Egan/Summit 7, 8*	Best Practices for eBird Data II: Modeling Distribution and Abundance Using eBird Data **Workshop** *by Orin Robinson*	
4:00–5:30 pm *Dena'ina Center Tikahtnu B,C,F*	**AOS Fellows' Annual Meeting** The Fellows' annual meeting will be held at the Dena'ina Civic & Convention Center in the Tikahtnu Ballroom (3rd floor).	
5:30–7:00 pm *Dena'ina Center Tikahtnu A*	**AOS Fellows' Dinner** The Fellows' dinner will be held at the Dena'ina Civic & Convention Center. Note: The dinner is open to AOS Fellows, guests, and Early Professional Award winners. Ticket required for entry.	*Dinner and cash bar*
7:00–8:00 pm *Dena'ina Center Tikahtnu B,C,F*	**Keynote Speaker:** Caroline Van Hemert *The Sun Is a Compass: A Journey to the Arctic's Edge*. Caroline is an Alaskan early professional ornithologist, wilderness adventurer, and writer. She will be sharing the gripping story of her journey from Washington State to high above the Arctic Circle—traveling across remote and rugged terrain solely by human power—to rediscover birds, the natural world, and her own love of science.	
8:00–8:30 pm *Dena'ina Center Tikahtnu D*	**AOS Meetings 101:** Orientation and ice-breaker session for first-time attendees will be held during the first 30 minutes of the opening reception. Learn effective networking strategies and learn how to take full advantage of what's available at this conference!	
8:00–10:00 pm *Dena'ina Center Tikahtnu Foyer and Terrace*	**Opening Reception** Come connect with your old colleagues and get ready for an exciting week of science and fun. Enjoy spectacular views of the Chugach Mountains from the upstairs, outdoor terrace!	*Light snacks and cash bar/drink tickets*
WEDNESDAY, JUNE 26, 2019		
Time and Location	**Event**	**Food and Drink**
6:00–7:30 am *Tony Knowles Coastal Trail*	**Early Morning Bird Walks** Meet in lobby of Hilton Hotel.	*On your own*
8:00 am *Egan/La Perouse*	**Silent Auction** Items will be on display in La Perouse Hall with the exhibitors and posters. Online bidding begins today through *BiddingOwl.org*. All proceeds will support student activities, so bid generously!	
8:00 am *Performing Arts Center*	**Plenary Session**	
10:00 am *Egan Center/La Perouse*	Coffee Break	
10:30 am *Performing Arts & Egan centers*	**Paper Sessions**	

WEDNESDAY, JUNE 26, 2019 (CONTINUED)		
Time and Location	**Event**	**Food and Drink**
12:00 noon *Egan/Explorers Hall Foyer*	**Student-Mentor Lunch** Meet at Egan Center foyer to meet your group.	*Various restaurants*
12:00–2:00 pm *Egan/Summit 7,8*	**Round Table:** Best Practices in Collecting Specimens and Capturing Field Data *by Carla Cicero*	
12:00–2:00 pm *Egan/Summit 1*	**Public Responsibility Committee Listening Session** Come share your thoughts on AOS's role in public activities.	
12:00 noon	Lunch	*Many restaurants nearby*
12:15 – 1:45 pm *Various*	**Field trips** Meet in lobby of Hilton Hotel.	*Depends on trip*
2:00 pm *Performing Arts & Egan centers*	**Paper Sessions**	
3:30 pm *Egan Center/La Perouse*	Coffee Break	
4:00–5:30 pm *Performing Arts & Egan centers*	**Paper Sessions**	
5:30–6:30 pm *Egan/Cook*	**Early Professionals Mini-Talk Symposium**	
6:00–7:30 pm *Egan/Summit 7,8*	**Round Table:** Second Meeting of the R oRnithologists: Discussing Recent News, Organization, and the Future in R in Ornithology *by Matthew Boone*	
6:00–9:00 pm *Egan/Summit 9,10*	**Round Table:** USGS Bird Banding Lab: Preparing for the Next Century of Bird Banding *by Antonio Celis-Murillo*	
6:00–9:00 pm *Various*	**Field trips** Meet in lobby of Hilton Hotel.	*Depends on trip*
6:30–7:30 pm *Egan/Lobby*	**Students, Early Professionals, & Professionals Networking Social** Networking opportunity for all ornithological career stages and types.	*Light fare and cash bar/drink tickets*
7:30–9:30 pm *Egan/La Perouse and Arteaga*	**Poster Reception I**	*Light snacks and cash bar/drink tickets*
9:00–10:00 pm *Ginger Restaurant*	**LGBTQIA+ Reception** Sponsored by Audubon Alaska.	*Light appetizers and a no-host bar*

THURSDAY, JUNE 27, 2019		
Time and Location	**Event**	**Food and Drink**
6:00–7:30am *Tony Knowles Coastal Trail*	**Early Morning Bird Walks** Meet in lobby of Hilton Hotel.	*On your own*
6:30–7:30 am *Elderberry Park*	**All-Out Ostrich Scramble** Meet at Elderberry Park at 6:15 am for 5K run along Coastal Trail.	
8:00 am *Performing Arts Center*	**Plenary Session**	

THURSDAY, JUNE 27, 2019 (CONTINUED)		
Time and Location	**Event**	**Food and Drink**
10:00 am *Egan/La Perouse*	Coffee Break Group photo in Town Square immediately after plenary session.	
10:30 am *Performing Arts & Egan centers*	**Paper Sessions**	
12:00–1:00 pm *Egan/Summit 7, 8*	Working with Science Journalists 101 **Workshop** *by Rebecca Heisman*	
12:00–2:00 pm *Egan/Summit 5, 6*	Crafting an Effective CV/Resume for Careers Inside and Outside Academia **Workshop** *by Autumn Iverson, Jennifer Houtz, Amelia-Juliette Demery, Shailee Shah, Sabrina McNew, Michael McCloy, Sara Kaiser, Emily Williams*	
12:00–2:00 pm *Egan/Summit 4*	**Round Table:** Eastern Grassland Full Annual Cycle Conservation Design *by Cara Joos*	
12:00–1:30 pm *Egan/Summit 9, 10*	**Round Table:** Professional Ethics in the AOS and Ornithology *by Jeff Brawn*	
12:00–1:00 pm *Egan/Summit 11,12*	**Round Table:** Birds of North America (BNA): The Latest and Greatest in Digital Natural History *by Paul Rodewald*	
12:00 noon	Lunch	*Many restaurants nearby*
12:15–1:00 pm *Egan/Summit 6*	**Round Table:** If You Build It (or Don't), They Will Come: Leveraging Technology to Get Bird Studies into the 21st Century Classroom and Beyond *by Caitlin Welsh*	
12:15–1:45 pm *Egan/Summit 3*	**Meet the Editors** Chat with editors and learn some tips about the publication process.	*Free pizza*
12:15–1:45 pm *Various*	**Field trips** Meet in lobby of Hilton Hotel.	*Depends on trip*
2:00 pm *Performing Arts & Egan centers*	**Paper Sessions**	
3:30 pm *Egan Center/La Perouse*	Coffee Break	
4:00–5:30 pm *Performing Arts & Egan centers*	**Paper Sessions**	
5:30–7:30 pm *International Gallery of Contemporary Art*	**Art Reception: "Birds on the Edge: Dynamic Boundaries"** This invitational art exhibit features over 30 artists from Alaska and elsewhere with pieces in multiple media pertaining to birds.	*Light refreshments*
5:30–7:00 pm *49th State Brewing*	**Storytelling Event: "On the Edge"** Listen to true stories of your colleagues' harrowing experiences.	*Pizza and local beer available for purchase*
6:00–7:00 pm *Egan/Summit 9, 10*	**Round Table:** USGS Bird Banding Permitting 101 *by Antonio Celis-Murillo*	

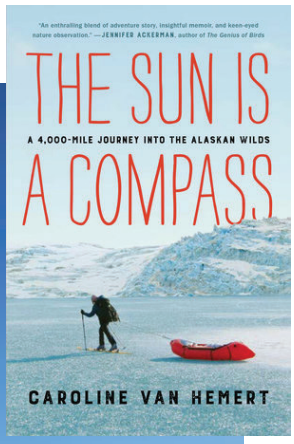
THURSDAY, JUNE 27, 2019 (CONTINUED)		
Time and Location	**Event**	**Food and Drink**
6:00–9:00 pm *Various*	**Field trips** Meet in lobby of Hilton Hotel.	*Depends on trip*
7:00–9:00 pm *Egan/La Perouse and Arteaga*	**Poster Reception II**	*Light snacks and cash bar/drink tickets*
9:00–10:30 pm *Egan/La Perouse and Arteaga*	**Quiz Bowl** Come join the fun in this Jeopardy-style competition revolving around ornithological trivia.	*Cash bar with beverages and snacks available*
FRIDAY, JUNE 28, 2019		
Time and Location	**Event**	**Food and Drink**
6:00–7:30 am *Tony Knowles Coastal Trail*	**Early Morning Bird Walks** Meet in lobby of Hilton Hotel.	*On your own*
8:00–10:30 am *Egan/La Perouse*	**Silent Auction** Last chance for a treasure! Online bidding closes at 10:30 am.	
8:00 am *Egan/Cook and Arteaga*	**Plenary Session**	
10:00 am *Egan/La Perouse*	Coffee Break	
10:30 am *Egan Center*	**Paper Sessions**	
12:00–2:00 pm *Egan/Summit 5, 6*	Working with eBird Status and Trends Data Products in R **Workshop** *by Tom Auer & Daniel Fink*	
12:00–2:00 pm *Egan/Summit 7, 8*	Writing Successful Proposals for Small Grants **Workshop** *by Shailee Shah, Amelia-Juliette Demery, Sabrina McNew, Jennifer Houtz, Jack Hruska, Michael McCloy, Autumn Iverson, Nick Mason*	
12:00–1:45 pm *Egan/Summit 6*	**Round Table:** Juggling Motherhood and Ornithology: From Incubation to Nestlings to Fledglings *by Susannah Lerman*	
12:00 noon	Lunch	*Many restaurants nearby*
12:15–1:45 pm *Various*	**Field trips** Meet in lobby of Hilton Hotel.	*Depends on trip*
2:00 pm *Egan Center*	**Paper Sessions**	
3:30 pm *Egan/La Perouse*	Coffee Break	
4:00–5:30 pm *Egan Center*	**Paper Sessions**	
6:00–9:00 pm *Anchorage Museum*	**Closing Event** Come celebrate new and renewed connections with colleagues during a fun evening at the Anchorage Museum! Come tinker in the Spark!Lab, experiment in the hands-on Discovery Center, and explore hundreds of indigenous Alaskan artifacts in the Smithsonian Arctic Studies Center. Food, drink, and music!	*Casual dinner and cash bar/drink tickets*

KEYNOTE ADDRESS

TUESDAY, JUNE 25, 7–8 PM
Dena'ina Civic & Convention Center
(open to public; AOS reception to follow)

CAROLINE VAN HEMERT: *THE SUN IS A COMPASS: A JOURNEY TO THE ARCTIC'S EDGE*

Caroline Van Hemert is a biologist, writer, and adventurer whose journeys have taken her from the pack ice of the Arctic Ocean to the swamps of the Okavango Delta. Her articles about birds, travel, and adventure have appeared or are forthcoming in the New York Times, Audubon, Birding, the LA Times, Outside, and more. She received her Ph.D. from the University of Alaska Fairbanks and M.A. in creative writing from Western Washington University and has worked for various universities, NGOs, and government agencies. She is currently a research wildlife biologist at the U.S. Geological Survey Alaska Science Center and studies avian and wildlife health in the north. When she's not traveling, she divides her time between a remote off-the-grid cabin in southeast Alaska and a cozy home in downtown Anchorage, where she lives with her husband and two young sons. She is the author of *The Sun is a Compass: A 4,000-mile Journey into the Alaskan Wilds*, the gripping story of a biologist' s journey from Washington State to high above the Arctic Circle to rediscover birds, the natural world, and her own love of science.



WEDNESDAY PLENARY AT 8 AM IN THE PERFORMING ARTS CENTER (PY1)

KEVIN WINKER

ARCS OF TIME AND THE SCIENCE OF BIRDS

Kevin is the Brina Kessel Curator of Birds at the University of Alaska Museum and a professor in the Department of Biology and Wildlife at the University of Alaska Fairbanks. He earned his Ph.D. at the University of Minnesota and followed this with two postdoctoral positions at the Smithsonian Institution, one at the National Zoo and the other at the National Museum of Natural History. He moved to Alaska in 1997. His research focuses on the patterns and processes of avian evolution at the population, subspecies, and species levels, particularly in relation to seasonal migration. His research associated with collections is broader, including avian responses to climate change and pathogen transport by birds, and actively addresses aspects of management, conservation, and taxonomy. His strong commitments to students and to the broad development of bird collections have been important parts of his career. He is an AOS Fellow and has served as a member of the AOS Council, as well as on the Committee for Bird Collections and the Committee on Classification and Nomenclature for many years.

Kevin lives in Fairbanks, Alaska, with his wife Rose Meier, who also earned her Ph.D., in botany, at the University of Minnesota. Both enjoy their lives as modern Beringians.

NED K. JOHNSON EARLY INVESTIGATOR AWARD WINNER

DAVID TOEWS

A HISTORY OF HYBRIDIZATION IN WOOD WARBLERS

David joined the Biology Department at Pennsylvania State University in January of 2019. His lab uses genomic tools to address questions about avian evolution and to identify the genes that underlie important ecological traits, such as plumage or migration behavior. His work has primarily focused on New World wood warblers and hybrid zones between closely related warbler species. David was most recently a postdoctoral researcher in Irby Lovette's lab at the Cornell Lab of Ornithology and obtained both his M.Sc. and Ph.D. at the University of British Columbia under the supervision of Darren Irwin. David is passionate about avian natural history and conservation as well as the translation of evolutionary biology research to a broad and diverse audience.

PLENARIES

THURSDAY PLENARY AT 8 AM IN THE PERFORMING ARTS CENTER (PY2)

PATTY SCHWALENBERG

ALASKAN MIGRATORY BIRDS: CONSERVATION THROUGH CO-MANAGEMENT

Patty is the Executive Director of the Chugach Regional Resources Commission (CRRC), a nonprofit inter-Tribal fish and wildlife organization located in Anchorage, Alaska. She is also Executive Director of the Alaska Migratory Bird Co-Management Council, where she works on setting regulations for the spring-summer subsistence harvests of migratory birds. Patty is an enrolled member of the Lac du Flambeau Band of Lake Superior Chippewa Indians, located in northern Wisconsin, where she began her career in Tribal natural resources. She moved with her family to Alaska in 1992. Patty uses her passion for the natural world to organize Tribal Initiatives from the grassroots level and has been honored by the Alaska Conservation Foundation with the 2017 Caleb Pungowiyi Award for Outstanding Achievements by an Alaska Native Individual or Organization; by the U.S. Fish and Wildlife Service with the 2017 Regional Director's Excellence Award as an Outstanding Partner; and by the Native American Fish and Wildlife Society with the Chief Sealth Award for Outstanding Contributions toward the Preservation, Protection and Prudent Conservation of this Nation's Vital Fish and Wildlife Resources in 2015. Most recently, the CRRC, under Patty's direction, received an Honorable Mention for the 2018 Climate Adaptation Leadership Award for Natural Resources in the Tribal Government category from the Association of Fish & Wildlife Agencies.

Patty lives in Anchorage with her dog Zoe and enjoys spending time with her three children and seven grandchildren, who also live in Anchorage.

JAMES G. COOPER EARLY PROFESSIONAL AWARD WINNER

KYLE HORTON

BRIGHT LIGHTS IN THE BIG CITIES: MIGRATORY BIRDS' EXPOSURE TO ARTIFICIAL LIGHT

Kyle is currently a Rose Postdoctoral Research Fellow at the Cornell Lab of Ornithology, where he is working on leveraging remote-sensing tools such as radar to better understand how many migrants fill the nighttime airspace, where and when migrants are affected by artificial light, and how radar can be used to forecast and mitigate the negative impacts. He received his B.S. in Biology from Canisius College in 2011, where his interest in ornithology and migration ecology was sparked while working alongside Sara Morris. He completed his M.S. in Wildlife Ecology at the University of Delaware in 2013 with Jeffrey Buler and his Ph.D. in Ecology and Evolutionary Biology at the University of Oklahoma in 2017 with Jeffrey Kelly. His work has been published in a broad range of journals and has been covered by NPR, The Washington Post, The New York Times, Science, Nature, and many other media outlets. Kyle works on BirdCast, a Cornell Lab of Ornithology program aimed at making migration forecasts accessible to scientists, conservationists, and bird watchers alike. Kyle will be joining Colorado State University as an assistant professor in fall 2019.

FRIDAY PLENARY AT 8 AM IN THE EGAN CENTER (PY3)

CAROL VLECK

HOW BIRDS WORK — INSIGHTS INTO AVIAN BIOLOGY: PAST, PRESENT AND FUTURE

Carol Vleck is a professor emeritus in the Department of Ecology, Evolution and Organismal Biology at Iowa State University. She received her Ph.D. at UCLA under the direction of Tom Howell and George Bartholomew. After postdocs at the University of Washington, State University of New York at Buffalo, and University of Adelaide, South Australia, she held faculty positions at the University of Arizona and Iowa State University. Her research focuses on physiological ecology and hormonal control of reproductive behavior, especially in birds living in extreme environments. She has worked on incubation behavior of hummingbirds, water and energy balance in avian eggs, megapode egg physiology in South Australia, hormonal control of reproduction in rain-breeding birds and of cooperatively breeding Harris's Hawks and Mexican Jays in Arizona, and on parental behavior and its control in Adélie Penguins in Antarctica. Most recently, she and her students studied the physiology of aging in Tree Swallows, with a particular emphasis on telomere biology. She has been an AOS Fellow since 1993 and served on the AOU Council and the Cooper Ornithological Society Board of Directors.

Carol currently lives in Green Valley, Arizona, with her husband and professional colleague, David Vleck, where they enjoy volunteer work, grandchildren, and birding.

JAMES G. COOPER EARLY PROFESSIONAL AWARD WINNER

KARAN ODOM

ADIVAS AND DUOS: HOW SEX ROLES SHAPE BIRD SONG EVOLUTION

Karan is currently an NSF Postdoctoral Fellow in Mike Webster's lab at the Cornell Lab of Ornithology. Her research focuses on the evolution of elaborate traits, specifically song, in female as well as male birds. She combines large-scale phylogenetic comparative methods and field studies to evaluate the evolutionary pressures that have led to similar songs in males and females of some species and strong dimorphism (including loss of female song) in other species. She began her ornithological career under the mentorship of Jed Burtt as an undergraduate at Ohio Wesleyan University and then went on to complete her M.S. with Dan Mennill at the University of Windsor and her Ph.D. with Kevin Omland at the University of Maryland, Baltimore County (UMBC). Karan is also a co-founder of The Female Bird Song Project, a citizen science initiative aimed at increasing female bird song recordings in biological collections. Karan is very interested in promoting women in science, which she does through extensive mentorship of young women researchers and by joining her colleagues in pointing to the prominent role women scientists have played in discoveries about female bird song. She was selected as an Elective Member of AOS in 2017.

SCIENTIFIC PROGRAM

Wednesday, Morning Session

* indicates student presenters eligible for AOS presentation award

Room	Atwood	Cook	Summit 1	Summit 2	Summit 3	Summit 4
Session	**Symposium Understanding and Addressing the Collapse of the North American Avifauna (*Marra & Rosenberg*) S1**	**Symposium: Breaking Through Biases: What We've Learned from Female Birds (*Odom & Bennett*) S2**	**Phylogenetics & Phylogeography S3**	**Songs & Vocalizations S4**	**Biogeography S5**	**Birds & Agriculture S6**
10:30 am	Evidence for Massive Decline in the North American Avifauna *Rosenberg KV, Dokter AM, Blancher PJ, Sauer JR, Smith AC, Smith PA, Stanton JC, Panjabi AO, Helft L, Parr M*	Extra-pair Copulations in Passerines: Why Females Matter *Stutchbury BJ*	*Evolution of Migration in the Nightingale-Thrushes (Turdidae: *Catharus*) Inferred via Morphometric and Phylogenetic Analysis *Halley MR, Klicka J, Catanach TA, Weckstein JD*	It's the Same Old Song: Benefits of Song Dialects in the Lapland Longspur *Montgomerie RD, Cox A, Mullie A*	Montane Biogeography and the Evolution of Disjunct Ranges: A Case Study in the Diglossa Flowerpiercers *Hiller AE, Brumfield RT, Faircloth BC*	*GPS-tracking Reveals Selection for Prairie Ponds by Tree Swallows in Cropland-dominated Landscapes *Elgin AS, Morrissey CA, Clark RG*
10:45 am	Decline and Survival of North America's Migratory Avifauna Determined by a Weather Radar Network *Dokter AM*	Female Bird Songs—The Other Half of the Conversation *Benedict L, Hathcock TJ, Najar N, Mitchell L, Cavar J, Logue D*	Contrasting Drivers of Diversity and Turnover in Andean Birds and Their Parasites *McNew SM, Barrow LN, Bates JM, DuBay SG, Galen SC, Hackett SJ, Johnson AB, Skeen HR, Valqui T, Jason WD, Williamson JL, Witt CC*	Behavioral Landscape of 'Oma'o Vocalizations in a Naturally Fragmented Habitat *Netoskie EC, Paxton KL, Paxton EH, Hart PJ*	Cryptic Bird Species on a Remote Archipelago of the Pacific Ocean *Cibois A, Thibault J, Friedman NR, Omland KE, Desutter-Grandcolas L, Robillard T, Pasquet E*	*Impact of Wildfires on Barn Owl Habitat Selection in a Vineyard Agroecosystem in Napa Valley *Huysman AE, Johnson M*
11:00 am	Grassland Bird Declines: How Can We Stop the Downward Spiral? *Panjabi AO, Correll M, Strasser EH, Bernath-Plaisted J, Beh A, VerCauteren TL*	Female Preferences Shape Elaborate Male Displays and Social Skills on the Lek *Patricelli GL*	Fine-scale Genetic Population Structure of an Understory Bird (*Thamnophilus atrinucha*) Across the Panama Canal Zone *Maddox JD, Kelley JP, Tarwater CE*	*Behavioral and Spectrographic Analysis of Chatter: A Novel Vocalization in Northern Mockingbirds *Brown BB, Stracey CM*	Climate Delineates the Northern Range Boundary of the Northern Cardinal *Miller CR, Porter WP, Fitzpatrick MJ, Zuckerberg B*	Does a "Sonic Net" Protect Sunflower from Damage by Blackbirds? *Werrell AK*, Klug PE, Swaddle JP
11:15 am	Volunteer-led Surveys Document 40 Years of Shorebird Declines Across North America *Smith PA, Smith AC, Brown S, Friis C, Paquet J, Winn B, MacDonald A*	Habitat Saturation Drives the Frequency of a Rare Behavior in the Females of a Social Bird *Barve SS, Koenig WD, Haydock J, Walters EL*	Multiple Hybrid Zones in a Widespread Amazonian Bird Reveal Different Evolutionary Processes *Moncrieff AE, Brumfield RT*	*Repertoire Size and Individual Variation in Vocalizations of 'Ōma'o (*Myadestes obscurus*) an Endemic Hawaiian Thrush *Tysall EE, Paxton KL, Netoskie EC, Paxton EH, Hart PJ*	Diversification and Biogeography in an Indo-Pacific Bird Radiation (Pachycephalidae) *Brady SS, Joseph LG, Moyle RG, Andersen MJ*	Quantifying Multiple Benefits of Bird Conservation in the Agricultural Mosaic of California's Central Valley *Seavy NE, Humple D*
11:30 am	American Seabirds: A Review of Status, Threats, and Conservation on Land and at Sea *Nevins HM, Goyert H, Keitt B, Wiedenfeld D*	Migratory Landbird Conservation Compromised by Failure to Address Sexual Segregation *Bennett RE, Rodewald AD, Rosenberg KV*	Comparative Phylogeography of Amazonian Riverine Island Birds *Johnson O, Brumfield RT*	Deep Convolutional Neural Network to Detect Forest Owls of the Pacific Northwest *Lesmeister DB, Ruff ZJ, Sullivan CM*	*Patterns and Mechanisms of Heterogeneous Breeding Distribution Shifts in North American Migratory Birds *McCaslin HM, Heath JA*	Estimating the Effect of Prairie Strips on Grassland Birds *Giese JC*, Schulte LA, Klaver RW
11:45 am	Songbirds of the Sagebrush Sea: Declines and Mechanisms *Chalfoun AD, Sanders L, Scherr T, Hethcoat M*	Elaborate Female Coloration and Song: Diverse Perspectives Lead to a More Comprehensive Understanding of Avian Biology *Omland KE, Rose EM, Haines CD*	Resolving Difficult Nodes in Manakin Phylogeny Using Low-coverage Whole Genome Sequencing *Braun EL, White ND, Kimball RT, Moncrieff AE, Zhao M, Kurtis SM, Brumfield RT*	*Sex and Species Divergence in Vocalizations Between Role-reversed Shorebirds, *Jacana spinosa* and *Jacana jacana* *Buck EJ, Lipshutz SE, Derryberry EP*	Is Specialism an Evolutionary Dead-end? Estimates of Transition Rates Between Generalism and Specialism in a New World Clade *Conway M, Olsen BJ*	Comparing Land-sparing and Land-sharing Conservation Approaches in a Coffee-growing Region with High Avian Biodiversity *Valente JJ, Ryder TB, Rice RA, Gómez C, Bayly NJ, Sillett TS, Marra PP*
Lunch Break						

Wednesday, Morning Session

* indicates student presenters eligible for AOS presentation award

Room	Summit 5	Summit 6	Summit 7/8	Summit 9/10	Summit 11/12	Summit 13/14
Session	**Symposium: Assessing the Cumulative Effects of Resource Development on Migratory Birds in Northern Boreal Regions (*Mahon*)** **S7**	**Sexual Selection** **S8**	**Conservation & Population Dynamics** **S9**	**Movements & Dispersal** **S10**	**Habitat Relationships** **S11**	**Population Biology** **S12**
10:30 am	Soaring to New Heights: Analytical Approaches for Cumulative Effects Assessment for Migratory Birds *Pelech SA, Mahon CL, Lowry N*	Within-pair Annual and Lifetime Reproductive Success Drives the Opportunity for Sexual Selection in Black-throated Blue Warblers *Germain RR, Hallworth MT, Sillett TS, Webster MS*	*Cutting Out Without Losing Out: Subsampling Soundscapes for Long-term Avian Biodiversity Monitoring *Eiseman JP, Vonhof MJ, Gill SA* **CANCELLED**	Long-term Dynamics of Breeding Dispersal Distances by Adult Northern Spotted Owls *Jenkins JM, Lesmeister DB, Forsman E, Dugger K*	*Shrub Encroachment Alters Distributions and Demography of Breeding Birds in Semiarid Grasslands *Andersen EM, Steidl RJ*	*Growth of Two Atlantic Coast Piping Plover Populations *Weithman CE, Robinson SG, Hunt KL, Altman J, Bellman HA, DeRose-Wilson AL, Walker KM, Fraser JD, Karpanty SM, Catlin DH*
10:45 am	Understanding Cumulative Effects for Land Management in Alberta: Models and Applications *Solymos P, Toms JD, Bayne EM*	Experimentally Increasing Perceived Competition for Nests Reduces Female Reproductive Performance and Extra-pair Offspring *Murphy TG, Korsten P, Birker M, Marfull R, Komdeur J*	Spatial Models to Facilitate Broad-scale Conservation of Breeding Habitat for Secretive Marsh Birds *Stevens BS, Conway CJ*	*A Burning Question: Does Personality Predict How Pre-breeding Florida Scrub-Jays Explore Habitat in a Fire History Mosaic? *Sherer DL, Bohlen PJ, Bowman R*	*Are We Sure About Shearing? Evaluating the Impact of a Widely Used but Poorly Assessed Habitat Management Practice *Buckardt Thomas AC, Roth AM, McNeil Jr DJ, Johnson K, Rodewald AD, Larkin JL*	Population Demographics, Breeding Ecology, and Responses to Grazing of Montana Sagebrush Steppe Songbirds *Dreitz VJ, Ruth K, Berkeley L*
11:00 am	Additive and Interactive Cumulative Effects on Boreal Landbirds: Winners and Losers in a Multi-Stressor Landscape *Mahon CL, Holloway GL, Bayne EM, Toms JD*	Male Red Carotenoid Coloration Indicates Mitochondrial Performance in the House Finch *Hood WR, Hill GE, Kavazis AN, Zhang Y*	A Bayesian Network Approach for Improved Seasonal Distribution Models of Long-distance Migratory Passerines Using *Tyrannus* Flycatchers *MacPherson MP*	*Effects of Source Population and Release Strategy on Reintroduced Scaled Quail Mortality and Dispersal *Ruzicka RE, Doherty Jr PF, Rollins D*	Restoration Success: Avian Richness and Abundance Among 1,000 Acres of Restored San Francisco Bay Tidal Marsh Habitat, Based on Point Count Surveys that Employ Citizen Scientists *Edelstein D*	Population Genomics of Hawaiian House Finches (*Haemorhous mexicanus*): Investigating Genetic Variation of an Introduced Population *Demery AC, Edwards S, Shultz AJ*
11:15 am	Community-level Response to Cumulative Effects of Forestry and Energy Development *Toms JD, Carpenter TM*	Infanticide and Adoption in the Green-rumped Parrotlet: Killing Cavities, Remorseless Rogues and Betrayed Saints *Beissinger SR, Berg KS*	*Using Integrated Models to Identify Ecology and Population Dynamics of a Threatened Arctic Species *Dunham KD, Abebe A, Dobson SF, Koons DN, Grand JB*	Does Experimental Local Extinction of a Flowering Plant Affect Hummingbird Movement Patterns? *Leimberger KG, Hadley AS, Betts MG*	*Post-fire Nest Site Selection and Survival of Black-backed Woodpeckers *Stillman AN, Siegel RB, Wilkerson RL, Johnson M, Howell CA, Tingley MW*	Contrasting Long-term Population Trends of Beach-nesting Shorebirds Under Shared Environmental Conditions *Kwon EB, Robinson SG, Weithman CE, Fraser JD, Karpanty SM, Catlin DH*
11:30 am	Adverse Effects of Climate Change on Boreal Bird Communities Accentuated by Natural and Anthropogenic Disturbances *Tremblay JA, Cadieux P, Boulanger Y, Cyr D, Taylor AR, Price DT, Solymos P, Stralberg D*	Can Male Zebra Finches Perceive Their Own Quality and Adjust Mate Choice Accordingly? *Martin JO, Chien E, Henson KE, Burley NT*	Population Dynamics of a Long-distance Migratory Passerine at the Edge of Its Range *Murphy MT, Redmond LJ, Dolan AC, Cooper NW, Chutter CM, Cancellieri S*	Habitat Use and Foraging Flights of Roseate Spoonbills in Florida Bay *Lago EA, Baldwin JD, Lorenz JJ*	*Identifying Critical Nesting Habitat for Ducks in Alberta's Western Boreal Forest *Dyson ME, Slattery SM, Fedy BC*	*Investigation of Population Change in a Hurricane-affected Piping Plover Population *Robinson SG, Gibson D, Fraser JD, Bellman HA, DeRose-Wilson AL, Karpanty SM, Walker KM, Catlin DH*
11:45 am	Panel Discussion	Associations of the Cloacal Microbiome with Sexual Ornamentation, Condition, Sex and Habitat in Molting House Finches *Hutton P, Giraudeau M, Sepp T, McGraw KJ*	Road Mortality in Barn Owls: Identifying Temporal and Spatial Hotspots in the Fraser Valley of British Columbia *Krebs EA, Hindmarch SR, Powers G*	The Allometry of Movement and Connectivity of Bird Communities *Hartfelder J, Fletcher RJ, Reynolds C, Monadjem A, McCleery R*	Persistence in a Changing Landscape: Recurring Bird Concentration Areas on Alaska's Arctic Coastal Plain *Sullender BK, Smith MA*	Using Museum Specimens to Investigate Fitness Variation Across Avian Hybrid Zones *Dougherty PJ*, Carling MD, Fossberg SL
Lunch Break						

Wednesday, Early Afternoon Session

* indicates student presenters eligible for AOS presentation award

Room	Atwood	Cook	Summit 1	Summit 2	Summit 3	Summit 4
Session	**Symposium: Understanding and Addressing the Collapse of the North American Avifauna (*Marra & Rosenberg*)** **S13**	**Symposium: Conservation and Management of Boreal Birds in a Changing Climate: What Do We Expect, What Have We Observed, and What Do We Do About It? (*Stralberg et al.*)** **S14**	**Phylogeography** **S15**	**Symposium: Species Limits in Birds: Integrative and Practical Considerations for Taxonomy (*Winker & Rasmussen*)** **S16**	**Climate** **S17**	**Breeding Biology** **S18**
2:00 pm	Conservation of Boreal Birds: Status, Trends, and Data Gaps *Toms JD, Solymos P, Stralberg D, Barker NK, Micheletti T, Leston L, Hache S, Cumming S, Song S, Schmiegelow F*	Model-based Vulnerability Assessment of Boreal Birds in a Changing Climate *Bateman BL, Wu JX, Wilsey CB, Taylor L, LeBaron G, Langham GM*	Genomic Signatures of Pleistocene Dry Forest Connections in a Widespread South American Songbird *Corbett EC, Bravo GA, Schunck F, Naka LN, Silveira LF, Edwards SV*	Integrative Approaches to Species Delimitation in Birds *Cicero C, Mason NA, Jimenez RA, Wait DR, Wang-Claypool CY, Bowie RC*	Alternate Migration Strategies Mediate the Effects of Stochastic and Predictable Climatic Changes on Migratory Birds *Senner NR, Linscott JA, Rakhimberdiev E, Douglas DC*	Can Nest Concealment in Wood Thrushes Predict Reproductive Success? *Israel AM, Stutchbury BJ*
2:15 pm	Waterfowl in North America: A Successful Story of Partner-based Conservation and Regulated Harvest *Brasher MG, Moorman TE*	Ecological Niche Modeling and Potential Implications for Alaskan Birds Under 2 °C Warming *Wu JX, Bateman BL, Wilsey CB, Taylor L, Langham GM*	Using Ancient DNA from Fossils to Place an Extinct Flightless Bird Genus in a Phylogenetic Context *Oswald JA, Allen JM, Folk R, Stucky B, Steadman DW, Guralnick R*	Revisionist History—Towards Comparable Species Across Avian Taxonomy *Bates JM, Reddy S*	Climate, Storm-Petrels, and Chick Growth *Mauck RA, Huntington CE, Haussmann MF, Dearborn DC, Ricklefs RE*	Nest Survival, Predator Assemblage, and Patterns of Predation at Veery (*Catharus fuscescens*) Nests in a Mature Forest *Goguen CB, Murray LD*
2:30pm	Contrasting Regional and Range-wide Trends Inform Causes of Decline: Case Study with the Red-cockaded Woodpecker and Associated Pineland Birds *Walters JR, Rosenberg KV, Sauer JR*	Detecting Shifts in the Phenology and Distribution of Bird Assemblages on the Kenai Peninsula, Alaska, in a Changing Climate *Magness DR, Eskelin T*	Comparative Phylogeography of Four Lowland Forest Birds Distributed Across the Dahomey Gap of West Africa *Huntley JW*, Sweet P, Hibbitts T, Arame H, Adite A	Genoscapes & Species Limits—Lessons from the Last 5 Years *Ruegg KC, Smith T, Bossu C, Rajbandary J*	*Contrasting Demographic Responses of Eastern Bluebird Populations to Climatic Variability *Harrod SE, Rolland V*	*Viewing Habitat Through Another Lens: Bird Nest-site Selection and Productivity Across the Beach Thermal Landscape *Schaale LE, Baxley JB, Pricope NG, Danner RM*
2:45 pm	State of Population Trend Monitoring for North American Birds *Michel NL, Smith AC, Hudson MR, Sauer J*	Present and Future Distribution and Abundance of Aerial Insectivores in the Northwest Using Climate and Landcover *Stehelin TE, Schmiegelow FK*	*Comparative Genomics Reveal Modes of Differentiation in North American Warm Desert Birds *Provost KL, Shue S, Forcellati M, Smith BT*	The Utility and Significance of Population Genomic Data in Assessing Avian Species Limits *Sorenson MD*	Climate Warming Reduces Population Growth and Recruitment Rates Over 30 Years in an Afrotropical Bird Community *Neate-Clegg MH, Stanley TR, Sekercioglu CH, Newmark WD*	*Egg Laying Behavior by Burrowing Owls Along a Latitudinal Gradient *Lundblad CG, Conway CJ*
3:00 pm	Are Declines in Migratory Bird Species More Closely Associated with Breeding or Wintering Locations? *Sauer JR, Rosenberg KV, Marra PP, Link WA*	Conservation of Kirtland's Warbler in a Changing World *Ribic CA, Brown DJ, Donner DM, Bocetti CI*	*The Genetics of Adaptation and Diversification of the "Great Speciators" — The Wallacean *Zosterops* *Bloch LM, Irham M, Haryoko T, Claypool-Wang C, McGuire JA, Rowe K, Bowie RC* **CANCELLED**	The Past and Future of 'Benchmark' Systems for Delimiting Bird Species *Tobias JA*	Climate Change Threatens a Songbird Population Through Its Impacts on Breeding *Bonnot TW, Cox WA, Thompson FR, Millspaugh JJ*	Macroevolutionary Dynamics of Egg Colour and Patterning *Sheard CE, Street SE, Troisi C, Clark A, Healy SD, Laland KN*
3:15 pm	Addressing Population Declines with Full Annual Cycle Models: Current Advances and Data Needs *Joos CJ, Rushing CS*	The Influence of Climatic Dipoles on Irruption Dynamics in a Warming World *Zuckerberg B, Strong C, LaMontagne J*	Testing the Causes of Speciation with Gene Flow in a Neotropical Avian Species Pair (*Pachyramphus aglaiae*) *Musher LJ, Galante P, Blair M, Huntley J, Thom G*	Endless Forms Less Beautiful: Relevance of Morphological Analyses to Integrative Taxonomy of Asian *Prinia* Species Complexes *Rasmussen PC, Alstrom P, Olsson U*		*To Kill a Mockingbird: The Combined Effects of Two Radically Different Parasites *Herman JM, Fiorini VD, Crudele I, Reboreda JC, Pladas SA, Bush SE, Clayton DH*
Coffee Break						

Wednesday, Early Afternoon Session

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Room	Summit 5	Summit 6	Summit 7/8	Summit 9/10	Summit 11/12	Summit 13/14
Session	**Symposium: Biodiversity Mediated Trade-offs in Agroecosystems: When Do Birds Help or Hurt Farmers? (*Pejchar & Kennedy*)** **S19**	**Evolution** **S20**	**Conservation** **S21**	**Migration & Stopover** **S22**	**Symposium: Social Dynamics in Interspecific Interactions (*Johnson & Shizuka*)** **S23**	**Symposium: Avian Biology and the Annual Life Cycle: Shorebirds as Models to Understand Dynamic Boundaries (*Gurney & Ruthrauff*)** **S24**
2:00 pm	Net Effects of Birds in Agroecosystems *Pejchar L, Clough Y, Ekroos J, Nicholas K, Olsson O, Ram D, Tschumi M, Smith H*	*A Tale of Two Transects: Sexual Selection Across a Hummingbird Hybrid Zone *Myers BM, Rankin DT, Brelsford A, Burns KJ, Clark CJ*	Extinction Debt and Species Credit in Tropical Forest Bird Communities: Conservation Implications for Two Biodiversity Hotspots *Newmark WD*	*A Range-wide Geolocator Project Fills Critical Knowledge Gaps of Our Understanding of the Full Annual Cycle of Cerulean Warblers *Raybuck DW, Buehler DA, Boves TJ, Larkin JL, Stoleson SH, Bulluck LP, George GA, Kearns LJ, Slankard KG, Petzinger S, Cox JJ, Mylecraine KA*	Heterospecific Sociality: How Cooperation, Competition, and Communication Across Species Shape Avian Behavior *Johnson AE*	Can Stable Isotopes Help Identify Links Between Wintering, Migration, and Breeding Areas of Semipalmated Sandpiper? *Gurney KE, Mizrahi DS, Alisauskas RT*
2:15 pm	Strategies for Navigating Trade-offs Between Avian-mediated Services and Disservices Affecting Food Production and Safety *Kennedy CM, Latimer CE, Smith OM, Taylor JM, Owen JP, Rankin E, Snyder WE*	Cultural Evolution Promotes Rapid Character Displacement in Sympatric Crossbills *Porter CK, Benkman CW*	*Cross-scale Interaction Effects of Climate and Forest Patch Size on the Persistence of Forest-interior Birds *Chaudhary A, Gutzwiller KJ*	Phenology of the Purple Martin Annual Cycle *Kelly JF, Horton KG, Stepanian P*	Learning to Join the Information Web *Magrath RD, Ratnayake C, Radford A, McLachlan J, Igic B, Potvin D*	Migratory Dynamics of Beringian Dunlin on the East Asian-Australasian Flyway *Lanctot RB, Lagasse BJ, Yezerinac S, Brown S, Kendall S, Latty C, Liebezeit J, McGuire RL, Robards M, Saalfeld ST, Slaght J, Wunder M*
2:30pm	Trade-offs Between Ecosystem Services and Disservices Provided by Birds Covary with Agricultural Intensification in the US *Latimer CE, Smith OM, Owen J, Snyder W, Kennedy CM*	The Relative Roles of Natural Selection and Sexual Selection in Speciation in the Tanagers *Price-Waldman RM, Demery AJ, Mason NA, Shultz AJ, Title PO, Burns KJ*	*Experimental Forest Fragmentation Alters Interaction Networks of Amazonian Mixed-Species Flocks *Rutt CL, Mokross K, Stouffer PC*	Conservation Implications of a Migratory Network for the Common Nighthawk *Knight EC*, Harrison A, Scarpignato AL, Van Wilgenburg SL, Bayne EM, Marra PP		Movement Patterns of Arctic-breeding Shorebirds During Post-breeding and Southbound Migration *Saalfeld ST, Lanctot RB, Brown S, Lamarre J, McGuire R, Ruthrauff D, Elliot K, Latty C*
2:45 pm	*Understanding Food Safety Risks Associated with Wild Birds: a Meta-analysis and Conceptual Framework *Smith OM, Owen JP*	Pleistocene Glacial Cycles and the Relative Ease of Speciation with Periodic Gene Flow *Linck EB, Battey C*	Forest Management, Habitat Conservation and Monitoring Northern Goshawks in Southeast Alaska *Titus K*	Conservation in the Context of Migratory Connectivity: A Golden-winged Warbler Case Study *Roth AM, Buckardt Thomas A*	Sister, Sister: Song Recognition and the Role of Early Experience in Sympatric *Zonotrichia* *Hudson EJ, Shizuka D*	Migratory Connectivity of a Declining Boreal Shorebird, the Lesser Yellowlegs *Christie KS, McDuffie L, Johnson JA, Taylor A*
3:00 pm	Managing Wild Birds for Strawberry Production, Pest Control, and Food Safety Outcomes in the California Central Coast *Olimpi EM, Garcia K, Gonthier D, Karp DS*	Early Stage of the Speciation Process: Two Coloration Genes Underlie Species Differences in a Pair of Capuchino Seedeaters (*Sporophila*) *Estalles MC, Campagna L, Rodriguez Cajarville MJ, Tubaro PL, Lovette I, Lijtmaer DA*	*Grassland Bird Response to Spring Cover Crops in an Agricultural Landscape *Godar AJ, Annis A, Haukos D, Prendergast J*	Migratory Pathways, Stopover Locations, and Wintering Destinations of Flammulated Owls Breeding in Colorado *Linkhart BD, Yanco SW, Fox JW*	Identifying Functional Roles in Mixed-species Groups *Vander Meiden LN, Shizuka D*	Stopover Ecology of Semipalmated Sandpipers in Maritime Canada *Hamilton DJ, Bliss S, Geldart E, Linhart R, Neima SG, Paquet J, Gratto-Trevor CL*
3:15 pm	Birds in Fruit Production Systems: Contexts, Outcomes, Costs, and Benefits *Lindell CA*	Signal Evolution and Morphological Complexity in Hummingbirds (Aves: Trochilidae) *Eliason CM, Maia R, Parra JL, Shawkey MD*	Using Remote Sensing of Avian Habitat to Direct Bird Conservation *Bonfield SB, Schimel D, Stavros N, Questad E, Schneider F, Ferraz A*	Full Annual Cycle Ecology of Migratory Birds in the Lower Great Lakes *Tonra CM*	Loss of a Keystone Informant Disrupts Information Cascades among Ant-following Birds in a Tropical Forest Fragment *Pollock HS, Martinez AE, Kelley JP, Touchton JM, Tarwater CE*	Connectivity and Staging Site Pollution Effects in a Long-distance Migratory Shorebird *Morrissey CA, Bianchini K, McKellar A, Newstead D*
Coffee Break						

SCIENTIFIC PROGRAM

Wednesday, Late Afternoon Session

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Room	Atwood	Cook	Summit 1	Summit 2	Summit 3	Summit 4
Session	**Symposium: Understanding and Addressing the Collapse of the North American Avifauna (*Marra & Rosenberg*)** **S25**	**Symposium: Conservation and Management of Boreal Birds in a Changing Climate: What Do We Expect, What Have We Observed, and What Do We Do About It? (*Stralberg et al.*)** **S26**	**Phylogenetics** **S27**	**Symposium: Species Limits in Birds: Integrative and Practical Considerations for Taxonomy (*Winker & Rasmussen*)** **S28**	**Community Ecology** **S29**	**Abundance, Occupancy, and Trends** **S30**
4:00 pm	Pesticide Exposure and Effects on Migratory Songbirds: Past and Current Threats *Morrissey CA, Eng M, Stutchbury BJ, Stanton R, Clark R*	Forecasting Avian Responses to Climate-mediated Increases in Fire Activity Across the Northwestern Boreal Forest *Matsuoka SM, Sólymos P, Breen AL, Handel CM, Rupp TS, Mahon CL, Kurkowski TA*	Genomic and Phenotypic Divergence in Red Warblers (*Cardellina rubra*) *Tsai WL, White E, Maley JM, McCormack JE*	Australo-Papuan Perspectives on Unravelling Tangled Knots on Branches of Species Trees? *Joseph LG*	*Characterizing a Century of Species Losses in an Isolated Tropical Forest Fragment *Curtis JR, Robinson WD, Rompré G, McCune B*	eBird Status and Trends: Species Distributions and Population Trends with Citizen Science Data *Fink D, Auer T, Johnston A, Strimas-Mackey M, Iliff M, Robinson OJ, Petersen B, Kelling S*
4:15 pm	Determining the Role of Human-caused Bird Mortality in the Collapse of the North American Avifauna *Loss SR*	Simulating the Effects of Climate on Fire Regime & Vegetation: Implications for Woodland Caribou & Boreal Landbird Communities *Hache SA, Micheletti T, Stralberg D, Cumming S, McIntire E, Tremblay J, Leblond M, Marchal J, Raymundo Sanchez A, van Telgen M, Hodson J, Pankratz R*	A Phylogenomic Tree of Screech-Owls: Elucidating the Evolution of Color Polymorphism and Its Ecological Correlates *Kurtis SM, Owens HL, Oswald JA, Hosner PA, Guralnick R, Allen J, Ku M, Braun EL, Kimball RT*	Coalescent-based Species Delimitation in Avian Taxonomy: History, Promise, and Pitfalls *Mason NA, Fletcher NK, Gill B, Funk C, Zamudio K*	Dominance in Hummingbird Communities: An Alternative Way to Visually Represent It *Ortiz-Pulido R*	Combining BBS and PIF Population Data to Estimate Recent Changes in Illinois' Total Bird Population *Herkert JR*
4:30 pm	Limitations to Predicting the Future of Climate-driven Bird Declines *Tingley MW*	Conservation Lessons from the Study of Boreal Birds at Their Southern Periphery *Ralston J, DeLuca WV*	New World Toucans and Barbets: Understanding the Biogeographic History of the Neotropics *Ostrow EN, Catanach TA, Bates JM, Alexio A, Weckstein JD*	The Genomic Revolution and Species Delimitation in Birds: Gene Flow Matters, but What About Other Evolutionary Forces? *Cadena C*	Plague Management on Prairie Dog Colonies Maintains Habitat for Grassland Passerines and Raptors *Conrey RY, Tripp DW, Youngberg EN, Panjabi AO*	Results from a Decade of Banding Yellow Rails in Oklahoma and Texas *Butler CJ*
4:45 pm	Migratory Bird Policies: Changes, Threats and Opportunities for Action *Senner SE*	A Synthesis of Climate Change Impacts on Boreal Bird Communities in Managed Landscapes of Canada *Tremblay JA, Cadieux P, Boulanger Y, Cyr D, Taylor AR, Price DT*	Phylogenomics of Pigeons and Doves from Whole Genome Sequencing *Johnson KP, Boyd BM, Nguyen N, Allen JM, Steadman DW, Waterhouse RM, Sweet AD, Clayton DH, Bush SE, Shapiro MD*	An Incomplete Overview of Determining Avian Species Limits *Winker KS*	*Behavioral Niche Partitioning Reexamined: Do Behavioral Foraging Differences Predict Dietary Differences? *Kent CM, Sherry TW*	Population Trends and Habitat Associations of Conservation Priority Bird Species in Iowa *Vanausdall RA, Dinsmore SJ, Kinkead KE, Frese PW*
5:00 pm	Sorting Through the Ashes: a Synthesis, Roadmap and Discussion for the Conservation of the Birds of North America *Marra PP, Rosenberg K*	Conservation Planning for Boreal Birds in a Changing Climate: A Framework for Action *Stralberg D, Berteaux D, Drever M, Drever R, Naujokaitis-Lewis I, Schmiegelow F, Tremblay J*	Phylogenomics of the Parrots of the World *Smith BT, Brumfield R, Ferreira M, Mauck W, Merwin J, Wright T, Joseph LG*	Phylogenetic Relationships Within the Sharp-shinned Hawk Complex with a Focus on Caribbean Populations *Catanach TA, Johnson JA, Thorstrom R, Halley MR, Palhano S, Weckstein JD*	Functional Changes in Assemblages of Avian Frugivores Following Extinction and Invasion *Case SB, Tarwater CE*	Do Drones Bug Songbirds? *Wilson AM, Boyle KS, Gilmore JL, Kiefer C*
5:15 pm	Panel Discussion	Panel Discussion	Molecular Phylogeny of Whistling Ducks (Dendrocygninae) *Harshman J*	Genomics of Speciation in Woodpeckers and Hummingbirds and What It Means for Assessing Species Limits *Miller MJ*	*Shifts in Avian Community Composition Across a Human-modified Landscape in Borneo, Malaysia *Hightower JN, Yusah KM, Fletcher RJ*	Risk Assessment of Great Lakes Piping Plovers Using EABM: An R Package to Run Environment Agent-based Models *Edwards BP, Jacobs S, Gillis D*
5:30 – 6:30 pm EARLY PROFESSIONAL SYMPOSIUM - Cook Hall						

Wednesday, Late Afternoon Session

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Room	Summit 5	Summit 6	Summit 7/8	Summit 9/10	Summit 11/12	Summit 13/14
Session	**Symposium: Biodiversity Mediated Trade-offs in Agroecosystems: When Do Birds Help or Hurt Farmers? (*Pejchar & Kennedy*)** **S31**	**Life History & Behavior** **S32**	**Conservation** **S33**	**Migration and Stopover** **S34**	**Symposium: Social Dynamics in Interspecific Interactions (*Johnson & Shizuka*)** **S35**	**Symposium: Avian Biology and the Annual Life Cycle: Shorebirds as Models to Understand Dynamic Boundaries (*Gurney & Ruthrauff*)** **S36**
4:00 pm	Predation-mediated Ecosystem Services and Disservices in Agricultural Landscapes *Smith HG, Tschumi M, Birkhofer K, Ekroos J, Hjort C*	*Evolution of Polygyny in Weaverbirds (Family Ploceidae) *De Silva TN, Fernando SW, Peterson AT*	*Fear of Predators Influences Nestling Condition Across a Suburbanization Gradient *Grade AM, Warren PS, Lerman SB*	Satellite Tracking a Wide-ranging Endangered Vulture Species to Target Conservation Actions in the Middle East and East Africa *Buechley ER, McGrady MJ, Coban E, Sekercioglu CH*	Effects of Non-breeding Foraging on Mixed-species Flocking in Florida *Jones HH, Walters MJ, Robinson SK*	How Can Habitat Degradation Push Extreme Migrants Over the Edge? *Chan Y, Tibbitts TL, Hassell CJ, Peng H, Piersma T*
4:15 pm	Insectivorous Birds Foraging in Temperate and Tropical Agricultural Lands *Jedlicka JA*	*Patterns and Causes of Tropical Montane Life Histories: An Observational and Experimental Study in Malaysian Borneo *Mitchell AE, Martin TE*	*Testing the Proposed IUCN Green List Categories and Criteria *Gupta G, McGowan P, Dunn J, Sanderson R*	Synthesis of Migration Ecology in the Gulf of Mexico Guides Species Conservation *Deppe JL, Benson TJ, Bolus R, Buler J, Celis Murillo A, Diehl R, Feldman R, Knight E, Langham GM, Mehlman D, Michel N, Moore F*	Fighting Over Food Unites the Birds of North America in a Continental Dominance Hierarchy *Miller ET, Bonter DN, Eldermire C, Freeman BG, Greig EI, Harmon LJ, Lisle C, Hochachka WM*	*Traveling as a Newbie: Migratory Strategies Linked to Survivorship in Juvenile Shorebirds in Peru *Tavera EA, Lank DB, Drever MC, Gutierrez-Ruiz VV*
4:30 pm	Vertebrate Control from Raptors Motivates Farmers to Install Nest Boxes, but is Secondary Poisoning a Concern? *Martinico BL, Kross SM, Hull JM, Bourbour RP, Phillips EM, Hiroyasu E*	*Quantifying Trade-offs in Migration and Reproduction in Long-distance Migratory Birds of Contrasting Life History *Cunningham SA, Schafer TL, Wikle CK, Ballard BM, VonBank JA, Weegman MD*	Saving the Red Siskin (*Spinus cucullatus*): Managing New Flock Member Introductions in Captivity *Hill SK*	Messy Eaters: DNA on Dirty Talons and Beaks Reveal What a Migrating Raptor Eats *Bourbour RP, Hull JM*	Interspecific Aggression and the Evolution of Avian Mimicry in Woodpeckers *Leighton GM, Miller ET, Freeman BG, Lees AC, Ligon RA*	Within-individual Advancement in Bar-tailed Godwit Departure from New Zealand Does Not Lead to Earlier Arrival in Alaska *Conklin JR, Lisovski S, Battley PF*
4:45 pm	Foraging Selectivity of Insectivorous Birds in Kenyan Shade Coffee Systems *Kammerichs-Berke D, Johnson M, Bean T*	Timing is of the Essence: Later Breeding Predicts Lower Survival in American Kestrels (*Falco sparverius*) *Callery KR, Smallwood JA, Eschenbauch AL, Luttmann ER, Heath JA*	*Conservation of Tidal Marsh Sparrows in an Urban Setting Referencing Range Wide Nesting Occurrence *Kocek AR, Elphick CS, Hodgman TP, Kovach AI, Olsen BJ, Ruskin KJ, Shriver WG, Cohen JB*	Winter Ecology and Spring Migration Timing of Swainson's Thrush Using Forest and Shade Coffee Plantations in Colombia *Hobson KA, Gonzalez Prieto AM, McElaney S, Bayly N*	Social Dominance Hierarchies among Species and Their Consequences for Behaviour, Ecology and Evolution *Martin PR*	Declines in Eastern Canada Piping Plovers: Are Overwintering Grounds the Key to Conservation? *Gratto-Trevor CL, Rock J, Shaffer F*
5:00 pm	Panel Discussion	*Loggers in Artificial Eggs Reveal Scarlet Macaw Incubation in Natural and Artificial Nests *Woodman CJ*	Integrating Genetic, Population Monitoring, and Climate Data to Inform Conservation of a Declining Migratory Bird *Saracco JF, Ruegg KC, Harrigan RJ, Taylor CM, Rubenstein M*	Population-level Importance and Migratory Connectivity of a Shorebird Staging Site in the Midcontinental Flyway *Howell JE, McKellar AE, Espie RH, Bianchini K, Morrissey CA*		Linking Demographic Rates to Population Trends in Six Species of Arctic-breeding Shorebirds *Weiser EL, Sandercock BK, Lanctot RB, Brown SC*
5:15 pm		Application of a Novel Nest Density Estimator: An Example Using Sagebrush-Steppe Songbirds *Reintsma KM, Berkeley LI, Dreitz VJ*	Response of a Southern California Riparian Bird Community to Habitat Destruction by the Invasive Kuroshio Shot Hole Borer *Kus BE*	Idiosyncratic Changes in Spring Arrival Dates of Pacific Northwest Migratory Birds *Robinson WD, Partipilo C, Hallman TA, Fairchild K, Fairchild J*		Environmental Drivers of Annual Survival and Site Fidelity of Lekking Great Snipe in Norway *Sandercock BK, Saether SA, Kalas JA*

5:30 – 6:30 pm EARLY PROFESSIONAL SYMPOSIUM - Cook Hall

SCIENTIFIC PROGRAM

Thursday, Morning Session

* indicates student presenters eligible for AOS presentation award

Room	Atwood	Cook	Summit 1	Summit 2	Summit 3	Summit 4
Session	**Molecular Ecology** **S37**	**Behavior** **S38**	**Symposium: Migratory Connectivity of Alaskan Birds (*Harrison & Tibbitts*)** **S39**	**Lightning Talks** **S40**	**Biogeography** **S41**	**Climate** **S42**
10:30 am	Variation in the Microbiome of Kirtland's Warblers Between Their Wintering and Breeding Areas *Skeen HR, Cooper NW, Hackett SJ, Bates JM, Marra PP*	Differences in Foraging Strategies among Common Loons Overwintering on a Large Freshwater Reservoir in Northwest South Carolina *Mager JN, Paruk JD, Wade B*	One State, Global Connections: Insights from 100 Years of Bird Banding in Alaska *Scarpignato AL, Harrison A, Marra PP*	Mexican Hummingbird Nesting *Nuñez-Rosas LE et al.* --- Phylogeny & Evolution of Gallopheasants *Hosner PA et al.* --- Social Polygyny in the Eastern Bluebird *King KM et al.*	Modeling the Implications of Future Bioenergy Scenarios on Bird Diversity and Abundance in the Northern Great Plains *Baltensperger AP, Goljani Amirkhiz R, Dixon M, Swanson DL*	Intraspecific Variation in Morphological Traits of an Understory Insectivore Across a Precipitation Gradient in the Tropics *Tarwater CE, Kelley JP*
10:45 am	Admixture Mapping the Genetic Basis of Species Differences in Avian Hybrid Zones *Brelsford AT, Nwankwo EC, Myers BM, Clark CJ, Kirschel AN*	Effects of the Social Environment on Cloacal Microbiome Diversity *Houtz JL, Taff CC, Zimmer C, Vitousek MN*	Revealing the Migratory Path and Wintering Areas of Olive-sided Flycatchers that Breed in Alaska *Hagelin JC, Johnson JA, Hallworth MT*	*Nest Defense, UV, & Melanin Ornaments in Eastern Bluebirds* *Gillespie LM et al.* --- Do Birds & Humans React to Sounds in Similar Ways? *Crook-Hill JR et al.* --- Molecular & Structural Basis for Coloration in Painted Bunting *Justyn NM et al.*	Extraordinary Plumage Polymorphism in the Variable Antshrike (*Thamnophilus caerulescens*, Thamnophilidae) is Consistent with Gloger's Rule *Marcondes RS*, Brumfield RT	Mesoscale Winds Shape Spring Stopover Distributions of Migrating Birds Along the Gulf of Mexico *Clipp HL, Cohen EB, Smolinsky JA, Farnsworth A, Horton KG, Buler JJ*
11:00 am	Population Genetics and Phylogeography of Merlin (*Falco columbarius*) in North America *Martinico BL, Sage GK, Gravley MC, Talbot SL, Haak BA, Hull JM*	Neighbor-Stranger Discrimination in a Neotropical Suboscine Bird: Embracing Behavioral Complexity to Uncover Patterns *Kelley JP, Tarwater CE*	Connectivity of Pre-adult, Non-territorial Migratory Golden Eagles During the Nesting Season in Alaska *McIntyre CL, Lewis SB, Katzner TE, Miller TA, Lanzone M, Collopy MW, Douglas DC*	*Molt Dynamics in Spectacled & Steller's Eiders* *Ulman SE et al.* --- Bill Divergence & Speciation in Corvidae *Scott BF et al.* --- Identifying Melanistic Pathways in Polymorphic Raptor, *Buteo jamaicensis harlani* *Barry JL et al.*	Natural Selection on Body Size During Range Expansion in Red-bellied Woodpeckers *Ralston J, Mayette-Draper E, Hamilton S, Kirchman JJ*	Understanding the Effects of Nest Site Temperature on Songbird Reproductive Fitness and Parental Care *Scherr TM, Chalfoun AD*
11:15 am	Asymmetric Gene Flow in an Understory Fijian Bird *Gyllenhaal EF, Mapel XM, Andersen MJ*	Social Network Metrics Predict Future Social Status in Male Lance-tailed Manakins *Beckman AK, Vanderbilt CC, DuVal EH*	Contrasting Patterns of Migratory Connectivity in Two Species of Alaska-breeding Shorebirds *Tibbitts TL, Gill Jr RE, Ruthrauff D, Warnock N, Harwood CM, Harrison A, Hallworth M, Douglas D*	Hybridization Between Red-crowned & Lilac-crowned Parrots *Maley JM et al.* --- Where Did Cuban Bobwhites Come From? *Salter JF et al.* --- Phylogenomics of the Euphoniinae Subfamily *Vazquez Lopez AM et al.*	Modelling the Niche in Present and Past Climatic Scenarios for the Great Tit *Machado-Stredel FJ, Song G, Zhang R, Alstr"om P, Qu Y, Qiao H, Mays H, Ericson PG, Fjelds a J, Peterson AT, Chinese Academy of Sciences NAL*	Extreme Weather Lengthens Incubation Periods and Lowers Productivity for a Sagebrush-obligate Songbird *Sanders LE, Hall LE, Chalfoun AD*
11:30 am	Does Range Expansion or Ongoing Dispersal Explain Apparent Panmixia in Bachman's Sparrow? A Temporal Study Using Museum DNA *Settlecowski AE, Faircloth BC, Brown JM, Cox JA, Tucker JW, Carpenter JP, Taylor SS*	Does Object Neophobia Predict Exploratory Behavior in a Free-living Wild Bird? *Tringali A, Prussing S, Sherer DL, Windsor R, Bowman R*	Migration Patterns of Three Loon Species (Gaviidae) Breeding in the Arctic *Schmutz JA, Uher-Koch BD, Harrison A, Mulcahy DM, Fair JS, Wright KG, DeSorbo CR*	Call Distinctiveness in a Suboscine Songbird *Tagestad JT et al.* --- Genetic, Morphological & Color Variation in Piranga Bidentata *Robles Bello SM et al.* --- Diversity of Grassland Bird Communities *Boyce AJ et al.*	How Do Dispersal and Migration Influence Range Expansion of Birds? *Pegan TM, Weeks BC, Winger BM*	Validating Climate Suitability Projections: Community Science Reveals that Birds Track Their Ecological Niche in Summer and Winter *Saunders SP, Michel NL, Bateman BL, Wilsey CB, Slavin Z, Dale K, LeBaron G, Langham GM*
11:45 am	The Common Loon Genoscape *Lindsay AR, Larison B, Bossu C, Rajbhandary J, Sorenson MD, DaCosta JM, Kaplan JD, Evers DC, Paruk JD, Smith TB, Ruegg KC*	A Tale of Two Todies: Understanding How Vocalizations Mediate Behaviors in a Sympatric Zone *Garrod HM, Curry R*	Closing Summary: A Synthesis and Gap Analysis of Migratory Connectivity Knowledge Available for Alaskan Birds *Harrison A*		The Importance of Geography and Environment for Diversification: A Case Study in the Northern Double-collared Sunbird *Cinnyris reichenowi* *Cooper JC, Maddox JD, McKague K, Bates J*	Using Big Data to Assess the Vulnerability of North American Birds to Climate Change *Bateman BL, Wilsey CB, Taylor L, Wu JX, LeBaron G, Langham GM*
Lunch Break						

Thursday, Morning Session

* indicates student presenters eligible for AOS presentation award

Room	Summit 5	Summit 6	Summit 7/8	Summit 9/10	Summit 11/12	Summit 13/14
Session	**Sexual Selection & Parental Care** **S43**	**Abundance, Occupancy, Trends** **S44**	**Habitat Relationships** **S45**	**Symposium: Permeable Boundaries in Biological and Social Sciences: Human Dimensions in Bird Research and Conservation (*Naves et al.*)** **S46**	**Breeding Biology** **S47**	**Symposium: A Bright Future for Birds: Understanding the Impacts of Light Pollution on Avian Wildlife (*Kernbach et al.*)** **S48**
10:30 am	*Testing the Hotspot Hypothesis: Lesser Prairie-Chicken Lek Formation and Female Space Use *Aulicky CS, Haukos D*	Juniper Expansion in the Sagebrush Ecosystem: Avian Predator Occupancy Patterns and Implications for Sage-Grouse Habitat Restoration *Young AC, Johnson TN*	*Urban Habitat Use by an Endangered Hawaiian Waterbird on O'ahu, Hawaii *Kawasaki MT, Hart PJ, Paxton EH*	Why Do Bird Conservation and Ornithology Need Social Science? *Dayer AA*	A Holistic Approach to Demographic Monitoring of Declining Grassland Songbirds *Bernath-Plaisted JS, Correll MD, Panjabi AO*	Circadian Rhythms, Melatonin and the Daily and Seasonal Control of Birdsong *Cassone VM, Harpole CE, Ferguson S*
10:45 am	*Factors Influencing Parental Care in a Monomorphic Species, the Red-headed Woodpecker *Walter LA, Viverette C, Bulluck LP*	*The Effects of Recreational Activities on Avian Occupancy in a High Latitude Tundra Ecosystem *Meeker AL, Marzluff JM*	Cascading Effects of Widespread Disease-induced Mortality of a Foundation Tree Species on Hawaiian Forest Bird Communities *Paxton KL, Hart PJ*		Variation in Nest Survival of the Federally Threatened Streaked Horned Lark on Grasslands in the South Puget Sound Lowlands *Slater GL, Wolf AL, Lynch J*	Physiological and Genetic Mechanisms Underlying Organismal Response to Artificial Light at Night *Alaasam VJ, Zang Y, Niu Y, Ferguson B, Seymoure B, Ouyang JQ, Habibian J*
11:00 am	Social Versus Genetic Mating Systems: The Complex Mating System of the Lark Bunting *Lyon BE, Chaine AS*	*Bias in Estimated Breeding Bird Abundance from Individual Movement *Fogarty FA, Fleishman E*	Guild-specific Effects of Intensive Forest Management on Avian Abundance *Verschuyl JP, Kroll AJ, Jones J, Betts MG*	Building Social Science Capacity in the Bird Conservation Community: Nationwide Priorities and Practices *Scarl J, Barnes JC, VerCauteren T*	*Seasonal Variation in Effects of Competing Predators on Avian Nest Success *Ellis KS, Larsen RT, Koons DN*	Effects of Spectral Composition of Nighttime Lighting on Host Competence to West Nile Virus in a Passerine Reservoir *Kernbach ME, Cassone VM, Unnasch TR, Martin LB*
11:15 am	Influence of Both Male and Female Attractiveness on Reproductive Success, Offspring Phenotype, and Nestling Sex Ratio *Hubbard JK, Moranville GP*	Distribution Update, Habitat Use and Conservation Status Assessment of the Grey-bellied Comet (*Taphrolesbia griseiventris*) *Cuadros SF*	Patterns of Home Range Resource Use by the Volcano Junco, a Costa Rican Highland Endemic *Besozzi EM, Patten M*		Patterns of Nestling Growth Rates in Tidal Marsh Sparrows Mirror Colonization of Specialist Habitat *Ruskin KJ, Watson VK, Olsen BJ*	Multiple Reproductive Costs Due to Light Pollution: Insights from Manipulative Experiments & Continental-scale Data Synthesis *Francis CD, Senzaki M, Ferraro DM, Barber JR*
11:30 am	Frontline Defenses Against a Purported Mafia Brood Parasite *Peer BD, Page P*	Ecological Correlates to Habitat Use in the Coastal Cactus Wren *Winchell CS, Doherty PF, Taylor JM*	Influence of Reproductive Status of Greater Sage-Grouse on Habitat Selection in a Juniper Dominated Landscape *Rabon JC, Coates PS, Ricca MA, Johnson TN*	America's Wildlife Values: How Values Lead to Challenges and Opportunities for Bird Conservation *Dietsch AM*	To Burn or Not to Burn?Breeding Success of King Rails in a Fire-managed Coastal Marsh *McRae SB, Schroeder KM*	*Light Pollution Is Greatest Within Migration Passage Areas and Is Related to Flight Altitudes of Nocturnal Migrants *Cabrera-Cruz SA, Smolinsky JA, McCarthy KP, Buler JJ*
11:45 am	Direct Effects of Brown-headed Cowbird (*Molothrus ater*) Brood Parasitism on the Growth and Development of Grassland Songbirds *Winnicki SK, Boyle WA*	Sea Level Rise Impacts on Waterbird Habitat Across the Hawaiian Islands *Price MR, Harmon KC*	Greener Pastures: Idiosyncratic Avian Responses to Early Forest Regeneration in the Maya Biosphere Reserve *Lello-Smith AM, Rodewald AD, Ruiz-Gutierrez VV*	Understanding Underserved Audiences to Ensure Ongoing Long-term Citizen Science Data Collection for Project FeederWatch *Martin VY, Greig E, Bonter D*	Not So Secretive Marshbirds: Using Technology to Research a Cryptic Species, the Clapper Rail *Elizondo EC, Shriver WG*	Seasonal Associations with Urban Light Pollution for Nocturnally Migrating Bird Populations *La Sorte FA*
Lunch Break						

SCIENTIFIC PROGRAM

Thursday, Early Afternoon Session

* indicates student presenters eligible for AOS presentation award

Room	Atwood Hall	Cook	Summit 1	Summit 2	Summit 3	Summit 4
Session	**Genomics** **S49**	**Behavior** **S50**	**Symposium: Cross-Pacific Migration: How the Impossible Becomes Commonplace (Ruthrauff & Gill)** **S51**	**Symposium: Molecular Ecology is for the Birds: Using Molecular Techniques to Advance Our Understanding of Avian Ecology (*Jusino & Lorenz*)** **S52**	**Conservation** **S53**	**Migration & Stopover** **S54**
2:00 pm	Genomic Differentiation Along the Speciation Continuum in Three Hummingbird Species Pairs *Henderson EC, Brelsford A*	*Plasticity of Aggressive Behavior in Bachman's Sparrows *Niederhauser JM, Ali S, Ziadi MP, Anderson RC*	Two Millennia in the Making: Understanding Trans-Pacific Avian Migration *Gill Jr RE*	An Ornithologist's Toolkit for Molecular Community Ecology *Jusino MA*	Captivity and the Gut Microbiota of 'Akikiki: Implications for Conservation of a Critically Endangered Hawaiian Honeycreeper *Costantini MS, Crampton C, Masuda B, Reed F*	Quantifying Passage Population Size and Migration Phenology of Endangered *rufa* Red Knots Staging in Southwestern James Bay, Ontario, Canada *MacDonald AJ, Smith PA, Friis CA, Lyons JE, Nol E*
2:15 pm	*Genomics and Color Morphs: Comparison of Whole Genome Sequence Data Between a Melanin-based and a Carotenoid-based Species *Shakya SB, Brumfield RT, Sheldon FH*	*Exploratory Behavior in Brown-headed Nuthatches May Indicate Successful Population Reintroduction Strategy *Gray MM*	Tropical Convection, Atmospheric Teleconnections, and Possible Links to Wind-assisted Bird Migration Over the North Pacific *Feldstein SB, Gill Jr RE, Douglas DC*		Down in the 'Weeds' Searching for Answers to Wood Thrush Fledgling and Juvenile Survival *Hayes SM, Boyd BP, Stutchbury BJ*	A Comparison of Spring and Fall Body Condition and Hematological Parameters in Two Migratory Songbirds *Hatch MI, Smith RJ*
2:30pm	*Genomics of Parallel Divergence and Local Adaptation in Two North American Woodpeckers *Moreira LR, Smith BT*	Incubation Behavior of Trumpeter Swans Measured by Continuous Infrared Videography *Delehanty DJ, Bush DA*	What Nonstop Trans-Pacific Flights of Shorebirds Mean for Our Understanding of the Energetic and Physiological Limits to Endurance Flight *Guglielmo CG, Lindström A*	Using Molecular Methods to Identify Fungi at Woodpecker Excavated Cavities in Western Coniferous Forests *Lorenz TJ, Jusino MA, Schilling JS, Andrews E, Seveyka J, Fischer PC*	Comparison of Abundance and Annual Return Rates of Wintering Piping Plovers on Natural and Man-made Beaches in the Mississippi Sound *Darrah AJ*	Annual Variation in Use of a Spring Stopover Site by Three Migratory Shorebirds *Tucker AM, McGowan CP*
2:45 pm	A Genomic Comparison Between Flycatchers Only Distinguishable by Innate Song Differences *Garcia NC, Campagna L, Rush AC, Bowie RC, Lovette IJ*	*Deep Snow and Dense Cover Influence Habitat Selection in a Winter-adapted Bird *Shipley AA, Zuckerberg B*	Wind Assistance Along the Trans-Pacific Migration Corridor of the Bar-tailed Godwit: Past, Present, and Future *Gill Jr RE, Douglas DC, Feldstein SB, Mills CM, Battley PF, Handel CM*	*The Nidobiome as a Framework to Understand Microbiome Assembly *Campos-Cerda F, Bohannan BJ*	*Patterns of Northern Bobwhite Juvenile Survival on Extensive Prairies and Mixed Agricultural, Grassland, and Wooded Landscapes in Missouri *Sinnott EA, Thompson FR, Weegman MD, Thompson*	What Causes Vagrancy in Some New World Warblers Along the Pacific Coast? *Ralph CJ, Wolfe JD*
3:00 pm	Gradual Evolution Towards Flightlessness in Steamer-Ducks *Campagna L, McCracken K, Lovette IJ*	*Stinky is Sexy: The Major Histocompatibility Complex, Mate Choice and Personal Odor in Leach's Storm-Petrels *Jennings SL, Hoover BA, Sin Y, Nevitt GA, Edwards SV, Ebeler SE*	Minding the Gap: An Energetics-based Perspective on Not Migrating *Ruthrauff DR, Dekinga A, Gill Jr RE, Piersma T*	*Is There an Association Between Communities of Wood Decay Fungi and Black-capped Chickadee Nest Cavities? *Gable CL, Lindsay AR, Jusino MA*	Cumulative Effects of Forest Harvesting, Wildfires, and Roads on Olive-sided Flycatcher Habitat in British Columbia: Implications for Environmental Assessment Processes *Norris AR, De Groot K, Robinson A, Dohms KM, Thomas J, Lee A, Moore K, Martin K*	*Migratory Bird Use of Stopover Sites in Midwestern Forests and Urban Habitats During Spring and Fall *Outcalt JM, Buler JJ, Smolinsky JA, Dunning JB*
3:15 pm	Is Mutation Rate Linked to Diversification in Birds? *Oliveros CH, Faircloth BC*	*Dominance Rank and Sex Predict Social Network Position in Winter Social Groups in a Passerine Bird *Block TA, Shizuka D, Chaine AS, Lyon BE*	Rapid Global Differentiation of Migratory Phenotypes in Bar-tailed Godwits *Conklin JR, Verkuil YI, Piersma T, Fontaine MC*	Revealing Unknown Interactions: The Role of Patagonian Tapaculos (Rhinocryptidae) on the Dispersal of Endemic Truffles *Caiafa MV, Jusino MA, Díaz IA, Smith ME*	Responses of State-Endangered Common Terns (*Sterna hirundo*) in Ohio to the Use of Artificial Nesting Platforms *Kearns LJ, Shirkey B, Picciuto M, Crouser A, Scott E*	What Can Weather Surveillance Radar Data Tell Us About Stopover Duration of Migrating Land Birds? *Buler JJ, Zenzal Jr TJ, Moore FR, CalderÏ ¨Nn LN, Barrow Jr W, Wilson B*
Coffee Break						

Thursday, Early Afternoon Session

* indicates student presenters eligible for AOS presentation award

Room	Summit 5	Summit 6	Summit 7/8	Summit 9/10	Summit 11/12	Summit 13/14
Session	**Endocrinology & Physiology** **S55**	**Symposium: Undergrad Symposium** **S56**	**Disease & Ecotoxicology** **S57**	**Symposium: Permeable Boundaries in Biological and Social Sciences: Human Dimensions in Bird Research and Conservation (*Naves et al.*)** **S58**	**Songs & Vocalizations** **S59**	**Symposium: Lessons from Avian Hybrid Zones and the Maintenance of Species Boundaries (*Aguillon et al.*)** **S60**
2:00 pm	Chronic, Sublethal Effects of High Temperatures Will Cause Severe Declines in Arid-zone Birds During the 21st Century *Conradie SR, Woodborne SM, Cunningham SJ, McKechnie AE*	Use of Thermal Imaging for the Study of Seabirds in the Gulf of Alaska: Implications for Management and Conservation *Kidder EA, Sherwin R*	*Geographic Variation in Host Immunogenetics and Malarial Parasite Infection in a *Catharus* Thrush Species Complex *Starkloff NC, Sammons MA, Westerdahl H, Turner WC, Kirchman JJ*	How Do Individual Attributes Predict Bird Conservation Behaviors Among Birders in the United States? *Rich TD*	Partitioning of Signal Space in a Breeding Warbler Community *Sblendorio JM, Vonhof MJ, Gill SA*	Mechanisms Underlying the Maintenance of Species Boundaries: Lessons from Avian Hybrid Zones *Walsh JL, Aguillon SM, Clucas GV*
2:15 pm	*Will Low Oxygen Slow Range Shifts? Response to a Novel High Elevation Environment from Populations Across a Hummingbird Range *Spence AR, Tingley MW*	Machine Annotation of Puaiohi Calls in Environmental Acoustic Recordings *Weyenberg GS, Rumpungworn MD, Howells LO, Paxton KL, Crampton LH, Hart PJ*	Regional Variation in the Abundance of House Finches Created the Context that Determined the Impact of an Emerging Pathogen *Hochachka WM, Dhondt AA*	Preferences of Birdwatchers and Waterfowl Hunters in the United States and Canada: Results of Discrete Choice Experiments (DCEs) *Fulton DC, Dietsch A, Harshaw H, Raedeke A, Dayer A, Duberstein J*	Examining the Effect of Helicopter Noise on Bird Assemblages in Hawai'i's Protected Natural Areas *Gallardo Cruz KV, Paxton KL, Hart PJ*	Genetic Architecture and Asymmetric Introgression of Plumage-related Reproductive Barriers in Hybridizing Birds *Semenov GA, Khaydarov DR, Safran RJ, Taylor SA*
2:30pm	*Out in the Cold: A Novel Approach to Understanding the Physiological Drivers of Phenotypic Flexibility in Dark-eyed Juncos *Stager M, Senner NR, Cheviron ZA*	A Comparison Between Traditional and Next Generation Screening Approaches to Characterize Avian Haemosporidian Parasites *Ray S, Henry M, Galen S, Ostrow EN, Dispoto J, Kiziuk L, Weckstein JD*	Cross-ecosystem Subsidies in Acadia National Park: How Invertebrates Can Help Us Understand Mercury Exposure in Songbirds *Jackson AK, Frampton L, Garafalo M, Harris S, Nightingale B, Youre-Moses A*	Quantifying the Stability of Birds' Cultural Niches: Changing Public Perceptions of the North American Avifauna *Schuetz JG, Johnston A*	*Developmental Experience May Contribute to Adult Female Preferences for Male Mating Signals *Strauss AV, Podos J*	Using Comparative Genomics to Investigate Non-geographic Drivers of Divergence and Introgression in Panamanian Birds *McLaughlin JF*
2:45 pm	Long-term Effects of Early-life Stress on the HPA Axis in a Short- and Long-lived Bird *Grace JK, Anderson DJ, Angelier F*	*Spatial Patterns of Habitat Use of the Sierra Madre Sparrow, Mexican and Endemic Mountain Bird, in Milpa Alta, Mexico City *Savarino-Drago A, Ruvalcaba-Ortega I, Martinez M, Martinez H, Martinez-Molina U, Martinez-Molina Y, Garcia-Loeza S, Rodriguez-Contreras V, Martinez-Molina G*	Assessing Halogenated Marine Persistent Organic Pollutants in the Critically Endangered California Condor and Their Marine Mammal Prey *Stack ME, Hoh E, Dodder N, Tubbs C, Vilchis I, Felton R, Johnson J*	Minimizing All-terrain Vehicle Impact in Bird Habitat: Reconciling Harvest and Conservation on Private Land in Western Alaska *Naneng W, Maroney RL, Naneng M, Tinker W*	Morphologically, Genetically and Vocally Divergent Warbling Vireo Subspecies Exhibit Indiscriminate Aggression Toward Intruders in a New Contact Zone *Spellman GM, Hammond A, Zhang T*	Differences in Introgression Across Two Hybrid Zones in the Great Plains *Billerman SM, Walsh J, Butcher BG, Lovette IJ*
3:00 pm	Do High-energy Lifestyles in Birds Promote High Maximal Metabolic Capacities? *Swanson DL, Thomas NE, Zhang Y*	*Effects of Lead Exposure on Reproductive Success and Extra-pair Paternity in a Common Urban Songbird *Hitt LG, Khalil S, Blanchette A, Finkelstein ME, Ribeiro RD, Iverson EN, McClelland SC, Karubian J*	The Effects of Climate, Habitat, and Diet on Methylmercury Bioavailability for New York Songbirds *Adams EM, Sauer AK, Lane O, Regan K, Evers DC*	Prioritizing Regional Landscapes to Achieve Biological and Social Objectives Through Bird Habitat Conservation *Soulliere GJ, Al-Saffer MA*	*What Drives Flexible Signaling? Anthropogenic Noise and Social Context Affect Male House Wren Vocal Behavior *Grabarczyk EE, Vonhof MJ, Gill SA*	Evolutionary Genomics of Variable Carotenoid-based Ornamentation in the Red-backed Fairywren *Khalil S, Walsh J, Enbody ED, Baldassarre DT, Webster MS, Karubian J*
3:15 pm	From Shallow to Deep: A Torpor Spectrum in Hummingbirds Uncovered Using Thermal Imaging *Shankar A, Cisneros IN, Thompson S, Graham CH, Powers DR*	The Role of Song in Reproductive Isolation in Two Newly Overlapping White-crowned Sparrow (*Zonotrichia leucophrys*) Subspecies *Brooks WE, Wimberger PH, Rouse ML*	Are Wetlands Hotspots for Bioaccumulation of Mercury in Songbirds? *Brasso RL, Rittenhouse KA, Winder VL*	Land Trusts and Birds: Partners in Strategic Conservation *Rodewald AD, Swarthout SB, Dayer AA, Rohrbaugh RW*	Who is There? Response to Different Type of Territorial Intruders *Sandoval L, Hamzaj T, Bonilla K, Gutierrez I*	Hybrid Zones and the Development of Reproductive Isolation in Flooded Versus Terra Firme Forest Birds of the Amazon *Weir JT*
Coffee Break						

Thursday, Late Afternoon Session

* indicates student presenters eligible for AOS presentation award

Room	Atwood Hall	Cook Theatre	Summit 1	Summit 2	Summit 3	Summit 4
Session	**Genomics & Systematics S61**	**Behavior S62**	**Symposium: Cross-Pacific Migration: How the Impossible Becomes Commonplace (*Ruthrauff & Gill*) S63**	**Symposium: Molecular Ecology is for the Birds: Using Molecular Techniques to Advance Our Understanding of Avian Ecology (*Jusino & Lorenz*) S64**	**Conservation S65**	**Migration & Stopover S66**
4:00 pm	Identifying and Characterizing Transposable Element Polymorphisms in the Northern Flicker (*Colaptes auratus*) Species Complex *Hruska JP, Manthey JD*	*Provisioning Coordination Increases with Mate Familiarity in a Long-lived Pelagic Seabird, the Manx Shearwater *Tyson CW, Gillies N, Guilford T, Hull JM*	Migratory Patterns of Sooty Shearwaters (*Ardenna grisea*) Across the Pacific Ocean *Shaffer SA, Harrison A*	Detecting Ecosystem Services from Insectivorous Birds *Jedlicka JA*	*Where in the World Are Migratory Birds Declining During the Annual Cycle?the Winter Survival of a Near Threatened Shorebird in South America *Herbert JA, Mizrahi D, Taylor CM*	*Assessing the Potential for Using Weather Radar to Predict Bird Collisions *Elmore JA, Horton KG, Riding CS, O'Connell TJ, Loss SR*
4:15 pm	Immigration May Decouple Heterozygosity and Inbreeding in Declining Populations of Florida Scrub-Jays *Nguyen TN, Chen N, Bowman R, Fitzpatrick JW, Clark AG*	Investigating the Role of Avian Vocalizations as 'Magic Traits' Using On-bird Sensors *Tarango CA, Sillett TS, Gomez AJ, Fitzpatrick JW*	*Demographic and Distributional Responses by Long-distance Migratory Shorebirds to the Rapid Loss of Staging Habitat *Chan Y, Lok T, Chung SS, Tibbitts TL, Hassell CJ, Piersma T, Zhang S*	Using Molecular Techniques to Study the Diets and Gut Microbiota of Migratory Birds *Trevelline BK*	*What Factors Influence Nest Survival of the Endangered Yellow-headed Amazon? *Tarazona-Tubens FL, Britt CR, Abadi F, Desmond MJ*	Movement and Distribution of Red Knots (*Calidris canutus*) in the Southeastern U.S *Tuma ME, Powell AN*
4:30 pm	Phylogeny of the Hawaiian Thrushes (*Myadestes*) Based on UCE and Mitochondrial DNA Sequences *Fleischer RC, McInerney N, McIntosh CE, Sonsthagen SA, Olson S, James H*	Hierarchical Fear: Predation Risk Has Direct and Indirect Effects on Nestling Growth and Stress *de Zwaan DR, Martin K*	Cross-seasonal Interactions: The Pacific as the World's Greatest Theater of Bird Migration *Piersma T*	Using Box-nesting Birds to Explore Methods in Studying Developmental Immunity and Gut Microbiota *Knutie SA*	Effects of Translocation on Burrowing Owl (*Athene cunicularia*) Survival, Fidelity, and Nesting Rates in Arizona *Doublet D, Desmond MJ, Johnson DH, Abadi F*	Movement Patterns and Habitat Use of Endangered Whooping Cranes During Migration Through Canada's Oil Sands Mining Region *Bidwell MT, Conkin JA, Ball J, Brandt DA, Harrell W, Kindopp R, Metzger K, Pearse AT, Wiacek R*
4:45 pm	Reconciling the Mitonuclear Compatibility Species Concept with Rampant Mitochondrial Introgression *Hill GE*	Increased Predator Density Changes Nest Attendance Behavior of Yellow-headed Blackbirds (*Xanthocephalus xanthocephalus*) *Harms TM, Behrens C, Ruff ZJ, Dinsmore SJ*		Anthelminthic Drugs Modulate the Acute Phase Immune Response but Not the Microbiome in Wild Song Sparrows *Vaziri GJ, Jusino MA, Brewer MT, Adelman JS*	Landscape Matrix and Species Traits Mediate Avian Responses to Forest Fragmentation *Kennedy CM, Marra PP*	Revisiting Red-winged Blackbird Migration: Fine-Scale Temporal and Spatial Movements of Individuals Across Annual Migration *Eshleman MA, Klug PE, Greives TJ, Gillam EH*
5:00 pm	The Common Yellowthroat Genoscape—A Genomic Approach to Delineating Conservation Units *Bossu CM, Rajbhandary J, Smith TB, Ruegg KC*	Parental Behaviors Mediate the Effects of Bird Blow Fly Ectoparasitism on Nestling Wood Thrushes in Suburban Forests *Straley KM, Warren PS, King DI*		Assessing the Relationship Between Multiple Paternity and the Cloacal Microbiome in Female Tree Swallows *Hernandez J, McGlothlin JW, Belden LK, Moore IT*	*Demographic Consequences of Road Mortality to Snowy Plovers at Gulf Islands National Seashore, FL *Durkin MM, Cohen JB*	Age-, Sex-, and Size-related Differences in the Distribution of Migrating Landbirds on the Northern Gulf Coast *Calderon LN, Zenzal Jr TJ, Barrow W, Wilson B, Buler JJ*
5:15 pm	A Genomic Investigation of the Potential Despeciation of Deeply Divergent Lineages in a Malagasy Passerine *Perry NL, Block NL, Younger JL, Raherilalao M, Goodman SM, Reddy S*	Testing the Social Intelligence Hypothesis in Wild Birds *McCune KB, Jablonski P, Lee S, Ha RR*		Panel Discussion	When Prioritizing Regions for Migratory Bird Habitat Conservation, Quantifying Costs Can Supersede Parametrizing a Population Model *Stanton Jr RA, McGowan CP, Robinson OJ*	

Thursday, Late Afternoon Session

* indicates student presenters eligible for AOS presentation award

Room	Summit 5	Summit 6	Summit 7/8	Summit 9/10	Summit 11/12	Summit 13/14
Session	**Human Dimensions & Policy** **S67**	**Symposium: Undergrad Symposium** **S68**	**Urban Ecology** **S69**	**Symposium: Permeable Boundaries in Biological and Social Sciences: Human Dimensions in Bird Research and Conservation (*Naves et al.*)** **S70**	**Morphology & Molt** **S71**	**Symposium: Lessons from Avian Hybrid Zones and the Maintenance of Species Boundaries (*Aguillon et al.*)** **S72**
4:00 pm	*Wedge-tailed Shearwater Persistence in Human-dominated Areas *Idle JL, Friswold BM, Harmon KC, Price MR*	*Development, Not Bird Feeders, is Associated with Increased Occupancy of Northern Cardinals in Northern Michigan *Toner SM, Bonter DN*	*Investigating the Influence of Polarized Light and Artificial Night Lighting on Bird–Building Collisions *Lao S, Anderson AW, Blair RB, Eckles JW, Robertson BA, Turner RJ, Loss SR*	*Aspects of Municipalities Associated with Occupancy and Abundance of Chimney Swifts in Illinois *Hurd ML, Benson TJ, Ward MP*	The Role of Diet and Nesting in Bill Shape Diversification of Frugivorous Asian Barbets *Krishnan A, Souza N, Reddy S*	Hybridization in Northern Flickers Reveals Loci Associated with Feather Coloration *Aguillon SM, Lovette IJ*
4:15 pm	If You Build It, They Will Come: Avian Utilization and Predation at a Large-scale Photovoltaic Solar Facility *Griffiths JL, Meade DE, Dart JD*	*Integrating Machine Learning and Citizen Science Data to Generate High-performing Species Distribution Models for the Globally Vulnerable Gray Tinamou (*Tinamus tao*) *Wiebe RA*	Urbanization and Elevated Cholesterol in American Crows *Townsend AK, Staab H, Barker CM*	Cross-cultural Considerations in Wildlife Management and Conservation *Leonetti CC*	Glare Reduction Properties of Dark Avian Facial Markings *Lebow CK, Burt DB*	Cardinals Are Red, Buntings Are Blue; Because They Hybridize, They're Interesting Too! *Megna LC, Carling MD*
4:30 pm	Year-round Monitoring Reveals a Unique Seasonal Pattern of Bird–Window Collisions Along the Pacific Coast of North America *De Groot KL, Porter AN, Norris AR, Huang AC*	*Modeling Persistent Effects of West Nile Virus on Avian Population Dynamics in the Northeastern United States *Dupont GL, Bonter DN, Robinson OJ*	The Interactive Effects of Fire and Recreation on Golden Eagles *Davis CM, Heath JA*	Sustainability in Long-term Collaborations: The Harvest Assessment Program of the Alaska Migratory Bird Co-Management Council *Naves LC, Fall J, Tulik C, Pederson M, Keating JM, Fischer J, Schwalenberg P*	Evolution of Molt-migration: a Large-scale Phylogenetic Approach *Pageau C, Reudink MW*	Sex Chromosome Inversions May Enforce Reproductive Isolation Across an Avian Hybrid Zone *Hooper DM, Griffith SC, Price TD*
4:45 pm	Engaging Undergraduate Students in an Authentic Course-based Research Experience Using Archived Nest Video Footage *Stracey CM*	Panel Discussion	Relationships Between Local- and Landscape-scale Management and Urban Bird Communities Across Six Major Metropolitan Areas: Do Yards Matter? *Narango DL, Lerman SB, Hall SJ, Hobbie SE, Neill C, Trammell TL, Groffman P*	Banding Together to Learn and Preserve: 25 Years of Research in Cross-cultural Western Alaska *Ely CR*	Molt-migration in the Mexican Monsoon: 90 Years of Specimens Reveal a Phenological Mismatch Caused by Anthropogenic Climate Change *Terrill RS, Tsai WL, Maley JM, Rohwer S, Pimm G, McCormack JE*	Genomic and Morphological Approaches to Understanding Speciation in Jamaican-endemic Streamertail Hummingbirds *Judy CD, Brumfield RT, Graves GR*
5:00 pm	Engaging with Veterinarians to Reduce Cat Overpopulation and Cat Impacts on Wildlife Populations *Sherwood LJ, Wilson AG, South CS, Roche SM, Luszcz TM*		Songbirds Alter Their Use of Bird Feeders in Response to Vocalization Playback *Barron DG, Sarna SD, Middleton RL*	Human Dimensions Applications in Shorebird Subsistence Harvest and Indigenous Knowledge in Alaska *Keating JM, Naves LC, Tibbitts TL, Ruthrauff DR*	Simultaneous Rectrix Molt and Comparative Molt Ecology of Eastern Wood-Warblers *Mumme RL, Mulvihill RS*	Ancient and Contemporary Hybridization Amongst Wood Warblers *Toews DP, Taylor SA, Streby H, Kramer G, Brennan C, Jones A, Lovette IJ*
5:15 pm	Evaluating Bird Feeders as Tools to Connect People with Nature, and Challenges Associated with Middle School Interventions *Hammond RL, Theimer*		*Effects of Habitat Type on Provisioning Florida Burrowing Owl Space Use and Movements *Rose EH, Boughton RK*	Panel Discussion *Dayer A*	Bill Size Evolution in Response to Human-mediated Ecological Change in a Tidal Marsh Songbird *Benham PM, Bowie RC*	Assessing Assortative Mating in Hybrid Zones *Scordato ES*

SCIENTIFIC PROGRAM

Friday, Morning Session

* indicates student presenters eligible for AOS presentation award

Room	Atwood	Cook	Summit 1	Summit 2	Summit 3	Summit 4
Session	**Habitat Relationships** **S73**	**Breeding Biology** **S74**	**Movements & Dispersal** **S75**	**Lightning Talks** **S76**	**Evolutionary Ecology** **S77**	**Behavior** **S78**
10:30 am	The Importance of Dynamic Conservation Programs to Shorebirds in California's Central Valley *Golet GH, Dybala K, Reiter M, Sesser K, Reynolds M, Barfield J, Spraycar P*	Can Renesting Be an Effective Reproductive Strategy and How Does it Influence Conservation of a Threatened Shorebird Species? *Swift RJ, Anteau MJ, Ring MM, Toy DL, Wagner HR, Sherfy MH*	Investigating Aleutian Tern Breeding Season Movements Using Satellite Telemetry *Nesvacil KA, Lyons DE, Oehlers S, Skinner J, Mondragon J*	Urban Bird Community Shifts in Arizona *Allen DC et al.* --- Community Change in Acadia National Park *Ruskin KJ et al.* --- Habitat Use of Hawaiian Short-eared Owls *Wilhite CJ et al.*	Speciation on an Island: Genetic Differentiation in Penguins and Shags *Burg TM*, Guevara-López J, Perkins N, Bost CA	New Technologies and Analytical Opportunities for Improved Inference About Avian Social Structure *Clements SJ, Silk MJ, Hodgson DH, Weegman MD*
10:45 am	*Multi-scale Approach to Evaluating Space Use in Invasive Avian Dispersers and the Implications for Seed Dispersal *Wilcox RC, Tarwater CE*	Nest Initiation Time and Distance to Water Predict Nest Success of the Hawaiian Stilt in Wetlands on O'ahu *Harmon KC, Wehr NH, Price MR*	Preferred Orientation of Vagrant Passerines During Autumn Migration *Zawadzki LC, Taylor PD, Guilford T* **CANCELLED**	Habitat Use in Agricultural Fields *Reiley BM et al.* --- Benefits of Canada Goose Egg Addling *Edelstein DA et al.* --- Declining Snowpack Limits High-elevation Bird *Brown TM et al.*	The Genomic Landscape of Microgeographic Adaptive Divergence in an Island Endemic *Cheek RG, Funk WC, Sillett TS, Ghalambor C*	Using Playback Experiments to Investigate Species Discrimination in a Hybridizing Population of Blue-winged and Golden-winged Warblers *Janik AE, Vonhof MJ, Gill SA*
11:00 am	Habitat Modeling for Desert Thrashers *Fletcher DM, Harter LB, Ammon E*	Impacts of the December 2016 to August 2017 Bogoslof Island Eruption Event on a Major Alaskan Seabird Colony *Rojek NA, Drew GS*	Agent-based Modeling and Simulation—What's in it for Ornithologists? *Clemen T, Lenfers UA, Bradshaw K*	Snags and Cavity Usurption Affect Cavity-nesting Birds in Longleaf Pine *Levy HE et al.* --- Is Kluane Lake a Superhighway for Migrating Golden Eagle *Paprocki NA et al.* --- Earlier Spring Arrival of Migrants in Turkey *Horns JJ et al.*	Genetic Connectivity and Differentiation among Horned Larks (*Eremophila alpestris*) Along an Elevational Gradient in the White Mountains of California *Wang-Claypool CY, Mason NA, Cicero C, Bowie RC*	Landscape-level Information Use Shapes Brown Pelican (*Pelecanus occidentalis*) Foraging Behaviors *Geary B, James WR, Karubian J, Nelson JA, Leberg PL*
11:15 am	Spanning the Habitat Gradient: Red-headed Woodpecker Nest-site Selection in Three Distinct Cover Types *Nickley BM, Bulluck LP*	Measuring Impacts of Non-native Species on Cavity-nesting Birds at the Continental Scale *Bailey RL, Faulkner HA, Martin VY, Phillips TB, Bonter DN*	Alternative Pathways to Success: Transient Dispersers in a Cooperative Breeding Corvid *Suh Y, Dent ML, Fitzpatrick JW, Bowman R*	Nocturnal Calls Influence Vulnerability to Artificial Light *Winger BM et al.* --- Winter Movement of Brown-capped Rosy Finches *Yappert AA et al.*	Assessing the Influences of Habitat Structure on Bird Song Propagation *Hardt BM, Benedict L*	Age-related Variation in Bite Force in a Long-lived Seabird in the Galapagos *Rebol EJ, Anderson DJ*
11:30 am	Innovations in Measuring Habitat: Nest-site Selection of Grassland Songbirds in Northern Mixed-grass Prairies *Guido NA, Correll MD, Ruskin KJ, Olsen BJ, Bernath-Plaisted J*	Decadal Shifts in Patterns and Benefits of Nesting Near Territorial Predators by Tundra-nesting Sea Ducks *Miller MW, Lovvorn JR, Graff N, Stellrecht N, Quakenbush LT, Safine DE*	Pacific Arctic Seabird Communities: A Decade of Change Viewed Through the Lens of the Distributed Biological Observatory's At-sea Surveys *Kuletz KJ, Cushing D, Osnas E, Labunski EA, Gall A*		Factors Mediating Reproductive Isolation Between Related Species at Contact Zones *Kirschel AN, Nwankwo EC, Monadjem A, Grether GF, Brelsford A*	Effects of Non-breeding Rainfall on Signal Development, Social Behavior, and Reproductive Success in Red-backed Fairywrens *Welklin JF, Lantz SM, Khalil S, Karubian J, Webster MS*
11:45 am	Woodpecker Nest Survival and Density in Relation to a Pine Beetle Outbreak *Saab VA, Latif QS, Dresser M, Dudley J*	Consequences of Nest Outcome on Investment into Later Broods by Gray Catbirds *Redmond LJ, Haq JI, Noble D, Ricco D*	*Seasonal and Directional Dispersal Behavior in an Ongoing Dove Invasion *Slager DL*		Life History Structures Phenotypic Variation in Avian Functional Traits *DuBay SG*	Variability in the Use of Acoustic Space Between Two Tropical Forest Bird Communities *Hart PJ, Paxton KL, Tredinnick G*
Lunch Break						

Friday, Morning Session

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Room	Summit 5	Summit 6	Summit 7/8	Summit 9/10	Summit 11/12	Summit 13/14
Session	**Foraging & Food Habits** **S79**	**Citizen Science** **S80**	**Symposium: Counting Unmarked Birds: Matching Appropriate Sampling and Modeling Techniques with Particular Research Questions (*Latif & Valente*)** **S81**	**Symposium: Wild Birds and the One Health Initiative: Dynamic Boundaries Affect the Health of Birds, Livestock, Humans, and the Environment (*Ramey*)** **S82**	**Symposium: Birds with Benefits: Evidence and Trade-offs of Multiple-benefit Conservation Focused on Birds (*Gardali et al.*)** **S83**	**Symposium: The Future of Global Bird Trait Datasets: A Game-changing Resource for Macroecology, Macroevolution and Conservation Biology? (*Tobias et al.*)** **S84**
10:30 am	Gyrfalcon Dietary Plasticity in a Changing Tundra Ecosystem *Johnson DL, Henderson M, Anderson DL, Booms T, Robinson B, Williams CT*	Eggshell Characteristics as Predictors of Heavy Metal Concentration in House Sparrow Eggs *Hartley SM, Cooper CB*	Estimating Avian Abundance from Unmarked Populations: Requirements, Assumptions, and Finding the Best Method for Your Research *Amundson CL*, Latif QS, Valente J	Wild Birds and One Health: Dynamic Boundaries Affect the Health of Birds, Livestock, Humans, and the Environment *Ramey AM*	What is Multiple-benefit Conservation and Why Care? *Gardali T, Seavy NE, Dybala KE*	Life History Trait Variation Across a Tropical Elevational Gradient *Jankowski JE, Scholer MN, Londono GA*
10:45 am	Canada Jay (*Perisoreus canadensis*) Foraging Ecology in Denali National Park and Preserve, Alaska *Swift KN, Marzluff JM, Williams EJ*	The Role of eBird in Fine-Scale Distribution and Density Modeling *Hallman TA, Robinson WD*	Sampling Design Considerations for Making Strong Inference from Large-scale Monitoring Programs *Pavlacky DC*	Evolutionary Changes Following a Successful Host Shift: The Case of *Mycoplasma gallisepticum* *Dhondt AA, Dhondt KV, Dobson AP, Geary SJ, Hawley DM, Hochachka WM, Ley DH, Pflaum K, Reinoso-Peres M, Tulman ER*	Trade-offs Between Carbon Storage and Biodiversity Conservation in Reforested Riparian Zones *Dybala KE, Steger K, Walsh RG, Smart DR, Gardali T, Seavy NE*	Phylogenetic and Functional Structure of Avian Communities Along a Tropical Elevational Gradient *Boyce AJ, Shakya SS, Sheldon FH, Moyle RG, Martin TE*
11:00 am	Trophic Transfer of Energy via Nestling Wading Birds to a Scavenger Community in an Oligotrophic Wetland *Gabel WW*	Webcams as an Untapped Opportunity to Conduct Citizen Science: Six Years of the American Kestrel Partnership's KestrelCam *Schulwitz SE, Spurling DP, Davis TS, McClure CJ*	On a Simulated Day, You Can See Forever: Comparing Analytical Methods Using Simulated Point Counts *Rigby EA*, Johnson DH		Dynamic Replenishment: Implementing a Multi-benefit Approach to Creating Bird Habitat and Recharging Groundwater *Barfield J, Rohde M, Golet G, Reynolds M, Andrews K*	The Impact of Species Interactions on Latitudinal Gradients in Trait Evolution in Birds *Drury JP*
11:15 am	Using DNA Metabarcoding to Determine Seaside Sparrow Diet Following Large-scale Disturbances *Snider AM, Bonisoli Alquati A, Woltmann S, Stouffer PC, Taylor SS*	Tiger Sharks Eat Passerines: Exploring the Prevalence of a Unique Cross-system Pulsed Subsidy *Drymon M, Feldheim K, Fournier A, Seubert E, Kroetz A, Powers S*	From Single-day to Multi-year Revisits: Matching Sampling Strategies to Inferential Goals *Tingley MW*	Harmful Algal Blooms in Northern Waters: An Emerging Issue for Alaskan Seabirds? *Van Hemert CR, Smith MM, Schoen SK, Dusek RJ, Piatt JF, Arimitsu ML, Litaker RW, Pearce JM*	Waterbird Habitat Quality and Groundwater Recharge Potential of Alfalfa in the San Joaquin Valley *Strum KM, Sesser KA, Shuford WD, Golet GH*	Are Rates of Divergent Evolution in "Biotic Interaction" Traits Faster in the Tropics? a Test Using Bird Beaks *Freeman BG, Schluter D, Tobias JA*
11:30 am	Validating the Barcode-Biomass Match: Can DNA Barcoding Determine the Contribution of Arthropod Taxa to the Diet of Birds? *Verkuil YI, Ubels R, Samplonius J, Nicolaus M, Dietz M, Galema A, Kiekebos K, de Knijff P, Both C*	Birds Across Borders: Uniting Curriculum, Students, Cultures, and Generations *Campbell-Smith JA, Cannady G*	Optimizing Aerial Seabird Survey Design: Pitfalls and Progress *Davis KL, Farr MT, Wilson RR, Silverman ED, Sussman A, Lyons JE, Zipkin EF*		Multiple Benefits from a Migratory Bird Species: Where They Originate and How it Matters to Management *Semmens DJ, Bagstad K, Diffendorfer J, Mattsson B, Dubovsky J, Thogmartin W, Wiederholt R, Loomis J, Bieri J, Sample C, Goldstein J, López-Hoffman L*	Global Biogeographic Gradients in Avian Colouration *Cooney CR, He Y, Thomas GH*
11:45 am	Demographic and Seasonal Variation in Biofilm Consumption by Migratory Western Sandpipers (*Calidris mauri*) *Hall LA, De La Cruz SE, Takekawa JY*	Creating Diverse and Quality Habitat for Birds Through Application of Management Guidelines for Land Managers in Northern Hardwood Forests *Treyger SM, Burger MF*	What Can We Do with Survey Design Specific Biases in Point-Count Data? Integrating Roadside Surveys and New Technologies *Solymos P, Matsuoka SM, Van Wilgenburg SL, Stralberg D, Cumming SG, Bayne EM*	Panel Discussion	Designing Coastal Conservation to Achieve Both Ecological and Human Well-being Goals *Annis GM, Pearsall DR, May CA, Ewert DN*	Climate, Habitat, and Geographic Range Overlap Drive Plumage Evolution and Mimicry in Woodpeckers *Miller ET, Leighton GM, Freeman BG, Lees AC, Ligon RA*
Lunch Break						

Friday, Early Afternoon Session

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Room	Atwood	Cook	Summit 1	Summit 2	Summit 3	Summit 4
Session	**Conservation** **S85**	**Symposium: Long-term Studies of Cavity-nesting Birds: Windows into Environmental Change (*Duckworth & Fair*)** **S86**	**Annual Cycle** **S87**	**Symposium: Seabirds on the Edge of Two Worlds: Ecology and Conservation of *Brachyramphus* Murrelets in Marine and Terrestrial Environments (*Rivers & Kissling*)** **S88**	**Evolution** **S89**	**Population Biology** **S90**
2:00 pm	Survival, Habitat Selection, and Behavior of Post-fledging Golden-cheeked Warblers *Trumbo EM, Ward MP, Brawn J*	Insights into Adaptation and Population Change from Long-term Studies of Cavity-nesting Birds *Duckworth RA*	Carry-over Effects of Breeding Season Habitat on a Long-distance Migrant *Boyd BP, Stutchbury BJ, Hayes SM*	Inter-annual Variation in Marbled Murrelet (*Brachyramphus marmoratus*) Breeding Activity in Western Oregon *Rivers JW, Adrean L, Nelson SK, Garcia-Heras M, Roby D, Betts M*	Skeletal Distribution of Medullary Bone in Neornithes—Implications for the Identification of Reproductive Tissues in Non-avian Dinosaurs *Canoville AR, Schweitzer MH, Zanno LE*	Pintail Populations Became More Vulnerable to Climate Change Under Agricultural Intensification *Zhao Q, Arnold T, Devries J, Howerter D, Clark B, Weegman MD*
2:15 pm	Population Genetics of a Beringian Endemic, Rock Sandpiper *Pruett CL, Winker KS*	Long-term Responses to Environmental Change Across Multiple Scales in the Great Tit *Sheldon BC*	Large-scale Phenological Dynamics of North American Passerines *Youngflesh CC, Socolar JB, Tingley MW*	Can Oceanic Effects on Growth and Time to Fledging Mediate Terrestrial Predator Limitation of an At-risk Seabird? *Knudson TW, Lovvorn JR, Lawonn MJ, Corcoran RM, Roby DD, Piatt JF, Pyle WH*	Replicated Invasions Reveal Hotspots of Natural Selection in the European Starling *Hofmeister NR, Rollins LA, Stuart K, Werner SJ, Lovette IJ, Clayton DF*	When the Freezer Breaks: Will Climate Warming Impact the Persistence of Resident Birds in Alaska? *Williams EJ, Phillips LM, Grigsby T, Norris R, Chicalo R, Marzluff JM, Swift KN*
2:30pm	How Do Seabirds See Light? Spectral Effects on the Temporal Sensitivity of Hawaiian Seabirds *Moon HE, Anderson T, Travers M, Loew E, Porter M*		Nocturnal Bird Migration and Light: Midnight Sun, a Solar Eclipse and Artificial Light *Nilsson CH, Horton KG, Dokter A, Van Doren B, Farnsworth A*	Breeding Propensity and Causes of Nest Failure for Marbled Murrelets in Washington State *Lorenz TJ, Raphael MG, Bloxton TD*	Testing for Adaptive Introgression Across Elevation in a Rapid Radiation, the South American Siskins (*Spinus*) *Beckman EJ, Witt CC*	Population Ecology of Spruce Grouse in Commercially Managed Forests *Blomberg EJ, Tebbenkamp J, Dunham S, Harrison D*
2:45 pm	The Endangered Black-capped Vireo (*Vireo atricapilla*): Status After 30 Years of Recovery Management in Oklahoma, USA *Grzybowski JA, McDonald*	Long-term Effects of Environmental Change on Two Cavity Nesting Passerines *Bartlow AW, Wysner TE, Musgrave KS, Hathcock CD, Fair JM*	Breeding Ground Habitat Loss is the Primary Driver of Population Declines for a Long-distance Migratory Songbird *Hallworth MT, Marra PP, Bayne E, Love OP, McKinnon E, Tremblay JA, Van Wilgenburg SL, Drolet B, Ibarzabal J*	Breeding Ecology of Kittlitz's Murrelets in the Aleutian Islands, Alaska *Kaler RS, Kenney L, Williams J, Piatt J*	The Indirect Effect of Flight Demands on Egg Shape in Migratory and Sedentary Fork-tailed Flycatchers (*Tyrannus savana*) *Gómez-Bahamón V, Chen ER, Tuero DT, Assis M, Marini MÃ´C, Bates JM*	Long-term Change in the Intrinsic and Extrinsic Drivers of Individual Fitness *Arcese P, Germain R*
3:00 pm	The Effects of Habitat Management and Landscape Context on Northern Bobwhite Winter Survival in Southwest Missouri *Mosloff AR, Weegman MD, Thompson FR, Thompson T*	Using Nestboxes to Understand if Landscape Influences American Kestrel Reproduction and Movements Along an Urban Gradient in Northern Utah *Watson J, Oleyar D*	Hatching Date Influences Winter Habitat Quality: Examining Seasonal Interactions Across the Full Annual Cycle in Prairie Warblers *Akresh ME, King DI, Marra PP*	Space-use of Nesting and Non-nesting *Brachyramphus* Murrelets in Icy Bay, Alaska, 2007–2012 *Kissling ML, Lukacs PM, Lewis SB, Gende SM*	Unidirectional Introgression Between *Rhegmatorhina hoffmannsi* and *R. berlepschi* in the Amazon Forest *Del-Rio GC, Rego MA, Whitney BM, Schunck F, Silveira LF, Faircloth BC, Brumfield RT*	Comparative Demography at the Core and Southern Edge of the Black-throated Blue Warbler Breeding Range *Chandler RB, Chitwood R, Lewis W, Sillett TS, Cooper RJ*
3:15 pm	Mapping Wetland Habitat Using Remote Sensing Data for the Critically Endangered White-bellied Cinclodes (*Cinclodes palliatus*) *Gibbons RE, Otto M*	Connecting Environment, Stress Coping Capacity, and Fitness: Insights from a Nest-box Breeding Population of Tree Swallows (*Tachycineta bicolor*) *Vitousek MN* **CANCELLED**	Geolocators and Stable Isotopes Reveal the Migratory Route and Overwintering Locations of an Arctic-breeding Passerine *McFarland HR, Will A, Powell AN*	Wide-ranging Movements and Long Nest–Sea Commutes by Marbled Murrelets in Washington *Lorenz TJ, Raphael MG, Bloxton TD*	Evolutionary Genomics of the Brown Creeper *Manthey JD, Klicka J, Spellman GM*	Unintended Consequences of Translocation: Reproductive Skew and Reduced Effective Population Size in the Red-cockaded Woodpecker *Bowman R, Thompson GT, Angell E*
Coffee Break						

Friday, Early Afternoon Session

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Room	Summit 5	Summit 6	Summit 7/8	Summit 9/10	Summit 11/12	Summit 13/14
Session	**Disease & Parasites** **S91**	**Abundance, Occupancy, Trends** **S92**	**Symposium: Counting Unmarked Birds: Matching Appropriate Sampling and Modeling Techniques with Particular Research Questions (*Latif & Valente*)** **S93**	**Symposium: Wild Birds and the One Health Initiative: Dynamic Boundaries Affect the Health of Birds, Livestock, Humans, and the Environment (*Ramey*)** **S94**	**Symposium: Translational Ecology - Producing Actionable Science (*Saunders et al.*)** **S95**	**Symposium: The Future of Global Bird Trait Datasets: A Game-changing Resource for Macroecology, Macroevolution and Conservation Biology? (*Tobias et al.*)** **S96**
2:00 pm	Haemosporidians Show Seasonal Patterns but Little Host Specificity Within a Chickadee Hybrid Zone *Rice AA, Curry RL, Weckstein JD*	Population Trends and Connectivity of Snowy Plovers on the Southern Great Plains *Heath KM, Conway WC, Boal CW, Collins DP, Beauchamp JS, Johnson WP, Hensley G, Saalfeld ST, Grisham BA*	What About Those Rare Species? Study Design Implications for Multi-species Avian Monitoring Programs *Sanderlin JS, Ganey JL, Block WM, Schwartz MK, McKelvey KS*	Antibiotic Resistance Dissemination Through Wild Birds *Bonnedahl J*	Creating a Win-Win for Ranchers and Waterbirds Through Co-produced Conservation (Social) Science *Dayer AA, Sketch M, Anders L, Metcalf A*	Exploring the Links Between Morphological Form and Ecological Function in Birds *Tobias JA*
2:15 pm	Avian Genomic 'Bycatch' Facilitates the Study of Symbiont Ecology and Evolution *Galen SC, Perkins S*	Trends in Abundance and Habitat Associations of Forest Birds on Southern National Forests 1992-2017 *Matseur EA, Bonnot TW, Thompson FR, Thorning MG*	Estimation of Occupancy Parameters for Breeding Birds on the Basis of Single-visit and Multiple-visits Point-count Designs *Leu M, Scherer RD, Jirinec V, Fleishman E*		Co-production of a Continental-scale Movement and Energetics-based Framework for Collaborative Management of Waterbird Populations *Thogmartin WE*	Stranger Things: Elaboration and Innovation of Island Avifaunas *Thomas GH, Cooney C, Beckerman A, Bright J*
2:30pm	Role of Food Availability on a Bird's Response to a West Nile Virus Infection *Owen JC, Dupuis AP, Landwerlen H, Kramer L*	Long-term Avifaunal Change in Undisturbed Amazonian Rainforest: Pervasive Declines and Shifting Baselines *Stouffer PC, Rutt CL, Jirinec V, Midway SR*	The Impacts of Temporary Emigration on Colonization and Extinction Estimates in Dynamic Occupancy Models *Valente JJ, Hutchinson RA, Jirinec V, Leu M, Betts MG*	Whole Genome Sequencing Provides Inference on the Epidemiology of Antibiotic Resistant Bacteria in Wild Birds *Ahlstrom CA, Bonnedahl J, Ramey A*	Developing a Unified Framework for Avian Monitoring in Pacific Northwest Estuaries *Bayard TS, Slater G, Spragens K, Koberstein M, Summers A*	Global Raptor Research and Conservation Priorities: Tropical Raptors Fall Prey to Knowledge Gaps *Buechley ER, Santangeli A, Girardello M, Neate-Clegg MH, Oleyar D, McClure CJ, Sekercioglu CH*
2:45 pm	Sialic Acid Quantity and Glycosidic Linkage on Avian Erythrocytes *Fair JM, Jankowski M, Glaberman S, Kimball D, McCabe K*	Estimating Hawaiian Songbird Population Density Using Machine-learning Produced Annotations of Automated Acoustic Recordings *Weyenberg GS, Rumpungworn M, Howells L, Paxton KL, Crampton LH, Hart PJ*	Nested Sampling of Forest Restoration Treatments Reveals Different Species Occupancy and Richness Patterns Depending on Spatial Scale *Latif QS, Pavlacky DC, Sparks RA, Truex RL*	Prevalence, Diversity, and Transmission of Blood Parasites in Alaskan Avifauna *Smith MM, Van Hemert C, Meixell B, Handel C, Ramey A*	Moving Bird Conservation Forward Through Collaborative Action Targeting Grasslands and Wetlands in the Chicago Wilderness Region *Beilke SJ, Miller N, Suarez D, Kasberg B*	Global Patterns and Predictors of Dispersal-trait Variation in Birds *Sheard CE, Neate-Clegg M, Alioravainen N, Jones SE, Vincent C, MacGregor HE, Bregman TP, Seddon N, Tobias JA*
3:00 pm	Extensive in Situ Radiation of Feather Lice on Tinamous *Virrueta Herrera S, Weckstein JD, Sweet AD, Allen JM, Walden KK, Johnson KP*	Factors Related to Occupancy Dynamics and Breeding Propensity of Northern Spotted Owls in a Protected Area: Habitat, Weather and Barred Owls *Dugger KM, Mangan AO, Chestnut T, Vogeler JC, Breckheimer IK, King WM, Bagnall KE*	Broad-scale Monitoring to Evaluate the Contribution of Local Conservation to Regional Bird Populations *Green AW, Pavlacky DC*		Shared Stewardship for Bird Conservation: Linking Backyard Habitats, Citizen Science and Yard Management *Lerman SB, Marra PP, Reitsma R, Evans BS, Narango DL, Clipp H*	What Information Do We Need to Anticipate the Interaction Pattern of a Hummingbird? *Martin Gonzalez AM*
3:15 pm	Ecological Drivers of Backyard Bird Feeding and Consequences for Parasite Transmission *Hall RJ*	Applying an Ensemble of Small Models to Predict Breeding Distribution of Virginia's Warbler in South Dakota *Goljani Amirkhiz R, Dixon MD, Palmer JS, Swanson DL*	On Point Count Sampling for Understanding Recruitment, Survival and Movement *Zhao Q*	Panel Discussion	Reducing the Impacts of Cats on Birds in Canada Through Collaborative Efforts with Multiple Stakeholders *Gow EA*	Sex Biases in Natural History Collections and Consequences for Bird Trait Studies *Cooper N*
Coffee Break						

SCIENTIFIC PROGRAM

Friday, Late Afternoon Session

* indicates student presenters eligible for AOS presentation award

Room	Arteaga	Cook	Summit 1	Summit 2	Summit 3	Summit 4
Session	**Conservation** **S97**	**Symposium: Long-term Studies of Cavity-nesting Birds: Windows into Environmental Change (*Duckworth & Fair*)** **S98**	**Migration & Stopover** **S99**	**Symposium: Seabirds on the Edge of Two Worlds: Ecology and Conservation of *Brachyramphus* Murrelets in Marine and Terrestrial Environments (*Rivers & Kissling*)** **S100**	**Genomics** **S101**	**Behavior** **S102**
4:00 pm	Site Fidelity and Pairing Behavior in a Wintering Population of American Kestrels in North Texas *Biles KS, Bednarz JC*	Long-term Dynamics of Tree-cavity-nesting Communities in Temperate and Subtropical Forests *Norris AR, Cockle KL, Wiebe KL, Trzcinski MK, Edworthy AB, Martin K*	Global Trends in Avian Partial Migration: a Meta-analysis *Zavaleta ES*	Breeding Season Movements and Marine Habitat Use by the Marbled Murrelet in Oregon *Garcia-Heras M, Adrean LJ, Nelson SK, Roby DD, Betts MG, Rivers JW*	Population Genomics of Greater White-fronted Goose *Wilson RE, Sonsthagen SA, Ely CR, Talbot SL, DaCosta JM, Sorenson MD, Scribner KT, Weaver M, Skalos D*	Timing of Breeding in American Coots: Bet-hedging Against Nest Predation When Reproductive Performance Declines with Season *Lyon BE*
4:15 pm	Life on the Edge: Density and Demography of Marsh Wrens and Seaside Sparrows in Northeastern Florida *Schwarzer AC, Cox WA*		Migratory Bird Twilight Ascent and Descent Rates Along the Southwestern Shoreline of Lake Erie *Wellik MJ, Kirsch EM, Sheildcastle M*	Distribution and Use of Freshwater Habitats by Kittlitz's Murrelets on Lakes in the Lower Wood River Lake System, Alaska *Nesvacil KA, Pendleton G, Swaim M, Walsh P*	The Long and the Short of It: Linking Genome-wide Signatures of Selection Across Evolutionary Timescales in Birds *Shultz AJ, Arnold B, Sackton TB*	Manipulated Sex Ratios Alter Group Structure and Cooperation in the Brown-headed Nuthatch *Cox JA, Cusick JA, DuVal EH*
4:30 pm	Saving the Kiwikiu (*Pseudonestor xanthophrys*): Recovery Efforts in Maui, Hawaii *Mounce HL, Farmer C, Berry L, Masuda B, Warren C, Berthold L, Duvall F*	Population Increases Despite Habitat Saturation: What Can We Learn from Five Decades of Research? *Walters EL, Hagemeyer ND, Barve S, Pesendorfer MB, Koenig WD*	Migratory Behavior of the Western Burrowing Owl: Connecting Canada, United States, and Mexico *Conway CJ, Wellicome TI, Johnson DH, Conley JL, Lundblad CG, Bruinsma DR, Fisher RJ*	Seasonal Offshore Distribution and Habitat Use of *Brachyramphus* Murrelets in Alaska *Labunski EA, Kuletz K, Osnas E*	Comparative Genomic Structure Within Alaskan Galliforms *Sonsthagen SA, Wilson RE, Merizon RA, Talbot SL*	Helpers Mitigate Negative Effects of Predation Threat in the Cooperatively Breeding Purple-backed Fairy Wren *Meyer DK, Kinnebrew E, Pruett-Jones S, Johnson AE*
4:45 pm	Forest Area Required to Support Landbird Population Goals for the Mississippi Alluvial Valley *Twedt DJ, Mini A*	Consequences of Long-term Habitat Change and Resource Selection for Population Limitation in Cavity-nesting Birds *Martin TE*		Consistent Post-breeding Movements of Marbled Murrelet from British Columbia to Alaska (2014–2016) *Bertram DF, MacDonald CA, O'Hara PD, Cragg JL, Corcoran R, Greene R, Woo K*		
5:00 pm	Do Piping Plovers in the Northern Great Plains Function as a Metapopulation & Why Does it Matter for Conservation? *Anteau MJ, Swift RJ, Sherfy MH, Toy DL, Ring MM*			Post-breeding Migration of Kittlitz's Murrelets from the Gulf of Alaska to the Bering Sea and Beyond *Douglas DC, Piatt JF, Arimitsu ML, Madison EN, Kissling ML, Schoen SK*		
5:15 pm		Panel Discussion *Fair J*				

Friday, Late Afternoon Session

* indicates student presenters eligible for AOS presentation award

Room	Summit 5	Summit 7/8	Summit 9/10	Summit 11/12	Summit 13/14
Session	**Management & Policy** **S103**	**Symposium: Counting Unmarked Birds: Matching Appropriate Sampling and Modeling Techniques with Particular Research Questions (*Latif & Valente*)** **S104**	**Symposium: Wild Birds and the One Health Initiative: Dynamic Boundaries Affect the Health of Birds, Livestock, Humans, and the Environment (*Ramey*)** **S105**	**Symposium: Translational Ecology—Producing Actionable Science (*Saunders et al.*)** **S106**	**Symposium: The Future of Global Bird Trait Datasets: A Game-changing Resource for Macroecology, Macroevolution and Conservation Biology? (*Tobias et al.*)** **S107**
4:00 pm	The NSF is Growing Pathways to STEM for Rural Community College Students via Community Partnerships and Intensive Mentoring *Gillespie LM, Heinisch S, Grandgenett N*	A General Framework to Integrate Repeated Count and Mark-resight Data *Rushing CS, Hostetter NJ, Boettcher R, Lyons J*	It's Not Just Flowerpots and Tires: Defining the Impacts of West Nile Virus on a Woodland Bird, Ruffed Grouse *Williams LM, Brown JD, Nemeth NM, Hutchinson ML, Helwig MW, Kyle AD*	Audubon's Vision: Restoring the Gulf of Mexico for Birds and People *Lankford KE*	Responses of Bird and Plant Communities to Global Change: Coupled or Decoupled? *Schleuning M*
4:15 pm	Landscape Composition Explains High Rates of Dispersal in Translocated Lesser Prairie-Chickens *Berigan LA, Aulicky C, Sullins D, Haukos D, Fricke K, Reitz J, Rossi L, Schultz K*	The Potential of Citizen Science Data for Population Monitoring *Johnston AA, Strimas-Mackey ME, Hochachka WM, Robinson OJ, Ruiz Gutierrez VV, Miller E, Auer MT, Fink D*		Using Structured Decision Making to Connect Bird Monitoring to Restoration Decision-making *Adams EM, Fournier AM, Lyons JE, Wilson R, Gleason JS, Brush JM, Cooper RJ, DeMaso SJ, Driscoll MJ, Frederick PC, Jodice PG, Reeves DB*	Avian Functional Traits and the Impacts of Climate Change on Ecosystem Function *Pigot AL, Trisos C, Merow C, Tobias JA*
4:30 pm	Duration of Corvid Response to Forest Restoration Thinning: Implications for Conservation of the Threatened Marbled Murrelet *Hagar JC, Waianuhea LK*	Scaling Up by Integrating Standardized and Unstandardized, Community Science Count Data: A Case Study in the Upper Mississippi River *Michel NL, Meehan TD, Saunders SP*	Urban White Ibises Facing Trade-offs in South Florida *Welch CN, Hernandez SM, Murray M, Curry SE, Kidd A, Hepinstall-Cymerman J, Lankau E, Yabsley M, Navarra K, Cummings C, Lipp E, Altizer S*	A Strategic Plan for Monitoring Birds in the Gulf of Mexico: Translating Stakeholder Values into Priorities *Fournier AM, Lyons JE, Wilson R, Gleason JS, Adams EM, Brush JM, Cooper RJ, DeMaso SJ, Driscoll MJ, Frederick PC, Jodice PG, Reeves DB*	How Trait Data Help Improve Avian Biodiversity Forecasts Under Global Change *Zurell D*
4:45 pm	Effective Multi-scale Governance for Migratory Shorebirds: Lessons from the EAAF and an Australian Wetland Site *Hamman EV*	Designing a Bird Survey for Latin America: The PROALAS Protocol in EBird *Ruiz-Gutierrez VV, Lello-Smith A, Ortega Alvarez R*	Lessons Learned from Research and Surveillance Directed at Highly Pathogenic Influenza Viruses in Wild Birds of North America *Ramey AM, DeLiberto TJ, Berhane Y, Swayne DE, Stallknecht DE*	Golden-winged Warbler Conservation: Using Science to Take Action *Fowle MR, LaBarr MS, Barker SE*	The Impacts of Diversity and Assembly History on Community Vulnerability *Weeks BC, Tobias JA*
5:00 pm		Panel Discussion		An Assessment of Ecological Value and Vulnerability in the Bering, Chukchi, and Beaufort Seas *Smith MA, Goldman M, Knight E, Sullender B*	Panel Discussion
5:15 pm			Panel Discussion	Synthesizing Full Annual Cycle Science and Threats to Drive Conservation and Policy Actions for North American Migratory Birds *Deppe JL, Auer T, Knight E, Langham GM, Marra P, Mackenzie S, Rosenberg K, Smith M, Taylor L*	

SYMPOSIA

Symposia provide an opportunity to bring together invited experts to share their results and experience related to a new or timely topic in ornithology. The talks within a regular symposium are focused around a central theme and allow for thorough coverage of that theme. Symposia may encompass full-day (10:30 am–5:30 pm), morning (10:30 am–12:00 pm), or afternoon (2:00–5:30 pm) sessions.

The **Early Professionals Mini-talk Symposium and Q&A Session** will feature early career ornithologists. It will take place in a special session on Wednesday from 5:30–6:30 pm.

The **Undergraduate Symposium** (Thursday afternoon) will highlight work being done by undergraduate student ornithologists.

Lightning Talks (Friday morning) will consist of pre-timed 5-min invited talks that address a common theme/question in ornithology. All talks are preset to 5-min with slides advancing automatically.

S: Paper session number on scientific program schedule.

TOPICAL SYMPOSIA:

UNDERSTANDING AND ADDRESSING THE COLLAPSE OF THE NORTH AMERICAN AVIFAUNA

ORGANIZERS: PETER MARRA (SMITHSONIAN MIGRATORY BIRD CENTER), KENNETH ROSENBERG (CORNELL LAB OF ORNITHOLOGY)

FULL DAY – WEDNESDAY (S1, S13, S25)

Species extinctions have defined our global biodiversity crisis, but species loss begins with depletion in abundance of organisms that can result in extreme compositional changes in ecosystems. A recent (Science) paper documented major population losses across much of the North American avifauna, using independent monitoring networks. Survey data show a net loss in total breeding abundance nearing three billion birds, 29% since 1970, in species occupying most continental biomes. Grassland specialists exhibit the largest absolute loss of abundance, while wetland birds show modest gains. Continent-wide NEXRAD radar reveals a similar decline in nocturnal bird migration of approximately 9% over the past decade. Our symposium will present a synthesis of recent avian declines, describe available monitoring programs for the birds of North America and explore what we know (and don't know) about the causes of these declines in a few select biomes.

The old adage "canary in the coal mine" is proverbial for good reason. Birds are excellent indicators of environmental and ecosystem health. They are conspicuous, easy to identify and count, and fortunately, ornithologists began monitoring hundreds of species over vast spatial scales almost a half century ago.

In this symposium, speakers will present data from the first ever systematic and quantitative estimates of population loss and trend, for almost the entire avifauna of North America. Experts will come together to present long-term data for various taxa, from grasslands and boreal species to shorebirds and waterfowl—highlighting both patterns and probable causes of declines. In addition, using an entirely independent and new dataset from 143 weather radars (NEXRAD) across the contiguous U.S., we will show how the results from intense monitoring efforts are mirrored by declines in nocturnal bird migration. What's most alarming is that these declines are not isolated to rare and threatened species; talks will highlight significant declines in species once considered common and widespread—including non-native species. One take home message from the symposium is that the cumulative loss of almost three billion birds is consistent with a decay of overall ecosystem integrity.

The good news is that nature is resilient and if given a chance species can rebound. We will highlight several examples including the remarkable recovery of intensively managed waterfowl. And toward the end of the symposium, we will discuss approaches for identifying the causes of decline (through a horizon scanning process) coupled with effective policies and societal change to reduce threats to habitats and minimize avoidable anthropogenic mortality, so species can recover. Recent attempts to weaken laws in the United States to protect birds, would have severe implications, and make our symposium even more timely and important. A policy wrap-up talk will bring attendees up to date with changes in the Migratory Bird Treaty Act.

BREAKING THROUGH BIASES: WHAT WE'VE LEARNED FROM FEMALE BIRDS

ORGANIZERS: KARAN J. ODOM (CORNELL LAB OF ORNITHOLOGY), RUTH E. BENNETT (SMITHSONIAN MIGRATORY BIRD CENTER)

MORNING – WEDNESDAY (S2)

Across ornithological disciplines, male birds have been used disproportionately to address ecological and evolutionary questions. In many ways, this reflects the ease of observing males: with their stunning nuptial plumage and high singing rates, males of many species are more detectable and perhaps more interesting to observe than their female counterparts. Yet study biases weaken our ability to understand and make inference about a system. The study of female birds is therefore likely to generate novel ideas and questions about ecological and evolutionary processes within ornithology. Indeed, research that explores the behavioral roles of both sexes has shown us that it is the females of many species that seek out and control the dynamics of extra-pair mating. Likewise, new research into the patterns of female ornamentation (song and plumage) has revealed that strict sexual selection is likely not the only mechanism driving the evolution of elaborate traits. Moreover, ignoring the habitat preferences of female birds can have detrimental effects on avian conservation: surveys that are biased toward detection of males have led to preferential conservation of male nonbreeding habitats, despite higher rates of habitat loss in female-dominated habitat. This likely contributes to male-bias in the adult sex ratios of migratory passerines. In this symposium we will explore how studies on female birds have altered and expanded our understanding of bird biology. Symposium presenters will speak from a variety of fields (ecology, physiology, behavior, and conservation biology) on the discoveries and surprises enerated by a focus on female birds. Our final speaker, Dr. Kevin Omland, will present results suggesting that women researchers are more likely to explore the perspective of female birds, emphasizing how a diverse research community enriches perspectives within ornithology.

This symposium complements other events planned for the 2019 AOS meeting on the role of women in science and will cover parallel topics to a special issue of the Living Bird magazine focused on the study of female birds, planned for release in conjunction with the meeting.

ASSESSING THE CUMULATIVE EFFECTS OF RESOURCE DEVELOPMENT ON MIGRATORY BIRDS IN NORTHERN BOREAL REGIONS

ORGANIZERS: C. LISA MAHON (CANADIAN WILDLIFE SERVICE, ENVIRONMENT AND CLIMATE CHANGE CANADA, UNIVERSITY OF ALBERTA)

MORNING – WEDNESDAY (S7)

Human activity has altered much of the North American landscape in the last two centuries, resulting in considerable shifts in species composition. Until recently, western boreal forests have remained largely undeveloped with the exception of agriculture at the southern edge. However, over the past two decades, simultaneous development by multiple resource industries has intensified within this region (forestry, bitumen/oil sands extraction, conventional oil and gas extraction, mineral mining, and peat mining). This pattern of development is intensive at local scales (e.g. open pit mines) and extensive at landscape and regional scales (e.g. seismic lines). Understanding and mitigating the effects of multiple stressors requires approaches that examine the combined or cumulative effect of multiple stressors and sectors on ecosystem components like migratory landbirds [i.e. cumulative effect assessment (CEA)].

This symposium will introduce the topic of regional or effects-based CEA and use case studies from the western boreal to demonstrate approaches and tools used to assess the effects of multiple stressors on migratory birds. The first symposium will introduce the topic of CEA including: (1) an overview of the four general categories of analytical approaches to CEA and an assessment of their ability to meet many of the stated objectives of CEA for migratory birds; (2) a framework for using an empirical species-stressor modeling approach; and (3) the use of landscape simulation modeling within CEA. The second symposium will highlight the use of an empirical species-stressor modeling approach using an additive modeling framework to identify key stressors and sectors. The third symposium will highlight the use of an empirical species-stressor modeling approach using a paired additive-interactive modeling framework to identify whether the effects of multiple stressors are additive or interactive and to assess the effect size and interaction type (synergistic or antagonistic) of interactive effects. The fourth

symposium will use community metrics to assess how cumulative effects combine to affect the bird community as a whole. The fifth symposium will use the forest landscape model LANDIS-II to simulate the impacts of climate change and forest harvesting on boreal bird communities.

CONSERVATION AND MANAGEMENT OF BOREAL BIRDS IN A CHANGING CLIMATE: WHAT DO WE EXPECT, WHAT HAVE WE OBSERVED, AND WHAT DO WE DO ABOUT IT?

ORGANIZERS: DIANA STRALBERG (UNIVERSITY OF ALBERTA), STEVEN M. MATSUOKA (USGS), JUNIOR TREMBLAY (ENVIRONMENT AND CLIMATE CHANGE CANADA)

AFTERNOON – WEDNESDAY (S14, S26)

Climate change is expected to bring rapid and dramatic changes to the boreal forest region of North America, challenging boreal birds and other organisms to keep pace by adapting in place or tracking changing environmental conditions. The magnitude of expected change means that bird conservation and management activities must consider increasingly larger geographies, often spanning multiple jurisdictions. This creates new challenges for conservation research, asscientistsstruggle to address broad-scale ecosystem transitions across large geographies while also addressing local and regional management needs. Conservation planners and managers are also confronted with high-stakes decisions and trade-offs, given large remaining uncertainties. This begs the related questions: "What are anticipated direct and indirect consequences of climate change on boreal bird populations and communities? What change have been observed to-date? and How does this information influence conservation planning and management decisions?"

To begin to address these questions, we will convene a panel of avian ecologists working in the boreal regions of Canada and the United States, with research foci ranging from basic to applied, and from local to continental-scale. We have asked researchers to present results from various types of predictive modeling efforts, ranging from correlative niche models to landscape change simulation to population demographic models. Others will report results from observational studies of avian responses to contemporary climate change, and plans for validation of modeled climate-change effects. Finally, remaining speakers will address ways in which climate-change information and predictions can be synthesized to inform conservation planning and management of species at risk. Collaborative, cross-jurisdictional case studies will be featured, highlighting how models and data can be translated into conservation action.

SPECIES LIMITS IN BIRDS: INTEGRATIVE AND PRACTICAL CONSIDERATIONS FOR TAXONOMY

ORGANIZERS: KEVIN WINKER (UNIVERSITY OF ALASKA MUSEUM), PAMELA RASMUSSEN (MICHIGAN STATE UNIVERSITY)

AFTERNOON – WEDNESDAY (S16, S28)

Birds have long been a focus of research on divergence and speciation, but even with the increasingly large datasets allowed by current technology, species delimitation is often controversial. In this symposium we will emphasize the reasons why species taxa are of special importance in biodiversity research, ecology, and conservation. Sexng aside debates about species concepts, we will focus on some of the challenges of using phenotypic and genetic datasets to achieve more robust species-level taxonomies that will be widely accepted and thus stable. The appreciation of humans worldwide for birds means that avian taxonomy, and thus avian taxonomists, more than for most other taxonomic groups, have an often contentious and complex relationship with the biopolitics of management, conservation, and birding. We will review some of the real-world difficulties of partitioning groups of populations, which are products of the continuous process of avian divergence, into the taxonomic bin of species. Presentations will be rich with examples of integrative work, complex taxa, and lessons learned in applying taxonomic solutions. We also hope to identify potential solutions for some of the thorniest problems in avian taxonomy. While we do not expect to achieve consensus on species concepts or limits through this symposium, our overarching goals are to explore current problems and solutions for creating taxonomies that will be as scientifically and operationally defensible as possible.

BIODIVERSITY MEDIATED TRADE-OFFS IN AGROECOSYSTEMS: WHEN DO BIRDS HELP OR HURT FARMERS?

ORGANIZERS: LIBA PEJCHAR (COLORADO STATE UNIVERSITY), CHRISTINA M. KENNEDY (THE NATURE CONSERVANCY)

AFTERNOON – WEDNESDAY (S19, S31)

Agriculture is the primary driver of land use change, yet farms and ranches in turn are critical for food security and can play a vital role in protecting biodiversity. In agroecosystems, birds provide services to producers and society (e.g., pest control, pollination), but can also be agents of disservices (e.g., pathogen transmission, crop damage). The circumstances under which bird communities provide net benefits to farmers, however, remain poorly understood. Can we predict the net effects of bird activity based on species traits, crop type, farm-scale practices, and/or landscape context and configuration? If so, how do we design farms and landscapes that capitalize on bird-mediated ecosystem services to produce positive ecological, economic and social outcomes for birds, farmers and society? What current and emerging tools for policy and practice could foster positive outcomes? This session will explore these challenges and opportunities through ten lively presentations. Our speakers, all of whom have confirmed participation, will share novel research on birds in diverse agroecosystems globally. Collectively, these talks will provide new insight on where and when birds help farmers and farmers help birds, catalyzing discussion of creative ways to advance ecological understanding of bird-mediated services/disservices. Ultimately, these biological insights, in collaboration with the work of economists and other social scientists, will be necessary to achieve co-benefits for conservation and human well-being across the large proportion of earth's terrestrial ecosystems devoted to food production.

SOCIAL DYNAMICS IN INTERSPECIFIC INTERACTIONS

ORGANIZERS: ALLISON E. JOHNSON (UNIVERSITY OF NEBRASKA-LINCOLN), DAIZABURO SHIZUKA (UNIVERSITY OF NEBRASKA-LINCOLN)

AFTERNOON – WEDNESDAY (S23, S35)

Interspecific interactions—e.g., competition, mutualism, and other mixed-species associations—are central to ecological theory. Because interspecific interactions occur between individuals, there is potential for the evolution of social strategies to mediate both positive and negative interspecific interactions. For example, dynamics of communication, individual recognition, conflicts of interest, and leadership can affect the nature of species interactions in birds. However, there remains a large gap in our knowledge about how the complex interplay between ecological and social factors shape interspecific interactions in nature. In this symposium, we bring together cuttng-edge research in ornithology that push the boundaries of our understanding of how interspecific social dynamics work and how they can affect larger ecological and evolutionary patterns such as species community assembly and phenotypic evolution.

This symposium will address interspecific social dynamics in birds in a variety of contexts including interspecific competition, mixed-species flocks and communication networks. By bringing together new research in these different contexts, we find common threads that unite these themes: Are social dynamics within and between species qualitatively different, or do they lie along a continuum? How does the network structure of interspecific interactions tell us about social dynamics between species? How does the flow of information within and across species influence patterns of interspecific interactions? How do conspecific and heterospecific social dynamics influence each other? Collectively, our symposium demonstrates the richness of behavioral dynamics that occurs across species and how they shape patterns of biodiversity in birds.

This symposium will also highlight the diversity of research approaches to understanding the complexity and importance of sociality across species, including new modeling techniques, social network analysis, meta-analyses, citizen science platforms, and field experimental approaches. We have assembled a highly international set of speakers representing 7 countries, collectively addressing study systems from 5 continents. We also have representation from a broad range of career stages, including graduate students, postdocs and faculty. An explicit goal of the symposium will be to foster communication between leading researchers within these themes to begin work towards a unifying concept for understanding social dynamics of interspecific interactions.

AVIAN BIOLOGY AND THE ANNUAL LIFE CYCLE: SHOREBIRDS AS MODELS TO UNDERSTAND DYNAMIC BOUNDARIES

ORGANIZERS: KIRSTY E. GURNEY (ENVIRONMENT & CLIMATE CHANGE CANADA), DAN R. RUTHRAUFF (UNITED STATES GEOLOGICAL SURVEY)

AFTERNOON – WEDNESDAY (S24, S36)

Throughout their annual life cycles, migratory birds use multiple habitats that can be distributed across broad spatial scales and encompass a diverse range of environmental conditions. Increasingly, evidence is showing that these conditions, as experienced during one stage of the annual cycle, can influence the health and / or survival of individuals in subsequent stages. Difficulties in tracking migratory birds over the annual cycle and lack of information on migratory connectivity, however, make it challenging to detect and understand these interactions (i.e. carry-over effects). These remain critical needs for informed conservation planning, given the potential influence of carry-over effects on population dynamics through changes in demographic rates.

For shorebirds (Charadriiformes), the need for information on migratory connectivity and tests for possible carry-over effects are particularly pressing. Current evidence suggests that populations of many shorebird species are declining, and the status of several species that nest in North America have been designated as of "conservation concern" by the US Shorebird Conservation Partnership: of 57 taxa (species / subspecies) evaluated by this group, seven taxa are listed under the Endangered Species Act, and an additional nine North American populations meet Watch List criteria (i.e. greatest or high conservation concern). Whereas habitat loss and degradation are likely affecting shorebird populations on wintering grounds, changes in breeding and migratory habitats, food resources, and predation risk may also have an important influence. Given the long-distance migrations and dynamic boundaries of many North American shorebird species and their strong potential for carry-over effects across different phases of the annual life cycle, this taxa exemplifies the concept of 'birds on the edge'.

The objectives of this session will be to assemble speakers who (i) will describe research that uses a life-cycle approach to study the biology and migratory connectivity of shorebirds, and (ii) will discuss the methods that are currently available for tracking shorebirds throughout their annual life cycles, including key assumptions and limitations of the technology. We anticipate that presentations will encourage an ongoing dialogue of the challenges and future directions for the study of migratory connectivity and carry-over effects in shorebirds and other species.

WEDNESDAY EARLY PROFESSIONALS MINI-TALK SYMPOSIUM SCHEDULE (M1)

Opening	Sara Kaiser & Nicholas Mason (EPC)	Overview of symposium goals
5:30 pm	Allison Shultz	Pathogen-mediated genotypes to colorful phenotypes: integrating research across organizational levels to study biodiversity
5:35 pm	Michael Akresh	Determining the limiting factors of declining bird populations
5:40 pm	Jessica Oswald	Using paleontology and genomics to understand the diversity of birds
5:45 pm	Anand Krishnan	How acoustics helps understand tropical bird communication and community organization
5:50 pm	Maggie MacPherson	A Bayesian network approach for improved seasonal distribution models of long-distance migratory passerines
5:55 pm	Douglas Barron	Developing an avian ecology lab at an undergraduate university
6:00 pm	Hernan Vazquez-Miranda	Understanding avian rEVOLUTIONary vision through birds' eyes (with 'omics help)
6:05 pm	Patrick Ruhl	Identifying and investigating knowledge gaps in the Worm-eating Warbler full annual cycle to inform habitat management and conservation decisions
6:10 pm	Anusha Shankar	Bringing field physiology to the tropics
6:15 pm	Ryan Terrill	Evolution and ecological interactions of molt strategies in birds
6:20 pm	Emma Greig & Scott Taylor (EPC)	Q&A panel

MIGRATORY CONNECTIVITY OF ALASKAN BIRDS

ORGANIZERS: AUTUMN-LYNN HARRISON (SMITHSONIAN MIGRATORY BIRD CENTER), LEE TIBBITTS (USGS ALASKA SCIENCE CENTER), JIM JOHNSON (U.S. FISH AND WILDLIFE SERVICE)

MORNING – THURSDAY (S39)

With migrations to every continent and likely to all 5 oceans, talks in this symposium will synthesize the results of nearly 100 years of bird banding in Alaska; share recent research to reveal the migratory connectivity of Alaskan birds; and examine commonalities and differences among bird groups, gaps in knowledge and the implications of changing environments —both within Alaska, and globally—on migratory connectivity.

Topics:

1) Insights from 100 years of bird banding in Alaska: Since 1921, 1.3 million individual birds have been banded in Alaska. Of these, 54,000 have been re-encountered outside of Alaska. Four thousand birds banded outside of Alaska have been re-encountered in Alaska. As a part of the Atlas of Migratory Connectivity of the Birds of North America the Smithsonian Migratory Bird Center, in partnership with USGS, has synthesized these data and will present the results.

2) Migratory connectivity studies: Spanning biomes (oceans, coasts, wetlands, and terrestrial habitats), groups (passerines, raptors, shorebirds, loons), and techniques (banding, electronic tracking, genetics, stable isotopes), a range of presenters will share recent work to reveal the migratory connectivity of Alaskan birds.

3) Integrating available knowledge: A summary talk will integrate results from multiple methodological approaches, present a gap analysis of available knowledge, and discuss opportunities and information needs for the future.

PERMEABLE BOUNDARIES IN BIOLOGICAL AND SOCIAL SCIENCES: HUMAN DIMENSIONS IN BIRD RESEARCH AND CONSERVATION

ORGANIZERS: LILIANA NAVES (ALASKA DEPARTMENT OF FISH AND GAME, DIVISION OF SUBSISTENCE), JACQUELINE KEATING (ALASKA DEPARTMENT OF FISH AND GAME, DIVISION OF SUBSISTENCE), ASHLEY DAYER (VIRGINIA TECH) JESSICA BARNES (NORTH AMERICA BIRD CONSERVATION INITIATIVE), TERRELL RICH (BOISE STATE UNIVERSITY)

FULL DAY – THURSDAY (S46, S58, S70)

The objective of this symposium is to highlight the value of social science in understanding and managing the complex socio-ecological systems that include birds. Bird conservation issues are often intertwined with human activities and behaviors. Combining ornithological and social science theory and methods is a highly effective way to scientifically assess socio-ecological systems, answer research questions, and solve management and conservation issues. Yet, consideration of human dimensions as part of the causes and solutions to issues in resource management and conservation is often insufficient. Formal consideration of human dimensions in resource management is also key to support the well-being of communities and a better integration of people and nature. For instance, changing the behavior of dog owners is necessary for Piping Plover conservation, and considering indigenous knowledge and ethnotaxonomy improves shorebird harvest assessment and facilitates the engagement of subsistence users in shorebird conservation.

The symposium will begin with an introduction to social science theory and methods as applied to resource management. Following presentations and discussions will explore the breadth of the utility of conservation social science under three main topics: (1) understanding human behavior; (2) application of human dimensions research in the management and conservation of bird populations; and (3) stakeholder engagement in bird research and conservation. Individual talks will cover: conservation behaviors of people and organizations; integration of traditional knowledge into research and management; management of species of conservation concern; applied ethno-ornithology; citizen science; conservation in private lands; and the integration of human dimensions into conservation planning and delivery. Closing the symposium, organizers will address questions, comments, and suggestions collected on note cards along the day, including actions to further integrate Human Dimensions in bird research and conservation.

Highlighting successful interdisciplinary collaboration, this symposium will offer opportunities to AOS meeting participants to meet and forge collaborations with researchers, managers, and practitioners experienced in human dimensions. Participants will be empowered with knowledge and resources to start or boost interdisciplinary collaborations including human dimensions to solve bird-related research, conservation, and management issues in diverse geographic and socio-ecological contexts..

A BRIGHT FUTURE FOR BIRDS: UNDERSTANDING THE IMPACTS OF LIGHT POLLUTION ON AVIAN WILDLIFE

ORGANIZERS: MEREDITH E. KERNBACH (UNIVERSITY OF SOUTH FLORIDA), CLINT FRANCIS (CALIFORNIA POLYTECHNIC STATE UNIVERSITY), LYNN B. MARTTN (UNIVERSITY OF SOUTH FLORIDA)

MORNING – THURSDAY (S48)

Light pollution, or the presence of unnatural levels of light at night, is one of the most widespread andrapidly increasing anthropogenic stressors. Although a small proportion of avian diversity is represented in urban habitats, many suburban or rural residing species are also at risk via agricultural facility lighting, polluted migratory passages, lighted greenspaces near roadways and airports, illumination of shorelines, and other sources. As the majority of organisms on earth evolved in the absence of such intense nightime illumination, light pollution poses a novel and spatiotemporally extensive threat to birds. Foundational research revealed that exposure to light pollution often leads to arrhythmia in the suprachiasmatic nuclei (SCN), the part of the brain responsible for integrating light signals and synchronizing melatonin secretion. Furthermore, light pollution can dysregulate corticosterone and testosterone in several species of birds. There is a clear need to understand how these physiological effects translate into ecological, evolutionary, and conservation impacts.

Many aspects of avian life histories are impacted by light pollution. For instance, birds that reproduce seasonally advance the timing of gonadal development and courtship behavior by nearly a month. These changes occur because light at night is mistaken for extensions of daylength, which many species use to time seasonal cycles. Nocturnally migrating birds can also be distracted or "entrapped" in nightime lighting en route to breeding or wintering grounds. One striking example is the attraction of passerines to the bright projections of the 9/11 memorial in New York City.

At the community level, light pollution can alter interactions among species. Light can alter competition, which can force some species to shift daily activity into nightime periods. Predation risk can also increase for some species, and for nocturnal predatory species foraging prospects can improve or deteriorate depending on favored food sources (e.g., some insects are concentrated by light pollution, but small mammals likely avoid it).

These above examples illustrate how the effects of light pollution might span molecular to community scales, but data are just beginning to accrue. Therefore, several levels of analysis are needed to understand and come up with solutions to mitigate the impacts of light pollution.

CROSS-PACIFIC MIGRATION: HOW THE IMPOSSIBLE BECOMES COMMONPLACE

ORGANIZERS: DAN RUTHRAUFF (USGS), BOB GILL (USGS)

AFTERNOON – THURSDAY (S51, S63)

Up to 20 years ago, ornithological wisdom had it that nonstop migratory flights of more than 5,000 km (e.g., Alaska to Hawaii) were impossible. It was considered unreasonable to suppose that birds would possess enough navigational and physiological capacity to negotiate the length and width of the Pacific. Yet there was tantalizing evidence on the matching timings of departures from Alaska and arrivals in the southern Pacific, as well as record fat loads in apparently departing birds, hinting at the possibility that individuals of at least one landbird species, the Bar-tailed Godwit, could make nonstop flights across the largest expanse of water on the globe. Not only was this possibility confirmed with satellite trackers, studies on godwits and other species have now spawned many exciting new questions (and some answers) on the amazing physiological, sensory, and informational capacities of birds. In this symposium we assess the state of knowledge of this phenomenon, in the hope that entrepreneurial (young) scientists and their backers will try to expand the story on what appears to be an underappreciated migratory capacity in birds.

MOLECULAR ECOLOGY IS FOR THE BIRDS: USING MOLECULAR TECHNIQUES TO ADVANCE OUR UNDERSTANDING OF AVIAN ECOLOGY

ORGANIZERS: MICHELLE A. JUSINO (UNIVERSITY OF FLORIDA), TERESA J. LORENZ (UNITED STATES FOREST SERVICE)

AFTERNOON – THURSDAY (S52, S64)

Molecular based techniques have exploded in many fields because they give insights into the intricate relationships among organisms, microbiomes, immunity, diet, and more. Molecular ecology has helped us gain a better understanding of the biodiversity and complexity of communities of fungi, bacteria, arthropods, and other organisms associated with birds using new techniques, tools, and next-generation data. Yet, we are still on the tip of the iceberg; many ornithologists have not been trained in the lab and field-based molecular techniques required to accurately characterize communities from environmental samples. Fields such as bacteriology and mycology have long embraced molecular tools for understanding the ecologies and natural histories of study organisms—these tools are now beginning to be used by the ornithological community to answer similar natural history questions. This symposium will explore the possibilities that these techniques offer to ornithology, facilitate collaboration and cross-disciplinary research approaches, and highlight exciting new research utilizing these techniques. Attendees will learn how high-throughput sequencing methods and related techniques have become accessible, and widely used, and our final discussion will facilitate collaboration and encourage more researchers to embrace these new opportunities.

In this symposium we will: 1) review methodological advances in molecular ecology that allow us to accurately characterize communities from environmental samples, 2) discuss the most important kinds of questions that these powerful new tools allow us to answer, 3) see concrete specific examples of how molecular ecology is revolutionizing ornithology, and 4) facilitate a collaborative discussion between researchers who are using advanced molecular techniques to study avian ecology and those who would like to learn more. At the end of the symposium we will have an open discussion about the role of molecular community ecology in the future of ornithology, and which tools are on the leading edge of this research.

LESSONS FROM AVIAN HYBRID ZONES AND THE MAINTENANCE OF SPECIES BOUNDARIES

ORGANIZERS: STEPFANIE M . AGUILLON (CORNELL UNIVERSITY), JEN WALSH (CORNELL UNIVERSITY), GEMMA CLUCAS (CORNELL UNIVERSITY)

AFTERNOON – THURSDAY (S60, S72)

Hybrid zones have played an important role in our understanding of evolution, speciation, and reproductive isolation, and have been the focus of ornithological research for decades. In fact, research in avian hybrid zones has long served as a baseline for formulating general theories about hybridization in non-avian taxa. In addition to this strong history in the scientific literature, new techniques are increasingly being applied to avian hybrid zones—from genomics to demographic modelling—to continue to advance our understanding of both old and new questions about avian speciation. This symposium will include speakers focused on genetics and genomics of avian hybrid zones, as this is a flourishing area of current research. Speakers will represent a range of disciplines to provide a comprehensive overview of ongoing avian hybrid zone research. Additional topics in this symposium include: differences in behavior (e.g., migration patterns, learning, song, timing of breeding) and reproductive success across hybrid zones, patterns of phenotypic variation in hybrid zones, and demographic or niche modelling of hybridizing taxa.

Come Help Clean Up Plastics from Ship Creek!

Saturday, June 29, 8–9:30 am

Event sponsored by Environment for the Americas

COUNTING UNMARKED BIRDS - MATCHING APPROPRIATE SAMPLING AND MODELING TECHNIQUES WITH PARTICULAR RESEARCH QUESTIONS

ORGANIZERS: QURESH LATIF (BIRD CONSERVANCY OF THE ROCKIES), JONATHON VALENTE (MIGRATORY BIRD CENTER, SMITHSONIAN CONSERVATION BIOLOGY INSTITUTE)

FULL DAY – FRIDAY (S81, S93, S104)

In recent decades, analytical methods have advanced tremendously for estimating species occupancy, abundance, and population dynamics from counts of unmarked populations, including point counts. Most approaches employ hierarchical models to separate ecological and observation processes, requiring surveyors to collect auxiliary data (e.g., distance to detections, replicate counts, timing of detections) along with detections. Comparative studies show different approaches can estimate population parameters differently, however, owing to complex interactions among avian behavior, spatial and temporal sampling scales, and modeling assumptions. Indeed, many presenters at the 2018 AOS meeting reported such findings, raising uncertainties about how to interpret parameter estimates appropriately, and how to acquire parameter estimates relevant to particular questions. Increasingly, ornithologists need to demonstrate they have somehow accounted for observation error for their population estimates to be considered defensible. To meet these demands, ornithologists often design studies to include auxiliary data collection without fully exploring whether resulting data will yield desirable inference. Consequently, key insights regarding sampling design often arise with hindsight during data analysis when adjustments to sampling are no longer possible. As analytical methods develop, ornithologists need guidance to design studies appropriately given their questions and potential analyses.

In this symposium, we will explore different perspectives on how to implement count-based surveys of unmarked bird populations. Initial speakers will layout an up-to-date conceptual overview and broad design considerations. Subsequent speakers will examine how study design affects model parameter estimates, new methods for analyzing count data, and integrating multiple sources of information to improve parameter estimates. Biologists with government agencies and NGOs will also provide perspectives on developing monitoring protocols that leverage available analytical tools and data sources to inform conservation and land management. We will conclude the symposium with a half-hour panel discussion, wherein symposium speakers will discuss with attendees approaches and considerations for sampling design, taking into account research questions, available analytical tools, and logistical constraints.

WILD BIRDS AND THE ONE HEALTH INITIATIVE: DYNAMIC BOUNDARIES AFFECT THE HEALTH OF BIRDS, LIVESTOCK, HUMANS, AND THE ENVIRONMENT

ORGANIZER: ANDREW RAMEY (U.S. GEOLOGICAL SURVEY ALASKA SCIENCE CENTER (USGS ASC)) MODERATORS: ANDREW RAMEY, USGS ASC; ANDRÉ DHONDT, LAB OF ORNITHOLOGY CORNELL UNIVERSITY; JONAS BONNEDAHL, DEPARTMENT OF CLINICAL AND EXPERIMENTAL MEDICINE LINKÖPING UNIVERSITY

FULL DAY – FRIDAY (S82, S94, S105)

The One Health initiative strives to forge collaborations between doctors, veterinarians, and environmentalscientists to find solutions to the most pressing societal issues threatening the health of people, animals, and our environment. The objective of this symposium will be to bring together professionals from diverse clinical, governmental, and academic organizations to share their experiences conducting research on avian health and disease within the One Health framework. We hope to foster cross-pollination of ideas across disciplines and to encourage new collaborations.

Specific topics to be covered include: (1) an introduction to the One Health initiative and how it applies to wild birds; (2) research on avian influenza in wild birds and important lessons learned regarding the world's most economically costly poultry disease; (3) how a poultry disease has evolved to exploit a niche in wild birds; (4) the utility of wild birds in the surveillance for clinically relevant antibiotic resistance determinants; (5) how West Nile Virus, a cause of disease in humans, also impacts wild woodland birds; (6) how the effects of harmful algal blooms may affect the environment, seabirds, and subsistence users; (7) connections between urbanization, disease, and white ibis; and (8) what we know and don't know about temperature-limited parasites in the warming far north.

BIRDS WITH BENEFITS: EVIDENCE AND TRADE-OFFS OF MULTIPLE-BENEFIT CONSERVATION FOCUSED ON BIRDS

ORGANIZERS: THOMAS GARDALI (POINT BLUE CONSERVATION SCIENCE), KRISTEN DYBALA (POINT BLUE CONSERVATION SCIENCE), NATHANIEL SEAVY (POINT BLUE CONSERVATION SCIENCE)

MORNING – FRIDAY (S83)

Conservation continues to be a relatively low social and political priority globally, with precedence given to economic development and, understandably, to basic human health needs. Hence, despite some notable successes, the global loss and degradation of biomes continues at an alarming pace and numbers of at-risk birds continues to grow. While ornithologists have long pointed to birds being excellent indicators of environmental quality, and while conservationists have long espoused the importance of biodiversity and ecosystem functions for human well-being, the multiple benefits of avian conservation to people have not been clearly articulated. The concept of multiple-benefit conservation, a variation on the ecosystem services concept, has been gaining momentum. Multiple-benefit conservation can be defined as projects designed to meet societal needs, enhance ecological function and improve habitat quality for fish and wildlife. Multi-benefit projects can provide benefits such as groundwater recharge, improved air and water quality, and access to recreation. Multiple-benefit conservation has the advantages of being relatively easily understood and communicated, includes ecosystem services without using that term or necessarily including only things that can be monetized, and appeals to the human desire to have our cake and eat it too. That conservation measures focused on birds would also confer other benefits seems obvious, yet there is little empirical evidence that this is the case, and these co-benefits are rarely measured directly. At the same time, conservation measures focused on birds could also result in a reduction, and hence a trade-off, to other project goals or societal values, but these are also rarely measured directly. As a result, there are relatively few examples where bird conservation efforts formally incorporate co-benefits and trade-offs into the decision-making process. For multiple-benefit conservation action and policy to be successful, evidence of true benefits and transparency in trade-offs is required to optimize conservation outcomes.

THE FUTURE OF GLOBAL BIRD TRAIT DATASETS: A GAME-CHANGING RESOURCE FOR MACROECOLOGY, MACROEVOLUTION AND CONSERVATION BIOLOGY?

ORGANIZERS: JOSEPH TOBIAS (IMPERIAL COLLEGE LONDON, UK), MATTHIAS SCHLEUNING (SENCKENBERG BIODIVERSITY AND CLIMATE RESEARCH CENTRE (SBIK-F), GERMANY), CATHERINE SHEARD (UNIVERSITY OF ST ANDREWS, UK)

FULL DAY – FRIDAY (S84, S96, S107)

The influence of functional traits on ecology and evolutionary biology has grown rapidly over recent decades, but most of the attention has thus far focused on plants, partly because they are so amenable to direct measurement by fieldworkers and in herbaria. Botanists measuring traits have paved the way for numerous advances in these fields, particularly in community ecology, as well as global initiatives for sharing and analysing plant trait data. Despite the many advantages of plant traits, macro-scale analyses focusing on these datasets come up against several important limitations, including huge gaps in data sampling (typically <30% species coverage), extreme intraspecific variation, and a relatively tenuous link between morphological traits and ecological functions. To provide a different perspective, the focus is increasingly switching to vertebrate traits, and bird traits in particular.

A massive burst of data-compilation activity has progressed haphazardly worldwide over the past decade, based largely on harvesting information from ornithological literature and measuring anatomical and morphometric traits from museum specimens and wild birds. We have now reached a critical mass of datasets, both published and unpublished, covering a wide range of categorical and continuous traits, relating to many aspects of biology. These trait datasets are now available for almost all species of birds and it's becoming clear that, coupled with comprehensive information on avian geographical ranges and phylogenetic relationships, they can provide a quantitative framework for analyses spanning a wide range of fields, including macroecology, macroevolution, behavioural ecology, community ecology and conservation biology.

The next generation of broad-scale trait-based studies is already underway, and several global projects are approaching major milestones or final completion. In this symposium, we aim to review progress and discuss the key opportunities and challenges ahead. We will focus on the prospects for developing new analytical approaches suited to the higher trophic levels and multitrophic interactions relevant to birds, and for applying these trait-based approaches to ecosystem science and conservation biology. Throughout, we will give particular attention to the ways in which bird traits offer new possibilities, including near-100% species coverage, a clear link between traits and ecological functions, and insights into multi-trophic interactions, for example by linking with plant traits. The overall goal is to kick-start the next phase of trait-based ornithology by highlighting the strengths and uses of avian trait datasets, and the new cuttng-edge methods designed to capitalise on them.

LONG-TERM STUDIES OF CAVITY-NESTING BIRDS: WINDOWS INTO ENVIRONMENTAL CHANGE

ORGANIZERS: RENEE A. DUCKWORTH (UNIVERSITY OF ARIZONA), JEANNE M. FAIR (LOS ALAMOS NATIONAL LABORATORY)

AFTERNOON – FRIDAY (S86, S98)

Cavity-nesting birds that breed in artificial nestboxes have long been the focus of studies worldwide. Nestbox studies have not only provided insight into essentially every aspect of avian ecology including reproduction, environmental stress, parasitism, and behavior, they have also been at the forefront of work on how contaminants and other environmental stresses affect individuals and populations. Long-term studies of birds are increasingly important for establishing and monitoring the impacts of climate change and we suggest that because of the rich history of detailed monitoring of nestbox populations, these systems are uniquely positioned to provide insight into how birds will adapt. Running parallel to studies of nestbox populations are numerous long-term studies of cavity nesting birds breeding in natural populations. These studies provide crucial insight into population responses to environmental change because they highlight the historical selection pressures that shaped cavity-nesting species and so may shed light on how both natural cavity and nestbox populations will respond to environmental change. We propose to bring together researchers working on both nestbox and natural cavity systems to share the unique insights that can only be gained from multi-year datasets and to highlight the benefits of studying cavity nesting species in both their man-made and natural habitats.

SEABIRDS ON THE EDGE OF TWO WORLDS: ECOLOGY AND CONSERVATION OF *BRACHYRAMPHUS* MURRELETS IN MARINE AND TERRESTRIAL ENVIRONMENTS

ORGANIZERS: JAMES RIVERS (OREGON STATE UNIVERSITY), MICHELLE KISSLING

AFTERNOON – FRIDAY (S88, S100)

Seabirds are apex predators in marine food webs, and often are used to monitor marine ecosystem health. Among seabirds, *Brachyramphus* murrelets are unique in several ways. First, they are dispersed nesters, so many aspects of their ecology cannot be examined at breeding colonies as in other seabird species. Second, they typically undertake extensive daily movements between the ocean and nesting sites – sometimes in excess of 200 km round-trip – making them species of two distinct, yet interrelated ecosystems. Finally, *Brachyramphus* murrelets exist on the edge of energetic constraints during breeding owing to their large commuting distances between marine foraging areas and terrestrial nesting sites, and their extensive and intensive habitat requirements. For these reasons, this group has been particularly challenging to study and details of their nesting biology have lagged far behind all other groups in North America. Moreover, both Marbled Murrelet (*B. marmoratus*) and Kittlitz's Murrelet (*B. brevirostris*) have experienced population declines throughout most of their ranges, with the Marbled Murrelet federally listed in Canada and the conterminous United States. Their threatened status and the dearth of information on most aspects of their life history have made research on space use, movement, and nesting biology especially critical for guiding conservation planning and population recovery for these species. In this symposium, participants will provide new information, much of which is not published yet, that enhances our understanding of the ecological importance and conservation needs of *Brachyramphus* murrelets in North America. The symposium is expected to be of interest to a diverse audience, including researchers, government scientists, managers, and policy and decision makers.

TRANSLATIONAL ECOLOGY - PRODUCING ACTIONABLE SCIENCE

ORGANIZERS: SARAH SAUNDERS (NATIONAL AUDUBON SOCIETY), JOANNA WU (NATIONAL AUDUBON SOCIETY), BROOKE BATEMAN (NATIONAL AUDUBON SOCIETY), NICOLE MICHEL (NATIONAL AUDUBON SOCIETY)

AFTERNOON – FRIDAY (S95, S106)

Translational ecology is an intentional approach in which ecologists, stakeholders, and decision-makers work collaboratively to develop and deliver ecological research that addresses the sociological, ecological, and political contexts of an environmental problem. This subfield differs from applied ecology because the latter does not require direct, deliberate engagement of end-users of scientific information, nor does it acknowledge shared responsibility for delivering research outputs that are tangible. Hence, translational ecology is a user-driven, iterative process aimed at producing actionable science that extends beyond use-inspired science to foster meaningful dialogue among multiple parties. This iterative, multi-stakeholder process is similar to adaptive management, but the focus of translational ecology extends beyond managing natural resources. Importantly, translational ecology draws on the concepts and strategies from the social sciences that have been effective at bridging the divide between research and decision-making communities.

In this symposium, we would like to bring together leaders who are specializing in translational ecology to tackle some of today's most pressing issues in avian conservation and management. Ecologists, avian biologists, conservation practitioners, and socialscientistswill share insights and case studies from their work at the intersection of science and practice. Invited talks will highlight (1) recent, successful applications of translational ecology specifically related to birds; (2) the challenges faced during scientist-stakeholder engagement; and (3) ongoing projects that were initiated to explicitly produce science with real-world impacts on avian conservation and policy.

BEST PRACTICES IN COLLECTING SPECIMENS AND CAPTURING FIELD DATA

CARLA CICERO

WEDNESDAY, 12:00–2:00 PM, SUMMIT 7 & 8

This is an opportunistic and challenging time for natural history collections. Advances in research methodologies (e.g., genomics, isotopes, CT scanning) as well as current digitization initiatives are creating unprecedented opportunities for addressing questions in evolutionary biology. At the same time, researchers are challenged with questions of what to collect and best practices for maximizing the value of specimens while recognizing collecting feasibility. In particular, collectors must recognize the trade-off between collecting more specimens with basic parts versus fewer specimens with a greater number and diversity of parts per specimen. Furthermore, collectors must envision the value and feasibility of preparing specimens in less traditional ways. These challenges in the field translate to museum databases, where collection management systems must have the structure and flexibility to accommodate new and emerging parts, attributes, and uses of specimens. Furthermore, systems should employ a standardized terminology on data values such as preparation type to facilitate discovery of specimens. This roundtable discussion will engage the ornithological collections community to discuss and develop sets of best practices that will guide future collecting and database efforts.

SECOND MEETING OF THE R ORNITHOLOGISTS: DISCUSSING RECENT NEWS, ORGANIZATION, AND THE FUTURE IN R IN ORNITHOLOGY

MATTHEW BOONE

WEDNESDAY, 6–7:30 PM, SUMMIT 7 & 8

R is a powerful open source tool for data management, statistical analysis and graphing that is widely used across ecology and within ornithology. With its ever-growing popularity, there is a need for collaboration and meeting of the people who are using and teaching the rapidly developing software program. We hosted our first meeting at AOS 2018 in Tucson. Many like-minded R users came together across very different backgrounds to discuss setting up an R organization within AOS, and how we might be able to address their needs. Since this meeting we have created an open group on Ornithology Exchange. This year's roundtable will continue discussing how to integrate this group into the Ornithology community and the possible structure of an integrated R teaching curriculum within AOS meetings. Anyone is welcome to the round table to learn more about the wide range of ways R can be used in ornithology and how they can be involved, learn more, and contribute to the future of this organization. We encourage people to bring their laptops to the meetings as well as bring any novel R projects they'd like to showcase.

USGS BIRD BANDING LAB: PREPARING FOR THE NEXT CENTURY OF BIRD BANDING

ANTONIO CELIS-MURILLO

WEDNESDAY, 6–9 PM, SUMMIT 9&10

The USGS Bird Banding Laboratory (BBL) is an integrated scientific program established in 1920. It has supported the collection, archiving, management and dissemination of information from banded and marked birds in North America. These data have been critical for studying biological patterns and processes, such as population demographics, trends, morphology and physiology and spatial behaviors of resident and migratory bird populations. The resulting science has been used to inform management and conservation practices. Currently, the BBL is redesigning its data base management system, improving the banding and encounter data submission process, enhancing the curation, archiving and data request process, creating an electronic permitting process, among other major changes. These updates are being made with the goal of developing best practices, while supporting an increased volume of banding data produced by our banding community, a wider array of banding projects, and adapt to many new emerging technologies used in conjunction with the capture and banding of birds. The roundtable discussion is intended to introduce the changes planned by the USGS Bird Banding Lab as we position ourselves to support and advance the science that depends on the capture, banding and/or tagging of birds over the next century. Through the roundtable discussion we are seeking input from scientists that rely on capturing and marking birds to learn about their specific needs and ideas for the BBL in the near future. The facilitated

discussion will be of interest to anyone capturing, tagging (banding, transmitters, geolocators, etc.) or collecting samples (e.g., blood, feather, tissue) from birds or using BBL data in analyses or mapping.

EASTERN GRASSLAND FULL ANNUAL CYCLE CONSERVATION DESIGN

CARA JOOS

THURSDAY, 12:00–2:00 PM, SUMMIT 4

This round table discussion will bring together experts on eastern grassland birds to explore approaches to full annual cycle research that can help to identify those stages of the annual cycle that are most limiting for grassland bird species. Given that populations of several species of conservation concern, such and Northern Bobwhite, Henslow's Sparrow, and Eastern Meadowlark, are largely centered on the central United States, we will facilitate a discussion centered on a project designed to collect habitat-associated demographic data such as adult and juvenile seasonal survival and fecundity at a flyway-scale.

PROFESSIONAL ETHICS IN THE AOS AND ORNITHOLOGY

JEFF BRAWN

THURSDAY, 12:00–1:30 PM, SUMMIT 9 & 10

This round table, hosted by the AOS Professional Ethics Committee and the AOS leadership, will provide interested members with information on the policies, procedures, and resources of the AOS regarding professional ethics. Specific issues available for discussion will include sexual misconduct, discrimination, and scientific misconduct. Attendees will be encouraged to provide feedback to the committee with the goal of the AOS better serving members and the science of ornithology.

BIRDS OF NORTH AMERICA (BNA): THE LATEST AND GREATEST IN DIGITAL NATURAL HISTORY

PAUL RODEWALD

THURSDAY, 12:00–1:00 PM, SUMMIT 11 & 12

Birds of North America (BNA) is the most comprehensive reference for the life histories of over 760 bird species that breed in the United States and Canada and the web's premiere resource for digital natural history. This round table aims to engage original and current BNA authors, as well as those interested in becoming involved in BNA. BNA staff will demonstrate recent advances in BNA species accounts, including new multimedia capabilities, and integration of data products. A discussion will follow with topics to include the process and timing of species account revisions and updates, contributions and authorship, community engagement, and suggestions for future developments.

IF YOU BUILD IT (OR DON'T), THEY WILL COME: LEVERAGING TECHNOLOGY TO GET BIRD STUDIES INTO THE 21ST CENTURY CLASSROOM AND BEYOND

CAITLIN WELSH

THURSDAY, 12:15–1:00 PM, SUMMIT 6

Since its development in 2012, the Motus Wildlife Tracking System (Motus) has steadily incorporated more and more collaborators into the research network that uses automated radio telemetry arrays to study the movements of migratory animals. Alongside development of the Motus Wildlife Tracking System and array expansion, Bird Studies Canada also began to explore how the science and technology could be integrated into educational curriculum. This round table will give any participants interested in discussing conservation education and engagement an opportunity to gain insight from the Motus migration education project. Participants will learn about the three-year content development and piloting process from facilitators' lessons learned while encountering logistical, financial, bureaucratic, and curricular snags, thus allowing participants see how the materials have been able to be adapted for application in schools, zoos, and museums. As the next phase of the project involves expansion of content for students at the secondary level, participants are invited to consider how such interdisciplinary con-

tent might be developed to reach older students that may consider a career in STEAM, as well as imagining other settings in which this content may be applied. By sharing these efforts with fellow researchers and educators, and welcoming perspectives on how to best reach diverse communities, this round table can help professionals in all branches of the field learn how different organizations have approached the challenge of communicating conservation in the 21st century.

USGS BIRD BANDING PERMITTING 101

ANTONIO CELIS-MURILLO

THURSDAY, 6–7 PM, SUMMIT 9 & 10

Following the Migratory Bird Treaty Act (MBTA) and its associated Federal regulations (16 U.S.C. 703-712), a Federal Bird Banding and Marking Permit is required to capture, handle and band and/or mark wild birds. The USGS Bird Banding Laboratory (BBL) is the federal agency responsible for issuing such permits, including master permits and sub-permits. This roundtable is intended to provide a short presentation of the current bird banding permitting process, and how relates to other federal permits, such as the Threatened and Endangered Species permit. Participants will be able to ask general or specific questions related to their banding permits. The facilitated discussion will be of interest to anyone capturing, tagging (banding, transmitters, geolocators, etc.) or collecting samples (e.g., blood, feather, tissue) from birds.

JUGGLING MOTHERHOOD AND ORNITHOLOGY: FROM INCUBATION TO NESTLINGS TO FLEDGLINGS

SUSANNAH LERMAN

FRIDAY, 12:00–1:45 PM, SUMMIT 6

With the mantra "You can be what you can see," visible role models for women during early career stages can address the unique challenges women face when juggling motherhood and career. Such role models have the potential to influence early career women's perspectives on whether it is possible to have children and achieve success in their chosen scientific field. Women make up 50% or more of the student membership in the fields of ecology, behavior, and ornithology, yet fewer women are found in more senior positions in these fields. A "leaky pipeline" hits during the postdoctoral and early career stage, which also coincides with childbearing years. The lack of institutional support or role models might further perpetuate the leaky pipeline, whereby women at the postdoctoral and early career stage might feel as if they have little option but to choose between motherhood and science. Moms (and other primary caretakers) of dependent children have unique experiences that might present challenges for conducting fieldwork, participating in conferences, and engaging in other scientific activities outside the office and lab, all of which ultimately contribute to career advancement. From pregnancy, recovering from birth, and breastfeeding, to coordinating daycare and school activities, diverse and sustained responsibilities can make it more challenging to be scientifically productive. This can create a culture of inequity with mothers experiencing greater disadvantages during critical career stages because of biological and socially driven childcare demands, which further perpetuates the leaky pipeline. Based on feedback from young female ornithologists who have questioned whether they needed to choose between motherhood and science due to the lack of role models, this round table will highlight the unique experiences from a panel of 5-7 mom ornithologists at different career stages and who had children during different stages of their careers (e.g., grad school, postdoc, faculty/permanent position). This topic has generated initial interest from moms and dads, and we aim to provide space for sharing a diversity of perspectives. The round table builds upon the many recent AOS initiatives to increase diversity and inclusivity in the society and science in general (e.g., lactation rooms at conferences, providing travel grants for families, increasing the number of distinguished female speakers). This round table will increase visibility of mom ornithologists, highlight experiences and successful strategies, and send a message to early career scientists that if they choose, having a rewarding career while raising children is possible.

WEDNESDAY ePOSTER SCHEDULE

KIOSK 1	
7:30 pm	*Gutiérrez Vargas IJ, Sandoval LA* Territorial Responses According to Female Reproductive Status in a Species with Long Term Pair Bond and Year Round Territory Defense **(e1)**
8:00 pm	*Hannam KM, Bruetsch L* Do Birds Alter Winter Call Structure and Use in Response to Anthropogenic Noise? **(e2)**
8:30 pm	*Nesbitt ME, McLean L, Roach SP* Syntactical Organization Within the Singing of Hermit Thrush (*Catharus guttatus*) Males **(e3)**
9:00 pm	*Rego MA, Del-Rio GC, Brumfield RT* The Role of Geographical Barriers in Shaping Amazonian Bird Distributions **(e4)**
KIOSK 2	
7:30 pm	*Martinez J, Leberg P* The Effects of Louisiana's Shifting Coastline and Island Characteristics on Seabird Colony Presence **(e5)**
8:00 pm	*Donahue ER, Bryant LC, Wessels JL, Youtz J, Raibley R, Boves TJ* Non-breeding Time Budget and Diet of Loggerhead Shrikes in Northeastern Arkansas **(e6)**
8:30 pm	*Earl A, Kimmitt AA, Simpson RK, Yorzinski JL* Bright Females Dominate: Functional Female Ornamentation in a Lekking Bird **(e7)**
9:00 pm	*Gulson-Castillo ER, Freeman BG, Greeney HF* Coordinated Misdirection: An Intricate Behavior Likely to Distract Potential Nest Predators in the Neotropics **(e8)**
KIOSK 3	
7:30 pm	*Deaner LM, Bowman R* Natal Dispersal Distances of Florida Scrub-Jays in an Expanding Population **(e9)**
8:00 pm	*Pickett AK, Miller RA, Ware H, Carlisle JD* On the Basis of Sex and Age: Differences in Autumn Migration Phenology of Western Migrants **(e10)**
8:30 pm	*Vanausdall RA, Dinsmore SJ* Habitat Associations of Migrant Waterbirds Using Restored Shallow Lakes in Iowa **(e11)**
9:00 pm	*Wadleigh RL, Ribas CC, Knowles LL* Evaluating the Effectiveness of Dispersal Barriers in the Negro River Basin for White Sand Associated Passerines **(e12)**
KIOSK 4	
7:30 pm	*Milbern LC, Matthews SN* Breeding Songbird Habitat Utilization in Urban Riparian Forests **(e13)**
8:00 pm	*Vickers SH, Franco AMA, Michel NL* Dispersal on the Non-breeding Grounds: A Neglected Process at the Heart of Range Dynamics in Migratory Birds **(e14)**
8:30 pm	*Morrison ES, Badyaev AV* Is Ecological Specialization Reflected in Metabolic Network Complexity? A Test With 250 Bird Species **(e15)**
9:00 pm	*Merayo García J, Ruvalcaba Ortega I, Wunder M, Gonzalez Rojas JI, Guzmán Velasco A* Abundance and Occupancy of Mountain Plover in Northeastern México (**e16**)

ePOSTERS

THURSDAY ePOSTER SCHEDULE

KIOSK 1	
7:00 pm	*Durrah AJ* Effects of Colony Size, Disturbance, and Defensive Behavior on Least Tern Productivity on the Mississippi Gulf Coast **(e17)**
7:30 pm	*Luther LR, Wilhite C, Melero A, Price MR* Habitat Selection and Foraging Ecology of the Hawaiian Short-eared Owl **(e18)**
8:00 pm	*Mahon CL, McLeod L, Campbell M, Van Wilgenburg SL, Campbell G* Reaching Our Northern Limits: A Sampling Design for Comprehensive Avian Monitoring in Canada's Boreal Ecoregions **(e19)**
8:30 pm	Martínez-Ruiz M, De Labra-Hernández MA, Renton K Spatiotemporal Variation of Diurnal Raptors in a Dry Forest of Western Mexico **(e20)**
KIOSK 2	
7:00 pm	*Slater GL, Hatten JR, Treadwell JL, Stevenson MR* A Spatial Model of Streaked Horned Lark Breeding Habitat in the Columbia River, USA **(e21)**
7:30 pm	*Herbert JA, Gunn G, Mizrahi D, Taylor CM* How Landscape Structure and Habitat Change Affects the Abundance and Distribution of Wintering Neotropical Migratory Shorebirds **(e22)**
8:00 pm	*Wails CN, Landers T, Gaskin C, Town D, Jones HP* Seabird Responses and Vegetative Succession During Island Recovery **(e23) CANCELLED**
8:30 pm	*Wessels JL, Boves TJ* Cerulean Warbler Habitat Selection, Breeding Biology, Survival, and Movements in the Ozark Region **(e24)**
KIOSK 3	
7:00 pm	*Malpass JS, Peterjohn B, Celis-Murillo A* What's New at the BBL? Preparing for the Next Century of Bird Banding **(e25)**
7:30 pm	*Shultz AJ* The Ornithology Collection of the Natural History Museum of Los Angeles County (LACM) **(e26)**
8:00 pm	*Hart ME, Perez-Umphrey A, Stouffer PC, Taylor SS, Bergeon Burns C, Bonisoli Alquati A, Woltmann S* Seaside Sparrow Nest Survival Following the 2010 Deepwater Horizon Oil Spill **(e27)**
8:30 pm	*Guggenheimer AA, Grace JK* Correlating Body Condition and Habitat Management of Wintering Duck Populations in Texas Wetlands **(e28)**
KIOSK 4	
7:00 pm	*Lindquist MC, Buckland EL, Carpenter JP, Danner RM* Characterizing Movements of Saltmarsh and Seaside Sparrows on Wintering Grounds Using Radio Telemetry **(e29)**
7:30 pm	*Harwood CM, Gates JR, Johnson JA, Lanctot RB, Ruthrauff DR* Alaska Shorebird Conservation Plan, Version III **(e30)**
8:00 pm	*Winchell CS, Doherty Jr. PF* Habitat Selection Parameters for the Coastal California Gnatcatcher: Finding the Sweet Spot **(e31)**
8:30 pm	*Heckscher CM, Mendez D, Aispuro AA, Kneidel AH, Mancuso ML* Miniature GPS data loggers reveal three behavioral strategies and confirm the habitat use of non-migratory Veeries in South America (**e32**)

WEDNESDAY POSTER SESSION

7:30–9:30 pm La Perouse - Explorers Hall

* indicates student presenters eligible for AOS presentation award

Poster	Authors	Poster Title
P101	*Terrones Ramìrez AK, Hernández Baños BE	Genetic Variation on Populations of *Diglossa baritula* (Aves: Thraupidae)
P102	Campbell KK, Winker KS	Additional Evidence Suggests Elevating Numerous Philippine Bird Subspecies to Species Status
P103	Gillette SL, Withrow JJ, Glenn TC, Faircloth BC, Winker KS	Genomic Data Suggest East Asian Mew Gulls and North American Mew Gulls Belong to Separate Biological Species
P104	Halley MR	Graceanna Lewis (1821–1912) and the First Phylogenetic Tree of Birds
P105	*Enloe CM, Kimball RT, Pandey A, Cox WA	The Evolutionary History of Seaside Sparrows in Florida
P106	Sprengelmeyer QD, Gurung A, DaCosta JC, Sorenson MD, Lindsay AR	Phylogenetic Relationships of Loon Species Based on DdRAD-Seq Data
P107	Meeks GW, Anderson CM, Bell DA, Dixon A, Maechtle T, Nakajima K, Kumazawa Y, Novak BJ, Talbot S, White C, Zhan X, Johnson JA	Peregrine Falcon Subspecies Phylogenomics Using Whole-Genome Re-Sequencing
P108	Mosack DA, Maley JM, Tsai WL, McCormack JE	Genomic and Phenotypic Variation in Russet Nightingale-Thrushes
P109	Sonsthagen SA, Wilson RE, Cornman RS, Talbot SL	Adaptation to the Arctic: Community Genomics of Alaskan Galliforms
P110	Pajot LM, Handel CM, Sonsthagen SA, Van Hemert C	Is Geographical Prevalence of Beak Deformities Related to Patterns of Genetic Diversity in Northwestern Crows in Alaska?
P111	Chesser RT, James HF, Bretagnolle V, Estandia A, Levy MA, Welch AJ	Toward a Complete Phylogeny of the Procellariiformes
P112	*Rego MA, Del-Rio GC, Brumfield RT	The Role of Geographical Barriers in Shaping Amazonian Bird Distributions
P113	Musher LJ, Ferreira M, Auerbach AL, McKay J, Cracraft J	Why is Amazonia a 'source' of Biodiversity? Climate-mediated Dispersal and Synchronous Speciation Across the Andes in an Avian Group (Tityrinae)
P114	Lepczyk CA, Klingbeil BT, La Sorte FA, Fink D, Flather CH	Geographic Associations with Anthropogenic Noise Pollution for North American Breeding Birds
P115	*Mayette-Draper EM, Ralston J	The Role of Climate Change in the Northward Range Expansion of Red-bellied Woodpecker (*Melanerpes carolinus*)
P116	*Ramírez-Barrera SM, Velasco JA, Orozco-Téllez TM, Vázquez-López AM, Hernández-Baños BE	What Drives Genetic and Phenotypic Divergence in the Red-crowned Ant-Tanager (*Habia rubica*, Aves: Cardinalidae)
P117	Zhao M, Chang Y, Kimball RT, Zhao J, Lei F, Qu Y	Pleistocene Glaciation Explains the Disjunct Distribution of the Chestnut-vented Nuthatch (Aves, Sittidae)
P118	Spaulding FR, McLaughlin JF, McCracken KG, Glenn TC, Faircloth BC, Winker KS	Population Genomics Infer Different Modes of Speciation with Gene Flow in the Green-winged Teal Complex
P119	Takano OM, Steadman DW	Raptor Evolution in North America Since the Pleistocene
P120	Wait DR, Cicero C, Malik A, Bowie RC	Geographic Variation and Speciation in *Pipilo maculatus*
P121	Weeks BC, Winger BM	The Relationship Between Morphological Change Across Ecological and Macroevolutionary Timescales in Migratory Birds
P122	Winker KS	Heteropatric Speciation in Birds
P123	**CANCELLED**	
P124	Fernando SW, De Silva TN, McCormack J, Peterson AT	Climatic Niche Reconstructions Give New Insights to the Evolution of the New World Jays
P125	Muñoz P, Sandoval L	Social Mimicry Hypotheses in Mixed-species Bird Flocks Tested in Costa Rica's Highland Bird Community
P126	Shahrokhi GG, Patten M	Evolution and Taxonomy Study of Herons in East Africa
P127	Mack AL, Jones J	Exploration of the Structure and Function of the Casque in Cassowaries
P129	Ghimire AA, Vangorder-Braid JT, Sirman AE, Young RC, Westneat D, Heidinger BJ	Body Size and Telomere Dynamics in House Sparrows
P130	Heidinger BJ, Young RC, Kucera AC, Kittilson JD, Westneat DF	The Long and Short of It: Are Telomeres Related to Lifetime Reproductive Success in Free-living House Sparrows?
P131	*Kane MS, Rowley M, Yancy B, Antalffy J, Omland K	Predation of the Bahama Oriole (*Icterus northropi*) by Rats (*Rattus rattus*) on Andros

WEDNESDAY POSTER SESSION (CONTINUED)

7:30–9:30 pm La Perouse - Explorers Hall

* indicates student presenters eligible for AOS presentation award

Poster	Authors	Poster Title
P132	*Harrod WD, Mumme RL*	Effect of Male Desertion on Provisioning, Growth, and Survival of Hooded Warbler Nestlings
P133	*Ridlon AM, Woodman CJ*	Technology and Student Outcomes When Integrating Undergraduate Researchers in Egg Logger Development
P134	*Taylor LU, Mauck RA*	Coordination, Conflict, and Neglect in Biparental Storm-Petrel Incubation
P135	**Conroy E, Nemeth N, Ralston J*	Extra-Pair Parentage in Field Sparrows (*Spizella pusilla*)
P136	**Reel JJ, Underwood TJ*	Behavioral Responses of an Eastern Population of Red-winged Blackbirds to Experimental Brown-headed Cowbird Parasitism
P137	*Young RC, Sirman A, Vangorder-Braid J, Kittilson J, Ghimire A, Westneat DF, Heidinger BJ*	Intergenerational Stress in Parents and Nestling and Telomere Lengths in House Sparrows
P138	**Scribner SE, Neudorf DL*	The Effects of Urbanization on Alarm Call Variation of Carolina Wrens (*Thryothorus ludovicianus*) and Heterospecific Response
P139	*Heuermann TM, Curry RL*	Inter- and Intra-specific Variance in Boldness Behavior of Hybridizing Black-capped and Carolina Chickadees
P140	*Blanche AJ, Chenard KC, Duckworth RA*	Social Context Influences the Expression of Aggression in Zebra Finches
P141	*Chenard KC, Duckworth RA*	Structural Perspectives on the Evolution of Personality
P142	*Finlayson DK, Larsen RT, Knight RN, Phillips SE, Slater SJ*	Golden Eagle Use of Water Features in the West Desert of Utah
P143	*Smith DJ, Bates M, Sokol L, Kutalu T, Ewing EV, Grooms J, Espino A, Espino A, Kreizel KN, Heinisch S, Grandgenett N, Gillespie LM*	'Smart' Nest Boxes: Expediently and Remotely Collecting Avian Data Utilizing Unique Advantages Within Community Colleges
P144	*Ewing EV, Kreizel KN, Espino A, Grooms J, Hurley A, Gillespie LM*	Habitat Features and Similarity in Nest Defense Behavior in Mated Pairs of Eastern Bluebirds
P145	*Oropesa LO, Ewing EV, Gonzalez L, Kreizel KN, Espino A, Gillespie LM*	Possible Hybrid Barn x Cliff Swallows and How Colonial vs Solitary Nesting Behavior May Be Related to Plumage Anomalies
P146	**Mady RP, Bonter DN*	The Effect of Supplemental Food Availability on Avian Space Use
P147	*Varra DM, Redmond LJ, Eroh CS, Haq JI*	The Effect of Predator Threat to Adults on Variation in Gray Catbird Nest Defense
P148	*Reed AN, McRae SB*	Settling Differences: Factors Affecting Nest Size Variation in the Eastern Bluebird
P149	*Shah SS, Rubenstein DR*	Sex-based Difference in Direct Benefits Gained by Immigrants in a Cooperative Breeding Bird with Low Group Relatedness
P150	*Trombley ML, Brazell KA, Lindsay AR*	Avian Feeding Behavior in Response to Alpha-pinene Olfactory Cues
P151	**Zusi LM, Kloepper L*	The Behavior of Swainson's Hawks (*Buteo swainsoni*) During Predation of Brazilian Free-tailed Bats (*Tadarida brasiliensis*) in Flight
P152	*Conkin JA, Bidwell MT*	Space Use by Breeding and Non-breeding Whooping Cranes During the Breeding Season
P153	**Skalos SM, Hull JM, Casazza ML*	Migration, Home Range, and Dispersal of Adult and Juvenile Northern Harriers (*Circus hudsonius*) in Suisun Marsh, California
P154	*Pruitt ML, Smith KG*	Winter Occurrence and Roosting Behavior of Northern Saw-whet Owl in Northwestern Arkansas (USA)
P155	*Vickers SH, Franco AM, Michel NL*	Dispersal on the Non-Breeding Grounds: a Neglected Process at the Heart of Range Dynamics in Migratory Birds
P156	**Guggenheimer AA, Grace JK*	Correlating Body Condition and Habitat Management of Wintering Duck Populations in Texas Wetlands
P157	*Schabert VT, Roberts KA, Contina A, Covino KM*	What Can a Feather Tell Us? A Study of Hydrogen Isotopes and the Migratory Patterns of Common Yellowthroats (*Geothlypis trichas*)
P158	**de Zwaan DR, Wilson S, Gow EA, Martin K*	Sex-specific Variation and Flexibility in Migration Behavior for Alpine Horned Larks
P159	*Fish AC, Blomberg EJ, Roth AM*	Migratory Ecology of American Woodcock (*Scolopax minor*) in Eastern North America

WEDNESDAY POSTER SESSION (CONTINUED)

7:30–9:30 pm La Perouse - Explorers Hall

* indicates student presenters eligible for AOS presentation award

Poster	Authors	Poster Title
P160	*Larson LM, Ralston J	Determining the Variation of Clock Allele Lengths Across Eleven Migratory and Resident Species
P161	Pagano SS, Cavanaugh N, Hudson AO, Border M	Exploring the Physiological Condition of Migratory Songbirds Near Lake Ontario: New Insights from the Gut Microbiota
P162	Smith RJ, Hatch MI	Temperature and Precipitation Experienced Prior to Capture in Northeastern Pennsylvania is Associated with Timing and Body Condition of Gray Catbirds and Common Yellowthroats During Fall Migration
P163	*Stoner DJ, Underwood T	Tree Foraging Preferences of Warblers During Fall Migration Along the Sacony Creek Trail
P164	Watson JL, Paprocki N, Oleyar D, Booms T	Spring 2016-2018 Migration Counts at North America's Northernmost Raptor Migration Site: Gunsight Mountain, Alaska
P165	West AC, Swanson DL	Stopover Biology of Grassland Birds at a Restored Tallgrass Prairie
P166	Schuetz JG, Auer MT	Visualizing Bird Distributions Across the Annual Cycle: New Opportunities and Strategies
P167	Skinner AA, Wright J, Matthews SN, Tonra CM	Using GPS-Tracking to Fill Knowledge Gaps in the Full Annual Cycle of an Elusive Aerial Insectivore in Steep Decline
P168	Crawford CS, Eichholz MW	The Influence of Habitat Characteristics on Northern Bobwhite Population and Spatial Ecology in Southern Illinois
P169	*Rosenblatt CJ, Gates RJ, Matthews SN	Modeling Population Dynamics of the Northern Bobwhite (*Colinus virginianus*) in Ohio
P170	Harms TM, Dinsmore SJ, Jones III OE	Estimating Age- and Sex-specific Annual Survival of Wood Ducks (*Aix sponsa*) in Iowa
P171	*Oliver Brown CC, Carter BE	Testing for Population-level Morphological Variation in Museum Collections of Clark's Nutcrackers
P172	Weiser EL, Thogmartin WE, Will TC	Demographic Models to Support the Endangered Species Act Listing Decision for Golden-winged Warblers
P173	Rowley MG, Eldredge C, Dula M, Curry RL	Impact of Irruptive Black-capped Chickadees on Social Structure of Resident Carolina Chickadees
P174	Bauernfeind SM, Wiley DL, Williamson JL, Fischer SE, Streby HM, Witt CC, Barrow LN	Haemosporidians in Vireos: Insights on Coevolution from a Comparison of Elevational-Replacement Species
P175	McArthur JW, Collins MD	Prevalence and Diversity of Avian Malaria Parasites in a Raptor Community
P176	Gerik DE, Van Hemert C, Zylberberg M, Handel CM, DeRisi JL	Investigating Poecivirus as a Cause of Global Beak Deformities
P177	*Gutierrez-Ramos NA, Acevedo MA	Consequences of Infection by Avian Malaria Parasites in the Urban Forests of Puerto Rico
P178	Krajcir KJ, Matthews AE, Worm AJ, Boves TJ	What Factors Are Related to Feather Mite Abundance Within, and Among, Species of Parulid Warblers?
P179	*Maywald SL, Corbin CE, Williams LM, Hrantiz JM, Henry KW	Potential Environmental Predictors, Blood Meal Analysis, and Larvae Presence of an Important West Nile Virus Vector (*Culex restuans*) in Ruffed Grouse Habitat
P180	Pacheco MA, Cepeda AS, Bernotien R, Matta NE, Valkinas G, Escalante AA	New Primers for PCR Detection and Differential DNA Amplification of Avian Haemosporidian Parasites Belonging to Different Genera
P181	*Paget CJ, Sharp JS, Lindsay AR	Rapid Detection of Avian Blood Parasites and West Nile Virus in the Common Loon Utilizing Loop-mediated Isothermal Amplification
P182	**CANCELLED**	
P183	Martinez V, Grace JK	Living on Edge: Interactions Between Stress Hormones and Blood Parasites in Birds Along Elevation Gradients
P184	Siller SJ	Methylation in the GR Promoter in the Brain and Blood of the European Starling
P185	Kellam JS	Woodpeckers Frequently Use Forest Habitat Damaged by Tornado for Foraging, but Not Nesting
P186	*Foli ES, Gill SA, Vonhof MJ	The Meaning of Song Structure: Exploring Behavioral Responses of Field Sparrows to Three Simple Song Types

THURSDAY POSTER SESSION

7:00–9:00 pm La Perouse - Explorers Hall

* indicates student presenters eligible for AOS presentation award

Poster	Authors	Poster Title
P201	*Carpenter AM, Spellman GM, Klicka J, Burg TM	Making Contact: A Genetic Analysis of Warbling Vireos (*Vireo gilvus*) Across a Contact Zone in Western North America
P202	Borgmann KL, Miller E	The Macaulay Library: An Increasingly Powerful Resource for Research
P203	Brewer DE, Alcantara SG, Fudickar AM	An Urban-Rural Comparison of Song Repertoire Size and Song Characteristics of Song Sparrows
P204	Gomez Murillo L, Kelly JP, Alfonso Cuta C, Pendred M, Tarwater C	Role of Age and Competition in Territorial Aggression in a Tropical Understory Bird
P205	*Sloof CM, Lovell SF, Lein MR	Revisiting Cultural Evolution and Variation of Song in an Isolated Population of Mountain White-crowned Sparrows
P206	*Vitale NE, Brush JM, Powell AN	Factors Limiting Reproductive Success of American Oystercatchers (*Haematopus palliatus*) in Florida's Big Bend
P207	Gibbons RE, Deichmann P	Consistent Fall Nesting of Neotropic Cormorants (*Phalacrocorax brasilianus*) in Coastal Texas
P208	Kreizel KN, Ewing EV, Gonzalez L, Espino A, Koch A, Gillespie LM	Description of Possible Hybrid Barn x Cliff Swallows in East Central Nebraska Identified via Anomalous Plumage Variation
P209	Gonnerman MB, Shea S, Kamath P, Sullivan K, Blomberg E	Influences of Multi-scale Habitat Quality and Female Behavior on Nest Success of Eastern Wild Turkeys
P210	Goodnow BE, Bulluck LP	Regional Variation in the Relationship Between Breeding Phenology and the Onset of Spring
P211	Hoppe IR, Johnson AE	Nest Survival in a Cooperatively Breeding Bird: Do Helpers Mediate the Effects of Poor Environmental Conditions?
P212	Eroh CS, Redmond LJ, Varra DM	The Use of Trail Cameras to Identify Nest Predators of a Population of Gray Catbirds
P213	Johnson TN, DeBano S, Young A, Kennedy PL	Grazing-induced Trophic Relationships and Implications for Grassland Songbirds
P214	Thompson EN, Redmond LJ, Noble D, Haq JI, Fleming M, Patel V	Offspring Sex Ratio Bias in a Pennsylvania Population of Gray Catbirds
P215	Richardson RM, Matsuoka SM, Johnson JA, Romano MD, Taylor AR	Decadal Comparisons of the Nesting Ecology of McKay's Buntings Breeding on St. Matthew Island, Alaska
P216	Spence AR, Socolar JB, Stillman AN, Tingley MW	Population Response to Extreme Temperatures Across North American Bird Ranges
P217	*Pokharel A, DeLong JP	Prey Selection by Migratory Birds of Prey Using DNA Barcoding Technique
P218	Webb EA	Florivory as an Opportunistic but Essential Foraging Strategy for Avian Specialists
P219	Wunderle Jr JM, Lebow PK, Rockwell SM, Powell A, Bearhop S, White JD, Currie D, Ewert DN, Marra PP	Adaptive Fat Regulation in the Mixed Arthropod-Fruit Diet of a Neotropical-Nearctic Migrant on the Wintering Grounds
P220	*Bumelis KH, Cadman MD, Mitchell GW, Hobson KA	Niche Segregation among Three Sympatric Species of Swallows in Southern Ontario
P221	**CANCELLED**	
P222	*Bennett BL, Burton ES, Driver RJ, Curry RL	Won't You Be My Neighbor? Distribution of Nesting Pairs Within a Hybrid-zone Chickadee Population
P223	*Genier CS, Mitchell GW, Falconer M, Branfireun BA, Hobson KA	Dietary Costs and Benefits of Lakeshore vs Aggregate Pit Breeding in Bank Swallows (*Riparia riparia*)
P224	Shustack DP, Wait HL, Gonzalez J	Slate-colored Juncos (*Junco hyemalis*) in Western Massachusetts
P225	Saracco JF, Siegel RB, Helton L, Stock SL, DeSante DF	Phenology and Productivity in a Montane Bird Assemblage: Trends and Responses to Elevation and Climate Variation
P226	Smith DJ, Roe AJ, Winnicki SK, Williams EJ, Hope AG, Boyle WA	Consequences of Severe Drought on Grassland Songbird Reproduction
P227	Weiser EL	Population-level Effects of a Record-setting Spring Snowstorm Are Related to Diet and Migratory Strategy
P228	*Wynia AL, Rolland V, Jimenez JE	A Novel Device to Best Detect Key Woodpeckers: An Experiment with the Magellanic Woodpecker
P229	*Anparasan L, Hobson KA	Tracing Nutrient Sources to Lipid Production in a Passerine Using Stable Isotope (13C, 2H) Tracers
P230	Buck EJ, Buehler DA	Acoustic Monitoring of American Woodcock (*Scolopax minor*) in Tennessee
P231	Howell RG, Larsen RT, Petersen SL, Jensen RR	Using High-resolution SUAS Imagery to Create 3D Models of Greater Sage-Grouse Habitat

THURSDAY POSTER SESSION (CONTINUED)

7:00–9:00 pm La Perouse - Explorers Hall

* indicates student presenters eligible for AOS presentation award

Poster	Authors	Poster Title
P232	Dorn RP, McArthur JW, Boyle SA, Collins MD	Using GIS to Identify Sites for Installation of Barn Owl Nest Boxes
P233	Bergeron LM, Logan C	Modifications to the Bownet Trapping Method to Increase Safety and Efficiency for Medium-sized, Agile Birds
P234	*Diaz-Mendez SN	Using Species Distribution Modeling to Estimate the Distribution of the West Indian Whistling Duck (*Dendrocyna arborea*) in Puerto Rico
P235	Garlinger RD, Curry RL	RFID Technology: Does Tagging Method Matter for Survivorship of Backyard Birds?
P236	*Weyenberg GS, Howells LO, Rumpungworn MD, Paxton KL, Crampton LH, Hart PJ	A Software Tool for Producing Annotations of Prolonged Audio Recordings Using Machine Learning and Deep Neural Networks
P237	Steen VA, Tingley M, Elphick C, Paton P, Clarkson C	Comparing Approaches for Modeling Bird Distributions from Imbalanced and Spatially Biased Data
P238	Ward DH, Stillman RA, River EM, Gilkerson W, Woods KA, Golicher JD, Nolet BA, Clausen P	Range Shifts, Environmental Change and Tipping Points: Predicting Impacts on Long-distance Migratory Herbivores
P239	*Lindquist MC, Buckland EL, Carpenter JP, Danner RM	Characterizing Movements of Saltmarsh and Seaside Sparrows on Wintering Grounds Using Radio Telemetry
P240	*Clarke JR, Master TL	The Northern Waterthrush: Analyzing the Distribution and Abundance of a Secretive Songbird in Pennsylvania
P241	*Medina JJ, Maley JM, Nunn HJ, Grundy KD, Valdez E, McCormack JE	Birds Eye View: 3D Digitization of the Moore Lab of Zoology's Holotype Specimens
P242	Colón-Cruz MC, Pérez-Cruz IJ, Schaffner FC	Post-hurricane Assessment of Abundance and Diversity of Land Birds in Coastal Dry Forest at Jobos Bay
P243	Griffin KR	An Inventory of Katmai National Park's Seabird Colonies
P244	Heglund PJ, Newman J, Stanton J	Putting the Right Habitat, in the Right Places, at the Right Time: Integrated Waterbird Management and Monitoring
P245	*Heintz EC, Tobin EJ, Duke-Sylvester SM	Sex-specific Demography of a Monomorphic Passerine in Southern Louisiana
P246	Hendrickson BJ, Eichholz MW	Distribution, Abundance, and Habitat Selection of Breeding Mississippi Kites (*Ictinia mississippiensis*) in Southern Illinois
P247	**CANCELLED**	
P248	McCloy MW, Glasscock S, Barboza P, Grace JK	Autonomous Recording Units as a Tool for Understanding Resilience in Avian Communities
P249	*Merayo García J, Ruvalcaba Ortega I, Wunder M, Gonzalez Rojas JI, Guzmán Velasco A	Abundance and Occupancy of Mountain Plover in Northeastern México
P250	Morrison LW, Peitz DG	Bird Surveys in Small Geographical Areas: Biases and Tradeoffs
P251	Roper VG, Green L	Using Tree Swallows to Evaluate the Effectiveness of Artificial Wetlands to Support Aerial Insectivores
P252	Ruhl PJ, Kellner KF, Dunning Jr JB	Variables Explaining Early-successional Habitat Associations of Six Mature-forest Bird Species During the Breeding Season
P253	Dzielski SA, Twining CW, Cleckner LB, Razavi NR	The Risks and Benefits of an Emerging Aquatic Insect Diet: Methylmercury in Eastern Phoebe (*Sayornis phoebe*) Chick
P254	Garrison-Tovar PA, James J, Shepherd D, Bolus R	Effects of Aviation Noise on Avian Communication Along a Noise Pollution Gradient
P255	*Donahue ER, Bryant LC, Wessels JL, Youtz JA, Raibley R, Worm AJ, Krajcir KJ, Chabot AA, Hobson KA, Boves TJ	Survival and Non-breeding Habitat Selection of Loggerhead Shrikes in Agricultural Landscapes of Arkansas
P256	*Milbern LC, Matthews SN	Breeding Songbird Habitat Utilization in Urban Riparian Forests
P257	Ferguson SM, Barr JI, Bateman PW	Predictability of the Predator, Not Habituation to Humans, Drives Silver Gull Flight Initiation Distance
P258	Neudorf DL, Barragan GA	Nesting Success of Carolina Wrens in an Urban and a Rural Ecosystem
P259	Beilke SJ, Saunders SP, Rahlin A	Marsh Bird Responses to Urbanization and Urban Wetland Habitat Availability at Multiple Spatial Scales
P260	Taylor SS, Jirinec V, Williams ST, Bresnan AM, Rodrigues PF, Perez Umphrey AA, Rutt CL, Long A, Stouffer PC	Barred Owl Habitat Use Across an Urban Gradient
P261	Harwood CM, Gates HR, Johnson JA, Lanctot RB, Ruthrauff DR	Alaska Shorebird Conservation Plan, Version III
P262	Schaefer RR, Rudolph DC, Williamson JH, Pierce JB, Shackelford CE	Habitat Characteristics of Henslow's Sparrow and LeConte's Sparrow Flush Points in a Small Blackland Prairie in Southeastern Texas

THURSDAY POSTER SESSION (CONTINUED)

7:00–9:00 pm La Perouse - Explorers Hall

* indicates student presenters eligible for AOS presentation award

Poster	Authors	Poster Title
P263	*Gura KB, Bedrosian B, Patla S, Chalfoun AD	Great Gray Owl Home Range and Habitat Selection During the Breeding Season
P264	*Hegg A, Dixon MD, Swanson DL	Invasive Plants and Bird Nesting Success in Missouri River Riparian Forests
P265	Roach MC, Thompson FR	Relationships Between Eastern Whip-poor-will and Chuck-will's-widow Abundance and Landscape Composition and Management
P266	*Schunck F	The Shorebirds May Disappear from Around the Largest City in South America
P267	Schunck F, Silveira LF, Nascimento VS	A New Priority Area for Endemic and Threatened Birds in the Atlantic Forest of Southeastern Brazil
P268	Schunck F	Shorebirds Use the Surroundings of the Largest Urban Area of South America
P269	Schunck F	The People of the Largest City in South America Are Unaware of Their Shorebirds
P270	Fantle-Lepczyk JE, Duffy D, Crampton L, Taylor A, Conant S	An Analysis of Translocation Regimes for the Endangered Puaiohi
P271	*DeJong LN, Proppe D	Multispecies Song Playback Attracts Songbirds to Hardwood Forest Habitats Near and Far from Roads
P272	Gulson-Castillo ER, Winarni NL	Hornbill Conservation in Sulawesi, Indonesia
P273	Fischer PC, Brown J, Bush K, Lorenz T	Engaging Incarcerated People in Avian Research and Conservation: The Sustainability in Prisons Project (SPP)
P274	Pidgeon AM, Politi N, Martinez-Pastur G, Rivera L, Lizarraga L, Martinuzzi S, Radeloff VC	Incorporating Critical Bird Habitat and Climate Resilience in Argentina's Forest Use Plans
P275	Woodman CJ, Brightsmith DJ	Private-Public Partnerships for Intensive Management Skill Building
P276	Yancy BM, McKoy CN, Antalffy JM, Omland KE	Nest Site Characteristics of the Bahama Oriole: Habitat Requirements for a Critically Endangered Species
P277	Glass AJ, Eichholz MW	Grassland Community Responses to Habitat Structure and Management Actions
P278	Kosciuch KL, Howlin S, LeBeau C	A Meta-analysis of Effects of Wind Energy Development on Grouse Survival and Behavior
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Birds on Dynamic Boundaries, Public Lectures, 24–30 June 2019

Alaska Public Lands Information Center (2–3 pm)

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Monday, 24 June	*Liliana Naves, Alaska Department of Fish & Game*	Birds in Alaska Native Subsistence Culture
Tuesday, 25 June	*Erin Cooper, US Forest Service*	Connecting Birds and People Along the Flyway
Wednesday, 26 June	*Amanda Rodewald, Cornell Lab of Ornithology*	Coffee and Bird Conservation: Your Cup Can Make a Difference
Sunday, 30 June	*Irene Liu, Cornell Lab of Ornithology*	Achieving Impact with Conservation Media

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The USGS Ecosystems Mission Area, the biological research arm of the Department of the Interior (DOI), provides science to help America achieve sustainable management and conservation of its biological resources.

Male Yellow Warbler in the Andreafsky Wilderness, Yukon Delta National Wildlife Refuge. Photo by Kristine Sowl, US Fish and Wildlife Service.

Birds on the Edge

Dynamic Boundaries

Works of art by artists invited from Alaska and beyond

Jannah Sexton Atkins
Michael Conti
Graham Dane
Janet Essley
Steven Godfrey
Meg Gravley
Stephen Gray
Mareca Guthrie
Christy Haughey
Linda Infante Lyons
David Joel
Kaitlyn Juba
Chris Judd
Carol Lambert
Kristin Link
Madara Mason
Hugh McPeck
Jennifer Moss
Ree Nancarrow
Karen Olanna
Lisa Pajot
Amberlie Perkin
David Pettibone
Brianna Reagan
David Roon
Leslie Sharpe
Sandra Talbot
James Temte
Patrice Tullai
Levi Werner

June 7 – June 29, 2019

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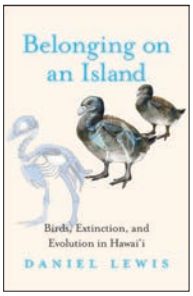

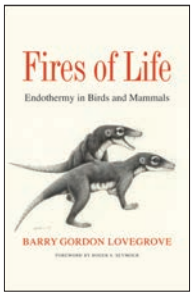

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Leslie Anthony

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Edward B. Barbier

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