Wader Study

Conference Report

TENTH MEETING OF THE WESTERN HEMISPHERE SHOREBIRD GROUP, 11-16 AUGUST 2024, SACKVILLE, NB, CANADA

Julie Paquet, Diana Hamilton, Coni Rivas, River Gates, Rick Lanctot

10th WHSG Conference Organizing Committee: Diana Hamilton (co-chair, MTA), Julie Paquet (co-chair, ECCC), Hilary Mann (ECCC), Sarah Neima (ECCC), Mark Drever (ECCC), Jennie Rausch (ECCC), Janet Ng (ECCC), River Gates (NAS), Richard Lanctot (USFWS), Stephen Brown (Manomet), and Coni Rivas (MTA).

Scientific Committee: Julie Paquet (chair), Veronica d'Amico (CONICET), Stephen Brown, Kirsty Gurney (ECCC), Abril Heredia (Terra Peninsular), Gianco E. Angelozzi (MTA), Scott Flemming (ECCC), Jason Mobley (AQUASIS), Onofre Monteiro (AQUASIS), Maina Handmaker (UMass), Agustina Medina (Aves Uruguay), Eveling Tavera (CORBIDI), Rebeca Linhart (URI) and Coni Rivas.

Student Committee: Janet Ng (chair), Gianco E. Angelozzi, Willow English (ECCC), Sydney Bliss (ECCC), Maina Handmaker, Alexis Araujo Quintero (UNELLEZ) and Coni Rivas.

Lifetime Achievement Awards Committee: River Gates (chair), Diana Hamilton, Veronica d'Amico, Fernando Castillo (Calidris), Osvel Hinojosa (CCSFP, CornellU) and Coni Rivas.

Finance Committee: Mark Drever (chair), Diana Hamilton, Benoit Laliberte (ECCC), River Gates, Richard Lanctot, Paul Smith (ECCC), Ann McKellar (ECCC), and Coni Rivas.

Travel Awards Committee: Richard Lanctot (chair), Kirsty Gurney, Sydney Bliss, Natalia Soledad Martinez Curci (CONICET), Eduardo Palacios (CICESE), Yanira Cifuentes (Calidris) and Coni Rivas.

Communications Committee: Hilary Mann (co-chair), Sarah Neima (co-chair), Julie Paquet, Agustina Medina, Mackenzie Warman (MTA), Veronica d'Amico, Vanessa Loverti (USFWS), Marian Hernandez (UNPSJB), Karina Avila (WQB), Bruno Lima (WQB), Gabriela Contreras (ROC), Sharon Montecino (ROC) and Coni Rivas.

Events Committee: Jennie Rausch (chair), Sarah Neima, Benoit Laliberte, Jen Rock (ECCC), Jordan Myles (NCC), Willow English, and Coni Rivas.

Local Logistics Committee: Diana Hamilton (chair), Hilary Mann, Sarah Neima, Erin MacMillan (MTA), Jen Rock, Margaret Eng (ECCC), Liza Barney (MTA), and Coni Rivas.

Local Volunteers: Mikko McGregor Corson (MTA), Sophie Gamble (MTA), Sophia Fraser (MTA), Katie Danyk (MTA), Mary From (MTA), Ethan Nicholson (MTA), Heidi O'Connor (MTA), Allie Hjort Toms (MTA), Sally Smart (MTA Finance), Devin deZwaan (ECCC), Rachel Dow (U of Windsor).

Oral Session and Plenary Chairs: Jennifer Linscott (UMass), Rebeca Linhart, Daniel Ruthrauff (USGS), Morgan Zeigenhorn (UdeM), Vanessa Loverti, Veronica d'Amico, Agustina Medina, Kirsty Gurney, Sydney Marie Jones (USask), Ann McKellar, Andres Rosales (USask), Jose Valdebenito (UAC), Shiloh Schulte (Manomet), Richard Lanctot, Juliana Almeida (Manomet), Guillermo Fernandez (UNAM), Janet Ng, Scott McWilliams (URI), Dina Luz Estupiñan (Calidris), Rob Clay (Manomet), Diego Luna Quevedo (Manomet), Jeisson Zamudio (Manomet), Erik Blomberg (UMaine), Roman Alejandro Canul Turriza ([UAC), Laura Ibarra-Flores (UABC), Medardo Cruz-Lopez (CSFP, UCornell), Caz Taylor (TulaneU), Benoît Laliberté, Natalia Martinez Curci.

The 10th conference of the Western Hemisphere Shorebird Group (WHSG) was held at Mount Allison University in Sackville, New Brunswick, Canada, from 11-16 August 2024. It was the first to use a hybrid meeting model, offering both in-person and online attendance options. The meeting welcomed 273 participants in person and an additional 46 participants online from 20 countries in the Western Hemisphere, and three from countries in Europe. There were three international plenary speakers (Luis Espinoza, Sandra Giner, and Robert Gill), an introductory poetry and photography presentation by renowned Atlantic Canadian artists Thaddeus Holownia and Harry Thurston, nine symposia comprising 106 oral presentations, fourteen thematic sessions comprising 82 oral presentations, and 43 poster presentations. In addition, there were eight workshops and 10 working group or special topic side-meetings, ranging from methodological and social training, species- and issue-driven groups, flyway meetings, and the WHSG Executive Committee meeting. Simultaneous translation (English/Spanish) at most conference events was provided by Robert Eden Clingan Bretado, José Rafael Torres Espino and Efrén Esquivel Obregón. The book of abstracts is available at: http://westernshorebirdgroup.org/. In addition to the formal program, there were excursions organised by WHSG to visit the Bay of Fundy UNESCO World Heritage Site to view shorebirds and the world's largest tides, a cultural trip to Prince Edward Island, Canada's smallest province and home to Prince Edward Island National Park and Green Gables Heritage House, and a journey into the past exploring regional historical and archaeological sites such as Fort Beausejour National Historic Site and the Joggins' Fossil Cliffs UNESCO World Heritage Site, home of many fossils from the Carboniferous period.

The next meeting will be at La Paz, Baja California Sur, Mexico, tentatively set for 16-20 November 2026; the meeting will be co-chaired by Dr. Eduardo Palacios (CICESE) and Dr. Daniel Galindo (UABCS) and hosted by Terra Peninsular.

TRAVEL AWARDS & GENERAL MEETING SUPPORT

The Travel Award Committee provided full or partial financial and logistical support for 75 Western Hemisphere participants, including Latin American professionals and students, and North American students. These awards and support for other aspects of the meeting were made possible by generous donations by Environment and Climate Change Canada, Knobloch Family Foundation, Point Blue Conservation Science,

March Conservation Fund, National Audubon Society, U.S. Forest Service International Programs, WHSG, Lotek Wireless Inc., Mississippi Flyway Council, Central Flyway Council, Pacific Flyway Council, Atlantic Flyway Council, USFWS Alaska Region, Zeiss (Gentec), Vortex, Wildlife Acoustics, Pathtrack Ltd., Ducks Unlimited Canada, Mount Allison University, the municipality of Tantramar (NB), and the province of Nova Scotia. We appreciate the many other organizations that partially or fully funded "their" own people to attend the meeting. Mount Allison University, International Conservation Fund of Canada and Manomet Conservation Sciences provided administrative support. The Silent Auction was a huge success that helped raise over $4000 CAD in travel award funds for the next meeting.

EXECUTIVE COMMITTEE MEETING

The Western Hemisphere Shorebird Group Executive Committee (ExCo) discussed several key updates and decisions during the 10th WHSG meeting in Sackville, Canada, on 16 August 2024. The first decision was to accept the application by CICESE, UABCS and Terra Peninsular A. C. to hold the 2026 WHSG Conference in La Paz, Baja California Sur, Mexico. The second decision was to actively recruit for the Chair and Treasurer positions and then hold a vote for these positions as well as the Southern South America Representative. This vote was planned to take place in September to October 2024. The third decision was to reduce the duration of time each member of the ExCo served from six to four years. The WHSG ExCo also discussed the current financial status and the sustainability of travel and award funding. The organizers of the 10th WHSG raised > 150,000 CDN for travel awards, which allowed 75 out of 109 applicants to attend the WHSG. This was an unusually high amount of funds raised and something likely not to happen again in future meetings. It was also the first time we could not provide travel awards to every applicant. The committee emphasized encouraging attendees to save for future meeting travel and considered limiting the number of awards per individual. The ExCo discussed and agreed to offer two new achievement awards at the 11th WHSG meeting, possibly focused on young professionals. It was proposed that a subcommittee would be set up to decide more formally the nature of these awards and how award funds would be generated in the upcoming year. Finally, the ExCo discussed the possibility of establishing a 501(c)(3) nonprofit organization and formal membership to better manage funds and voting processes going forward. Again, additional discussion would be needed at upcoming ExCo meetings.

At the time of this writing (18 March 2025), three new ExCo members have been elected and the Terms of Reference for the WHSG has been updated. See this information at WesternShorebirdBirdGroup.org

AWARDS

Awards were presented during the Banquet Awards Ceremony on the last day of the conference, including Lifetime Achievement Awards for shorebird Science and Conservation (*http://western- shorebirdgroup.org/awards/*), the Pablo Canevari Award for Shorebird Conservation from Latin American or the Caribbean, the WHSRN Linking Sites award, and the best oral and best poster presentation award. The Lifetime Achievement award winners were given beautiful hand-painted plates created by Rocío Landivar and $500 USD.

The *Allan Baker Lifetime Achievement Award for Shorebird Conservation* was given to two recipients in 2024 - Patricia Gonzalez and Brad Andres - in recognition of their exceptional leadership, dedication, and vision, which has profoundly influenced the conservation and management of shorebirds throughout the Western Hemisphere.

Patricia González, Lic. is the Wetlands Program Coordinator at the Inalafquen Foundation in San Antonio Oeste, Argentina. She has had a remarkable career, focused on the ecology of migration and survival of the *rufa* Red Knot. She has dedicated herself to the conservation of shorebirds in numerous significant areas including San Antonio Bay (Río Negro) and Río Grande (Tierra del Fuego) in Argentina; Lagoa do Piexe and Maranhão in Brazil; Delaware Bay in the United States; and Mingan in Canada. She became the Shorebird Program Coordinator at (ICFC) in 2015. Within this framework, she has supported conservation projects in key shorebird sites in South America. Patricia has successfully engaged local communities in the conservation of shorebirds, shifting traditional perspectives and fostering greater appreciation and protection of migratory birds. Her research involves trapping, banding, and tracking shorebirds with new technologies to study migration, survival rates, molt, and physiological status, among other topics. She has made over 90 presentations at conferences and meetings and has authored over 100 technical reports and scientific publications. She is a member of the Executive Committee of the International Wader Study Group, Global Flyway Network, and Atlantic Flyway Shorebird Initiative. She was the first recipient of the Pablo Canevari Award for Shorebird Conservation in 2000, awarded by the Western Hemisphere Shorebird Reserves Network (WHSRN). Alongside Allan Baker, Patricia has taught students, park rangers, and volunteers about the ecology and conservation of shorebirds, promoting scientific knowledge and the conservation of key sites. Patricia's dedication to the conservation of shorebirds is an inspiring example of how science and passion can come together to protect our natural world. Her work continues to influence the conservation of these migratory species and their critical habitats across the Americas.

Dr. Brad Andres has been instrumental in fostering collaboration and partnership among diverse stakeholders during his 30-year career with the U.S. Fish and Wildlife Service. Brad demonstrated exemplary leadership in advancing shorebird conservation initiatives including facilitating the U.S. Shorebird Conservation Partnership Council, and co-developing the Atlantic, Pacific, and Midcontinent Flyway Shorebird Conservation Strategies. Brad has been a driving force in raising awareness about the conservation status of shorebirds. His contributions have been vital in prioritizing, guiding, and evaluating conservation actions, and effectively allocating resources. Brad’s contributions were integral to the development and success of the Program for Regional and International Shorebird Monitoring, which continues to provide important status and trend information for Arctic and sub-Arctic breeding shorebirds and was instrumental in the completion of the Shorebird Atlases for Peru and Chile. He led the compilation of the USFWS’ latest Birds of Conservation Concern list and made significant contributions to the State of the Birds reports, the Road to Recovery Tipping Point Species list, Watchlist, and others. His ability to identify critical issues, bridge divides, navigate nuanced policy, and forge alliances has strengthened the collective efforts of the shorebird community in addressing complex challenges. Brad’s dedication to communicating with diverse audiences about shorebirds has informed and inspired many. He is a prolific scientific writer and has contributed over 110 technical reports

and peer-reviewed papers. Brad's numerous popular articles about shorebirds underscore his commitment to engaging with the public about shorebirds. Brad's vision and leadership led to the first Western Hemisphere Shorebird Group meeting in Boulder, Colorado, in 2006, fostering a culture of scientific expertise, international collaborations, and opportunities for effective conservation of shorebirds and their habitats.

The *Lewis W. Oring Lifetime Achievement Award for Shorebird Science* was given to two recipients in 2024 - Cheri Gratto-Trevor and Erica Nol - in recognition of their exceptional leadership, dedication, and vision in conducting research, which has profoundly influenced the science and management of shorebirds throughout the Western Hemisphere.

Dr. Cheri Gratto-Trevor is an accomplished researcher and a leader in the field of shorebird biology, who has had a far-reaching impact on the conservation and management of shorebirds through her 40-plus years of scientific investigation and mentorship. Employed as a Research Scientist at Environment and Climate Change Canada (Prairie and Northern Wildlife Research Centre, Saskatoon, Saskatchewan) since 1989, she is a well-known expert in shorebird biology, leading collaborative investigations of demographic mechanisms of population regulation, migratory connectivity, population genetics, and foraging ecology, among others. Cheri's diverse research publications are highly cited (>3100 times) and have substantially advanced our knowledge base for a diverse range of shorebird species. Cheri's body of work is foundational to the effective conservation of shorebirds throughout the Western Hemisphere. Her efforts to better understand the annual life cycle of the endangered Piping Plover have helped to identify previously unknown areas used by the species, guiding management agencies to develop conservation plans that prioritize the protection of both non-breeding and breeding habitats. Cheri continues to mentor the next generation of avian enthusiasts. She provides particularly important leadership related to the trapping and marking of shorebirds to ensure that anyone who handles a shorebird can do so in a safe and ethical manner. In addition to producing The North American Bander's Manual for Shorebirds, she was a key contributor to the development of the Pan American Shorebird Program Marking Protocol, and to the development of hands-on shorebird bander training and North American Banding Council certification. As a certified trainer, she has led multiple workshops in Canada, as well as in Central and South America, helping to provide all shorebird banders the resources they need to uphold scientific and ethical standards. As one of the first broadly published female shorebird scientists in North America, Cheri has been a role model to countless young biologists over the course of her career. Her wealth of knowledge, sense of humor, and willingness to share her experiences have made her a favorite with the students, who refer to her affectionately as the "oracle."

For more than 45 years, Dr. Erica Nol has been a leader in the shorebird research community. Beginning with work on Piping Plovers and then Kildeer during her MSc, followed by a PhD on American Oystercatchers under the supervision of Allan Baker, Erica has studied shorebirds throughout the Western Hemisphere and around the world. A common theme of her work is the life history and environmental drivers of variation in reproductive success, and she is perhaps best known for her long-term study of Semipalmated Plovers and other species in Churchill, Manitoba; one of the longest-running studies of reproductive ecology of shorebirds in the world. Erica is passionate

about teaching, and one of her greatest contributions to the field of ornithology is the legacy of students that she has mentored. She has supervised 75 graduate students at her home institution of Trent University and has participated in committees for innumerable other students at schools including the University of Toronto, Guelph University, and Tulane University. She takes great pride in instilling a sense of wonder for the natural world and building an appreciation for science and conservation. She has shaped the careers of many people, and her past students are spread throughout academia, government science and conservation organizations. Erica is extremely active in both research and conservation, having authored more than 175 scientific publications, as well as numerous contributions to shorebird conservation plans and working groups (Oystercatcher, Whimbrel, Yellowlegs, Piping Plovers and others). Her work has provided important scientific and conservation insights into the impacts of climate change on habitat availability in the sub-Arctic, the effects of beach disturbance on wintering shorebirds, the links between environmental variation and reproductive output, and the impacts of overabundant geese on Arctic-breeding shorebird species. Erica has been widely recognized for her leadership in ornithological research, and her mentorship of young researchers. She has been a recipient of the Loye and Alden Miller Research Award from the American Ornithological Society, the Robert Cushman Murphy Prize from the Waterbird Society, the James M. N. Smith Mentoring Award and the Doris Huestis Speirs Award from the Society of Canadian Ornithologists, and the Distinguished Ornithologist Award from the Ontario Field Ornithologists. She has served as president of both the Society of Canadian Ornithologists, and the Waterbird Society, as well as the Chair of her department. She has received numerous awards from Trent University for her research excellence, and her outstanding service to the University.

Every two years, Manomet Conservation Sciences and WHSRN present the *Pablo Canevari Award* to an individual or organization from Latin America or the Caribbean with an outstanding commitment to shorebird conservation. Rob Clay presented the award to Dr. Sandra Giner from the University of Central Venezuela. Sandra is a pioneer in shorebird research and conservation in Venezuela and has coordinated the National Shorebird Conservation Group, from which she led the proposal that led to the designation of the first WHSRN site of International Importance in the country, Salina Solar Los Olivitos. She has also trained people from different regions of the country, including remote areas, where she has influenced the integration of representatives of indigenous ethnic groups who are active as volunteers for shorebird surveys in the towns on the west coast of the country.

Rob Clay also presented the WHSRN *Linking Sites award* to Dr. Jim Chu, who recently retired from the US Forest Service's International Program. This award celebrates individuals who exemplify the network's mission of connecting sites and communities to advance shorebird conservation. Much of Jim's work was focused on connecting people from important shorebird sites to foster collaborations and partnership work. His efforts always went a step further, generating friendships that have lasted for decades, which have been built on trust and commitment, and that became more than just working relationships. One of the parts of the job that Jim enjoyed most was identifying and supporting the enthusiasm of young researchers and conservationists in Latin America. Support that translates into generations of enthusiasts who have taken shorebird conservation one step further each time, leaving a legacy in every corner of the continent, with almost every shorebird species, which will endure through time.

Margaret Eng and Diana Hamilton presented the *Best Oral Paper Award* to Lindsay Hermanns from Virginia Polytechnic Institute and State University (Virginia Tech) who gave an online presentation on "Breeding site weather and non-breeding habitat affect the survival of an Arctic-breeding shorebird". The *Runner up Oral Paper Award* went to Sophia Fraser from Mount Allison University for her talk titled “Effects of severe weather on staging juvenile semipalmated plovers: evidence of disrupted refueling and delayed departures in the Western Atlantic Flyway.”

Margaret and Diana also presented the *Best Poster Award* to Erin MacMillan from Mount Allison University for her poster on “Microplastics in Red Knot habitat, prey, and feces at Banco dos Cajuais WHSRN site, Ceará, Brazil.” The *Runner-up Poster Award* went to Julian Garcia Walther from University of Massachusetts for his poster on “The first Motus network in Northwestern Mexico.”

SYMPOSIA

Beyond Boundaries: using modern methodology to understand site boundaries, shorebird habitat uses, and conservation implications

Organized by Rebeca Linhart (URI) and Jennifer Linscott (UMass)

Researchers and managers are often tasked with making conservation decisions for shorebird populations based on highly refined, human-based political boundaries. But how are birds using these sites, and how does this impact the way we should be managing these habitats? This symposium brought together researchers and managers from multiple flyways across the Western Hemisphere to explore this idea. Each session of the symposium had a theme. During the first session exploring the conceptual approach to defining site boundaries, Rob Clay explained how shorebirds gather at key sites during migration, but new data shows they are increasingly dispersed, highlighting the need for updated conservation criteria that consider changing habitats and different lifecycle stages. This was followed by Autumn-Lynn Harrison (Smithsonian) who showed how the Shorebird Science and Conservation Collective uses GPS tracking data from over 6.7 million shorebird locations to inform conservation efforts, helping define key habitats and improve site-specific actions like habitat creation and risk assessments. Nils Warnock (ACR) presented how 30 years of research tracking Western Sandpiper migration helped identify key stopover sites like San Francisco Bay and the Copper River Delta, but that varying bird preferences and habitat quality has made it difficult to pinpoint consistent priority sites. Then, Rebeca Linhart showed how small shorebird staging sites can support higher diversity and numbers of birds than larger sites, highlighting the need to include both site sizes in conservation planning. The second session focused on outlining new and emerging methodologies for understanding shorebird site use. Jennifer Linscott explained that tracking data provides new insights into shorebird migration, but how stopover sites are defined greatly affects the analysis of site use, habitat preferences, and vulnerability, with spatiotemporal definitions having a greater impact than the statistical methods used. Blake Barbaree (Point Blue) highlighted that shorebird declines in North America correlate with wetland loss in the Pacific Flyway, and remotely sensed data is being used to assess how changes in wetland availability, such as drought, impact shorebird behavior and body condition, especially in California’s Central Valley, informing future conservation efforts. Devin

de Zwann (MTA, ECCC) used Motus data from 7 shorebird species over eight years to reveal key migration pathways through Maritime Canada, emphasizing the need for conservation efforts to protect important stopover sites and mitigate risks from habitat degradation and infrastructure. Maximino Rice Maldonado (UAS) presented a study showing that Willets (*Tringa semipalmata*) exhibit strong site fidelity to a wetland complex in Sinaloa, Mexico, returning annually during the non-breeding season, emphasizing the value of shrimp farms as essential feeding and refuge areas for migratory shorebirds, and suggesting that proper management of these areas can support shorebird conservation. Finally, John Herbert's (Mass Audubon, TulaneU) study on Semipalmated Sandpipers showed that during spring migration, the birds stay longer at higher quality sites on the northern Gulf of Mexico coast, helping them reach breeding grounds earlier. The research emphasized the importance of protecting these coastal wetlands due to increasing threats. The final session of this symposium addressed the application of methodologies to improve shorebird conservation throughout the Western Hemisphere. Allie Hjort Toms' (MTA) study in the Northumberland Strait revealed that shorebird abundance is affected by sediment type, moisture, nutrients, and invertebrate biomass, with small sandpipers preferring finer sediments and plovers linked to gastropods. Shelby McCahon's (UIdaho) study in the Prairie Pothole Region explored how agricultural wetlands provide shorebirds with foraging opportunities but also pose risks due to reduced invertebrate biomass and insecticide exposure. It aims to identify optimal wetland conditions for shorebirds while considering agriculture's impact on habitat quality. Joaquín Aldabe (Manomet, URU) presented a study on Buff-breasted Sandpipers in Uruguay that showed that most birds move between wintering sites, including some traveling to southern Brazil and Buenos Aires, revealing new sites of importance and leading to more accurate abundance estimates and conservation efforts. Rob Clay talked about how the Western Hemisphere Shorebird Reserve Network (WHSRN), established in 1985, conserves vital shorebird habitats across the Americas. It includes 123 sites in 20 countries, with boundaries defined by land ownership and key habitats. The network involves various management entities and aims to protect important breeding, stopover, and wintering areas for shorebirds. And finally, José Onofre N. Monteiro presented a study in northeastern Brazil that explored shorebird habitat use during the non-breeding season, focusing on species like *Calidris canutus* and *Calidris pusilla*. Researchers found varying occupancy rates, with *C. canutus* showing the lowest. This highlights the vulnerability of shorebirds in Brazil's semi-arid coastal region and provides insights for conservation strategies to protect these critical habitats. In summary, this symposium highlighted a variety of new and emerging techniques used to quantify shorebird movement and habitat use across the Western Hemisphere. Presentations revealed the value of tracking technology in addition to the utility of rich data sources like stable isotopes, remote sensing, and community science data. However, it is clear additional work should be done to integrate these types of data into conservation planning and policy making.

Hemispheric knowledge and conservation of shorebirds in human-dominated landscapes

Organized by Andres N. Rosales (USask), Alexis Araujo Quintero (UNELLEZ), Ann McKellar (ECCC), Sydney Marie Jones (USask), Kirsty Gurney (ECCC)

In an era of rapid anthropogenic development, many habitats used by shorebirds, including grasslands, intertidal foraging areas, and saline lakes, have been significantly

degraded by human activity. Throughout their ranges and across their annual cycles, long-distance migratory shorebirds are particularly vulnerable to threats related to these activities, which include water management, agriculture, and urbanization. Effective shorebird conservation requires understanding how variation in migratory patterns and behaviors, resource use, and population trends interact with habitat loss, modification, and use. Insights into these complex interactions may inform strategies for habitat preservation and policy action across often-expansive breeding and nonbreeding ranges, migratory corridors, and staging sites of shorebirds. There is an urgent need to integrate biodiversity infrastructure within working landscapes. The symposium aimed to 1) bring together experts across diverse fields, with a focus on student presenters, to explore how various aspects of shorebird biology interact and influence populations in human-dominated landscapes; and 2) feature talks spanning diverse species, geographic regions, and habitat types including breeding, staging, and non-breeding areas. Presentations focused on current efforts to conserve and manage landscapes shared by humans and shorebirds across seven countries in North and South America. Organized geographically, the talks inherently highlighted the challenges and ecological constraints shorebirds encounter throughout their annual cycle. The symposium opened with an overview of the Midcontinent Shorebird Conservation Initiative by Kelli Stone (USFWS), which engages scientists, land managers, and conservation practitioners across 18 countries and territories to address threats and develop strategies for shorebird conservation in the Midcontinent Flyway. Four speakers addressed habitat conversion and incompatible agricultural practices—key threats identified in the MSCI. Kelsey Freitag (TRU) discussed habitat loss impacts on the Long-billed Curlew, while Andres N. Rosales examined agrochemical exposure in breeding Upland Sandpipers. Tara Rodkey (Texas A&M) highlighted the reliance of Buff-breasted Sandpipers on sod production in the Texas Coastal Plain, and Alexis Araujo Quintero emphasized the role of rice fields in Venezuela's Llanos as critical shorebird habitats. Complementing research on habitat conversion, tracking studies on MSCI focal species continue to provide critical insights into migratory routes, space use, and connectivity to guide conservation efforts. Sydney Miller (TRU) presented findings on migratory routes and abundance of Wilson's Phalaropes, Sydney-Marie Jones shared research on Upland Sandpiper connectivity and population structure, and Ann McKellar highlighted sex-specific migratory routes and nonbreeding areas of Marbled Godwits. As identified by the MSCI, incompatible livestock ranching practices are a particular concern for shorebirds in South America. Case studies integrating conservation with grazing management were presented from the Colombia Llanos (Carlos Ruiz-Guerra, Calidris), Bolivia's Beni Savannas (Tjalle Boorsma, Asociación Armonía), and Uruguay (Joaquín Aldabe). With MSCI framing the symposium, collaborative initiatives in the Midcontinent were a central focus. David Newstead (CBBEP) shared updates on the Texas Coast Migratory Shorebird Habitat Initiative, while Carlos Barriga Vallejo (PNE) discussed community-led shorebird monitoring in northeast Mexico. Both initiatives demonstrate strategies that effectively balance ecological conservation and human needs.

Program for Regional and International Shorebird Monitoring: Advances in Shorebird Monitoring

Organized by Stephen Brown (Manomet) and Guillermo Fernandez (Universidad Nacional Autónoma de México [UNAM])

This symposium provided updates on multiple species monitoring programs and single species monitoring efforts that collectively help meet the goal of the Program for Regional and International Shorebird Monitoring that all shorebirds in the Western Hemisphere are monitored with precision adequate to determine population trends and conservation status. PRISM is a collaborative effort bringing together organizations and scientists across the hemisphere to address monitoring needs in breeding, migration, and non-breeding areas. Achieving the overall goal requires many partners to work collaboratively to monitor populations across an enormous geography, and all efforts to monitor shorebirds contribute to this overall goal. This symposium included presentations on developments in monitoring programs across the hemisphere, from focal species and local efforts to multiple species and large-scale efforts. Monitoring shorebird populations is a critical component of efforts to recover their populations because it guides both decisions about what species most need recovery effort and helps assess whether those conservation efforts are working. We included a range of efforts to monitor groups of species and focal species and showcase the developments in tracking shorebird populations over time. The symposium brought together 10 presentations on monitoring non-breeding areas and species, five on migrating species and areas, and four on monitoring breeding areas and species. Because of the total 19 presentations, we do not attempt to summarize them all here but direct those interested in more detail to the abstract book, which has details for all the presentations in each life history stage.

Understanding the full annual cycle of American Woodcock: the value of multi-agency, multi-university collaborative projects

Organized by Erik Blomberg (UMaine) and Scott McWilliams (URI)

American Woodcock is considered a species of conservation concern in the northeastern U.S. because of population declines related to loss and degradation of habitat. The Eastern Woodcock Migratory Research Cooperative is a collaborative group of biologists and managers interested in understanding the ecology of American Woodcock in the context of the full annual cycle and its implications for conservation. This symposium included presentations on several key themes that have been the focus of these recent studies: (1) the ecology of woodcock migration (e.g., timing, stopover ecology, movements and pathways, carry-over effects) and how this relates to population indices; (2) how migration and reproduction of both males and females overlap in space and time (i.e., itinerant breeding) and its implications for management; (3) habitat use and resource selection throughout the annual cycle; (4) the extent to which habitat management for woodcock benefits nontarget birds. All 10 presenters and their co-authors emphasized the scientific results of these studies, the implications of this new knowledge for woodcock conservation, and the lessons learned about this species that directly relate to our understanding of many other migratory shorebirds. The symposium included diverse perspectives and voices in that co-authors include 34+ agency biologists from almost every state and province in the Atlantic Flyway as well as federal agency and NGO biologists from the region. Colby Slezak (URI) began the symposium with a talk about the unconventional life-history of migratory woodcock that includes combining reproduction and migration periods of the annual cycle and remarkable movements by females (on average 800+ km) between nesting attempts. Rachel Darling (UMaine) presented on over-water migration of woodcock across the Gulf of Maine in relation to offshore wind energy development. Sarah Clements (UMaine) discussed how satellite tracking of American Woodcock revealed a gradient

of migration strategies rather than distinct population-specific strategies. Liam Berigan (UMaine) examined individual variation in American Woodcock habitat selection throughout the full annual cycle. Kylie Brunette (UMaine) discussed habitat associations of American Woodcock on reclaimed surface mines in West Virginia. Erik Blomberg evaluated the phenology of male woodcock migration in relation to the timing of the traditional Singing Ground Survey, a monitoring program that estimates annual changes in relative abundance at a flyway-scale. Steve Brenner (Nebraska) described American Woodcock movements, migratory patterns and habitat selection at the edge of their continental range in altered grassland ecosystems of the upper Midwest U.S. Clay Graham (USFWS) described his multi-year study of the cross-seasonal effects of fall habitat use and body condition of American Woodcock on their fall migration strategies and wintering destinations. Megan Gray and Liam Corcoran (URI) described their field studies testing the umbrella species concept for forested landscapes in southern New England. They compared reproductive success of Eastern Whip-poor Will, Eastern Towhees and Prairie Warblers in management areas determined to be of high or low quality for woodcock.

Shorebird Conservation at Scale: Flyway Conservation Initiatives in the Americas

Organized by Rob Clay and Juliana de Almeida (Manomet)

Flyway-scale shorebird conservation requires collaboration across diverse environments, societal sectors, and cultures. Beginning in 2011, shorebird conservationists have developed conservation strategic frameworks (or investment strategies), which place local action within a flyway context and facilitate collaboration at the scales necessary to be effective — at the population level. The Atlantic Flyway Shorebird Initiative, the first effort, published a strategy and business plan in 2015 with the Pacific Shorebird Conservation Initiative following with a strategy in 2016. In 2015 the Arctic Council, through the Conservation of Arctic Flora and Fauna working group launched the Arctic Migratory Bird Initiative. A process to develop a strategy for the Midcontinent Americas Flyway was launched at the 8th Western Hemisphere Shorebird Group Panama meeting in 2019. The shorebird conservation strategic frameworks assemble and synthesize current knowledge to create a comprehensive (and full annual cycle) approach for addressing the most pressing conservation needs of shorebirds in the three flyways of the Americas. Each framework is supported by a voluntary partnership of organizations (brought together as a flyway-specific initiative), which seeks to implement a set of key strategies to achieve the goal of maintaining and restoring shorebird populations across the Western Hemisphere. While shorebird conservation is the primary goal, the initiatives supporting the strategies have increasingly sought to implement actions to address multiple benefits, including improving the wellbeing of the human communities that interact with shorebirds. Shiloh Schulte started by laying out a history of the development of flyway-scale initiatives and was followed by Juliana Bosi de Almeida, River Gates, Isadora Angarita-Martinez and Benoît Laliberté who each presented progress and updates for the Atlantic Flyway Shorebird Initiative, the Pacific Shorebird Conservation Initiative, the Arctic Migratory Bird Initiative, and the Midcontinent Shorebird Conservation Initiative. Paul R. Schmidt (Road to Recovery, Georgetown University) then discussed blending the Road to Recovery and the Flyways Initiatives as a way forward for the sustainable recovery of shorebirds while Jim Chu demonstrated how the Copper River Migratory Bird Initiative has been strengthened through international partnerships. Finally, Scott Hall

(NFWF) provided a critical look at flyway-scale conservation from a funder's perspective, and Rob Clay summarised by discussing challenges, opportunities and next steps for flyway initiatives. In summary, the symposium launched the recently completed strategic framework for the Midcontinent Flyway, presented an update of progress on implementation of the other flyway-scale strategies for the conservation of shorebirds and highlighted new opportunities to further research and implement collaborative solutions.

Indicators for shorebird conservation in the Americas

Organized by Diego Luna-Quevedo & Jeisson Andrés Zamudio (Manomet)

Conservation planning efforts for shorebirds in the Americas have been increasing in recent years, becoming important tools for identifying priorities and guiding decisions and investments to conserve and recover species, populations, and habitats at different scales, such as flyways, countries, and critical sites. Considering the various scales and scopes to be addressed, building robust indicators to evaluate the effectiveness of conservation actions becomes critical, so we can identify if we are on the right path, and obtain the sought after results. This symposium provided a panoramic view of the issue through the presentation of metrics at different scales. First, Diego Luna Quevedo presented symposium objectives and possible indicators to measure impacts from different approaches and perspectives. Then River Gates gave a presentation entitled "Counting on Conservation: Indicators of success for flyway scale conservation investment strategies" presenting the Story Map that was created to summarize the impacts and accomplishments of 28 projects for the Pacific Americas Shorebird Conservation Strategy. Next Rob Clay gave a presentation discussing the challenges of measuring impact at three different scales proposed by the Atlantic Flyway Shorebird Strategy business plan: (1) effectiveness monitoring, which yields immediate results and allows managers to adapt quickly in response to unexpected outcomes; (2) index monitoring, which can demonstrate how species are responding to actions; and (3) population monitoring, which provides the big picture of success at restoring populations. He also shared with us how the Atlantic Flyway Shorebird Initiative has developed a dashboard and story map, which captures metrics of how partners are implementing actions to address the drivers of shorebird declines. Following this, Sharon Montecino talked about the design process behind the Action Plan for Shorebird Conservation in Chile, and the indicators related to the goals established. Examples of those indicators are the number of sites of importance for shorebirds with good governance mechanisms in place, the number of agreements signed with automotive or advertising companies, and the number of public officials trained, among others. These indicators help to evaluate the effectiveness of the actions implemented and to make the necessary adjustments to achieve the established goals. Finally, Matthew Reiter (Point Blue) discussed how the Migratory Shorebird Project (MSP) is coordinating with different partners across the Americas to understand spatial and temporal changes in shorebird populations, and the threats that are most impacting populations at scale. Matthew talked about how MSP tracks indicators of capacity, new knowledge, conservation actions, and shorebird population change. In summary, this symposium allowed us to appreciate the use of indicators for different conservation efforts at different scales, and how they can change according to objectives. Future meetings should try to address gaps and limiting aspects to generating better indicators and increasing opportunities for local stakeholders and decision maker participation.

Coastal Solutions: Advances in Pacific Flyway Conservation

Organized by Laura Ibarra, Eliana Montenegro, & Medardo Cruz-López (CSFP, CornellU), Román Canul Turriza (UAC)

The symposium highlighted conservation efforts for shorebirds along the American Pacific, addressing threats such as climate change, habitat loss, and human activities. Below is a synthesis of the main advances: Regarding community-based conservation and local governance, significant achievements were observed in Chile and Peru, where local communities actively participated in the protection of marine wetlands such as Coihuín and Paracas. Efforts included zoning, educational festivals, and conservation proposals based on multisectoral collaboration. In Mexico, projects involving shrimp farms and salinas demonstrated how productive practices can benefit shorebirds by promoting sustainable and conservation-compatible management. Additionally, protected areas were established in priority sites such as Bahía de Ceuta in Honduras and the San Juan River Delta in Colombia. These initiatives included the restoration of hydrological flows, participatory monitoring, and strategies to counter anthropogenic threats. In sites across Chile and Mexico, tourism practices and urbanization were identified as critical threats; measures such as environmental education, nesting area delineation, and community surveillance were implemented. Finally, in Mexican coastal ecosystems, areas prone to flooding due to sea-level rise were identified, posing risks to key shorebird habitats. Through the Coastal Solutions Fellows Program, 30 conservation leaders were trained, impacting over 115,000 hectares. The program emphasized the use of innovative technologies such as camera traps and spatial distribution mapping of birds.

Population Ecology and Conservation of Semipalmated Sandpipers

Organized by Caz Taylor (TulaneU) and David Mizrahi (NJA)

Semipalmated Sandpipers (*Calidris pusilla*; SESA) are long-distance migratory shorebirds that travel from breeding grounds in the Arctic to non-breeding grounds in South America. Morphological and tracking studies suggest three populations exist, with those breeding in the eastern Arctic migrating to northeastern South America, central breeders migrating to Venezuela through French Guiana, and western breeders to the west coast of Central America and northwestern South America. Birds may stop-over in large numbers at critical sites, including Delaware Bay during pre-breeding migration and the Bay of Fundy during post-breeding migration. Between 1982 and 2010, non-breeding semipalmated sandpipers in north-eastern South America declined by ~80% and recent studies suggest the eastern population is still declining rapidly. Our symposium brought speakers together to describe research from all phases of the annual cycle of SESA as well as carry over effects from one phase to another with the aim of identifying conservation challenges and actions as well as knowledge gaps. We started on the breeding grounds. Kayla Davis (MSU) kicked off the symposium by presenting findings from an integrated population model conducted in northern Alaska. The model showed that earlier timing of snowmelt as well as direct management in the form of predator removal had positive effects on fecundity and population size, but a climate metric linked to drought on the non-breeding grounds had a negative effect on adult survival. Kirsty Gurney showed how contaminants (mercury and persistent organic

pollutants) could affect demographics, particularly timing of breeding and nest success. Megan Boldenow (USFWS) described a study that showed a cross-seasonal carry-over effect where birds with increased stress exposure, measured as feather corticosterone, on tropical non-breeding grounds delayed northbound migration and initiated nests later. We then moved to the post-breeding migration phase. Dov Lank (SFU) hypothesised that the reintroduction of peregrine falcons to major east coast shorebird staging sites during the 1980s may have increased migration danger and caused a higher proportion of SESA to forgo migration, leading to observed declines. Gianco Angelozzi-Blanco presented a stable isotope analysis indicating that SESA has a high dietary plasticity and that storms caused changes in the available prey base and diet shifts. Devin DeZwaan showed a carry-over effect where warmer early-season conditions on the breeding grounds were linked to greater phenological mismatch and subsequently reduced fuel load upon arrival in the Bay of Fundy. We heard two studies from the non-breeding habitat. John Herbert described a remote sensing analysis of the Guianas that found that mudflat area was spatially and temporally correlated with SESA abundance and so the ~50% decline in mudflat area from late 1980s into the early 2000s could potentially have been a contributing factor to observed declines. However, since the early 2000s, the areas of mud have returned to levels consistent with the early-1980s and there has been no resulting rebound in population size. A large mark-resight study from Brazil presented by Jason Mobley suggested high winter site fidelity. One study from the pre-breeding migration was presented by David Mizrahi and showed a dramatic decrease in the annual rate of mass gain over a decade from the early 2000's for birds staging at Delaware Bay linked to the decline in horseshoe crab egg availability. Over the last 10 years, some improvement in the rate of mass gain has been observed. After the formal talks, we held an informal meeting to discuss the formation of a SESA working group. An initial group of twenty participants has formed and is in the process of writing a perspectives piece to summarize the status of knowledge and identify research gaps about the species.

Lesser Yellowlegs, Full-cycle conservation

Organized by Benoit Laliberté (ECCC)

Lesser Yellowlegs' population has steeply declined during the past several decades, which has led to its recent listing as "Vulnerable" on the IUCN RedList. This long-distance neotropical migrant migrates from the boreal wetlands of Alaska and northern Canada to South America, undertaking an approximately 8,000-mile journey twice a year. Lesser Yellowlegs face several threats across their life cycle, the main ones being habitat loss due to habitat systems modification and wetland management, and hunting. To address this conservation challenge, a working group was created under the Road to Recovery Initiative and met to discuss recent development in research and conservation at the scale of the Americas. Courtland Brown (TrentU) presented results from the breeding grounds. They found that Lesser Yellowlegs breeding in Anchorage had 35% higher estimated overall nest survival than Churchill yellowlegs: 63% for Anchorage (95% CI: 45-77%) and 28% for Churchill (11-48%). These data will be included in a future Integrated Population Model informing larger goals for Lesser Yellowlegs conservation. Rozy Bathrick (UMass) spoke about the southbound GPS tracking of seven breeding populations spanning from the westernmost edge of their range in Southwest Alaska to central Canada, and their results showing that despite breeding sites spreading over 62 degrees of longitude, there was little observed difference in

arrival and departure from the Prairie Pothole Region. In Atlantic Canada, Kathryn Danyk (MTA) caught and tagged Lesser Yellowlegs at both coastal and inland staging sites in southeastern New Brunswick and using a combination of Motus radio tracking and behavioural observations, characterized local movement, habitat use, and foraging behaviour. Coastal sites were mainly used for foraging, whereas birds at the inland site spent more time roosting. Shelby McCahon presented on neonicotinoids in shorebirds in the Prairie Pothole Region. They collected samples in the spring and fall, and the higher concentrations during spring migration after snowmelt but before crop seeding suggest a long-term exposure risk. Benoit Laliberté reported a major advancement towards reducing the number of Lesser Yellowlegs harvested in Martinique and Guadeloupe with complete closure beginning for the 2024-2025 season. Jorge Velasquez (NAS) presented early results from the Cauca Valley, Colombia, a priority landscape for resident and migratory bird conservation where Audubon Americas promotes bird-friendly practices on working lands. Their efforts have successfully mapped the northward migratory routes of 12 individuals using Motus. Isadora Angarita presented water management challenges in the Pampas. Through semi-structured interviews with key stakeholders in four provinces, they explored alternative management strategies for Pampas wetlands that allow viable scenarios for shorebirds, producers and human communities in these areas. Finally, Natalia Martínez-Curci and her team conducted extensive shorebird surveys across 134 wetlands in Argentina's inland Pampas. Shorebird abundance was consistently higher in January, with Nearctic migrants dominating the assemblage and peak abundances reaching ca. 30,000 individuals, and they also identified three wetlands hosting significant shorebird numbers and/or populations. Kelly Srigley Werner (UIdaho) and Katie Christie (ADFG) presented the goals and objectives of the International Lesser Yellowlegs Working Group, emphasizing its role for coordinating and monitoring short and long-term biological and social goals, filling knowledge gaps and collaborating on solutions for challenges. The group, with support from the Knobloch Family Foundation, is developing an action plan, incorporating social sciences, co-production and communication with stakeholders and communities, designed to reverse downward population trends of Lesser Yellowlegs.

MEETINGS AND WORKSHOPS

NABC Shorebird Bander Training Workshop 2024

Organized by Lesley Howes & Cheri Gratto-Trevor (ECCC)

The Shorebird Committee of the North American Banding Council (NABC) conducted a virtual Shorebird Techniques Workshop on July 16 and 23, 2024, with over one hundred participants from 16 countries. The workshop focused on standardized training for shorebird capture, marking, and processing, promoting stepwise bander development and best practices. Presentations were transcribed in English, French, Spanish, and Portuguese. This online session served as a prerequisite for the in-person workshop held August 9–11, 2024, in Sackville, New Brunswick, during the Western Hemisphere Shorebird Group (WHSG) meeting. Forty-two participants from 16 countries received hands-on training in shorebird handling, band application, leg flagging, transmitter attachment, and various capture methods. A live capture session allowed participants to refine their skills under expert supervision. Thirty-three attendees took the NABC shorebird certification exam, reflecting commitment to best

practices in shorebird research. To date, NABC has trained over 200 individuals and certified 2 assistant banders, 10 banders, and 5 trainers for shorebirds.

Field and Analytical Methods to estimate shorebird abundance using R

Organized by Dr. Joaquin Aldabe (Manomet)

Estimating the abundance of shorebirds at a site is key to monitoring population trends as well as to assessing shorebird responses to the environment and habitat management. However, estimating abundance can be challenging due to the inability to observe all birds present in a certain area. Ecologists refer to this as imperfect detection. To estimate abundance accurately, it's essential to account for imperfect detection during surveys. Through this course we learned practical and theoretical issues on three different methods to estimate animal population abundances with imperfect detection in a known area: Distance Sampling, Double Sampling and N-mixture model. First the professor spread a known number of wooden beads (i.e. "the shorebirds") across 20 x 20 m in a soccer field. After providing conceptual background and sampling methods, participants went to the field and applied the three methods to estimate the total number of wooden beads. Once data were collected, they were analyzed with R software to fit models to make estimations. Basic R scripts were provided to participants who applied three different methods to estimate the total number of wooden beads. After the three estimates were obtained, the professor provided the real number of wooden beads (150). Based on the differences between the estimated number of beads and the real number we discussed which methods performed better and why. The methodology was inspired by Richardson (2007). A total of 15 students attended the workshop from Venezuela, Nicaragua, Chile, USA, Uruguay, Brazil, Argentina and Canada. Everyone enjoyed the dynamics of going out and collecting their own data. Running the whole research process (research question design, sampling design, data gathering in the field, data digitization, data modeling and results discussion) in a weekend workshop was very valuable. Being outside and inside rotationally made things easier and avoided brain saturation. We would like to repeat the course in the next meeting as well as offering a postgraduate course on this subject.

Buff-breasted Sandpiper Conservation

Organized by Richard Lanctot (USFWS)

The Buff-breasted Sandpiper Working Group met for the 6th time on 11 August 2024. This was our first hybrid meeting with in-face and virtual presentations. The meeting was attended by 32 people and five people on-line from nine countries in the Western Hemisphere and the Czech Republic. The workshop objectives were to get updates on the species throughout the Western Hemisphere, including the latest information on habitat use and selection, effects of climate change, and development of best management practices; as well as hear the latest population estimates and trends. The format of the workshop included a series of presentations followed by a group discussion. Presentations were divided into two parts: habitat selection and management, and population estimations and trends. The habitat selection and management presentations included 1) climate and habitat preferences in the Western Gulf Coastal Plain (Tara Rodkey); 2) activities for a WHSRN site in Colombia (Yanira Cifuentes-Sarmiento and Carlos Ruiz-Guerra); 3) habitat use, monitoring, and initiatives

in Venezuela (Alexis Araujuo-Quintero); 4) conservation and research update for Bolivia (Tjalle Boorsma); 5) observations in the Amazon (Juliana Almeida); 6) update on the species in Paraguay (Rob Clay); and 7) best cattle management practices in Uruguay (Agustina Medina). The population estimations and trends presentations consisted of migration surveys in Texas (Jim Lyons) and breeding surveys in Canada (Jennie Rausch and Paul Smith). The group discussion began with Rob Clay indicating assistance was needed to update the conservation plan for the species. The 2010 plan has been revised extensively but still needs a lot of work to be completed. The next topic focused on the potential for agricultural fields, which are used extensively by species during both north and southward migration, to be ecological traps. Participants indicated that more work was needed to determine potential exposure to migrating and non-breeding birds by assessing contaminants in soil, water and invertebrates in agricultural fields (including turf farms), and in wetland impoundments managed by state and federal agencies. Economic modeling of agricultural activities might indicate whether farmers could reduce chemical applications during migratory periods without losing funds. Recent modeling of tracking data indicated the species preferentially selected turf farms over other grazed areas, suggesting the short stature habitat and regular presence of shallow ephemeral water on turf farms are attractive to the species. Continued investment in the development of best management practices to create suitable habitat, especially without intensive herbicide and pesticide applications, is needed at migration stopovers and on the nonbreeding range. Combinations of disturbance regimes including grazing, mowing, roller-chopping, burning, and irrigation or flooding should be tested. Given the recent droughts in many places, the ability to actively introduce water is essential when considering the purchase or lease of any areas for the species. New to this discussion was habitat loss in Brazil where climate-induced flooding and spartina expansion are killing short grass vegetation used by the species. Next, the group had a long discussion surrounding the overall population size of the species, which currently ranges from the published estimate of 56,000 (circa 2012) to a contemporary maximum estimate of 611,000. Some people thought recent PRISM (Program for Regional and International Shorebird Monitoring) estimates from the Canadian Arctic (568,000) might be too high and that a post-stratification of the “poor” quality habitat type using the Circumpolar Arctic vegetation map might give a more realistic number. Others commented that the lek mating behavior of the species made it difficult to assess the number of birds and that the detection ratio should be revised. Contemporary and preliminary estimates of 92,165 birds from roadside surveys in Texas (which are based on conventional distance sampling and assuming a one-week turnover rate) also indicated the Canadian estimates may be too high but that the historic estimate was too low. Participants from Latin America could not imagine where 611,000 birds might be present given recent investigations of areas based on tracked individuals, but many believed the current estimate of 56,000 might be too low as well. A final consensus was that a subcommittee should be formed to gather, evaluate, and generate a population estimate for the species. It was also agreed that long-term, standardized surveys should be continued / begun on migration and non-breeding areas so that we can determine population trends at many sites simultaneously. During the past 18 years, the “Buffy” Working Group has made great strides in understanding the species biology, especially the species distribution, migration patterns, and habitat needs and management. Conservation efforts have been especially strong in Latin America, but the Midcontinent of the United States and Canada remain the most likely location restraining the population size. Beyond concerns raised above, additional focus is needed to assess other factors that may limit the population size of the species.

Community-based social marketing to address human disturbances to shorebirds

Organized by Ashley Dayer and Sami Livingston (Virginia Tech)

The workshop aimed to equip shorebird biologists and managers with the knowledge and tools needed to use community-based social marketing (CBSM) to mitigate human disturbance to shorebirds. Participants were introduced to the five-step CBSM framework and explored its adaptability and application across various contexts in shorebird conservation. The workshop brought together 23 participants from nine countries, including biologists, technicians, managers, students, and other conservation professionals. Five additional presenters shared their real-world experiences implementing CBSM, offering practical insights and guidance for addressing participant-specific human disturbance challenges. Through a combination of group discussions, presentations, worksheets, and breakout sessions, attendees developed draft plans and resources for implementing CBSM campaigns tailored to their sites, using logic models and evaluation processes to adapt strategies to the unique social and environmental contexts they face. In response to participant interests, the next step is to host a virtual, multi-part workshop series to expand the reach of CBSM training, with a particular focus on engaging practitioners in Latin America as well as those working in the mid-continent and Pacific Flyways, given they have not had access to this work in the Atlantic Flyway.

Motus Stations – Best practices, sourcing equipment, and strategic deployment

Organized by Lucas Berrigan, Erica Geldart, and Amie MacDonald (Birds Canada)

The Motus Wildlife Tracking System has played a pivotal role in advancing shorebird research across the Western Hemisphere. A half-day workshop was held to help both experienced and new Motus collaborators effectively source and deploy Motus stations. The workshop began with a brief introduction of Motus, followed by an update on recent developments and funding opportunities. We then covered the available receiver, antenna and power source options, offering specific advice on acquiring this equipment in Latin America. Participants were introduced to various strategies for deploying stations to address different research questions. In breakout groups, each participant shared their research interests, allowing us to identify station and tag deployment gaps within the Motus network to support research objectives, as well as expand their network of collaborators in their region. Attendees left with additional resources to help them access and interpret Motus data, altogether empowering them to better support their unique research goals. The session gathered 28 participants from nine countries, including representatives from academia, government and non-profit organizations.

Discover Shorebirds! - Incorporating Shorebird Education into Your Work

Organized by Marina Castellino and Clare Cunningham (Manomet)

The "Discover Shorebirds" workshop in Sackville, during the 10th WHSG meeting, aimed to integrate shorebird education into participants' work by providing interactive and adaptable lessons for diverse age groups and settings. The workshop had over 25 participants, representing 15 different organizations and 9 countries. Participants

engaged in a variety of hands-on activities designed to teach about shorebird migration, threats, and conservation, and shared experiences that could be applied in different contexts. As one attendee noted, “I learned many great new games and activities that I am excited to implement,” while another reflected, “It was great to modify activities to fit different age groups.” The workshop highlighted the flexibility of the curriculum and the importance of making learning fun, with participants engaging in activities such as a beak-feeding game, a migration challenge and even an adapted musical chairs. Attendees had the chance to connect with other educators and share resources. One participant summed it up by saying, “The exercises made me think like a shorebird!” Going forward, the workshop encouraged continued collaboration through a community of practice and the use of shared educational materials to raise awareness about shorebird conservation.

Updating Shorebirds Accounts in Birds of the World

Organized by Fernando Medrano (Cornell Lab of Ornithology)

Birds of the World is a scholarly resource that seeks to synthesize all the information for the 11,017 bird species of the world. Each species account compiles information on the natural history, biology, and conservation of the species, illustrating the information with multimedia and updated species maps, and includes undescribed information obtained through eBird and multimedia from Macaulay Library. Birds of the World can be used for multiple purposes, including learning about the natural history of our species and making our research more efficient and effective by compiling all that is known about the species. In the case of the shorebirds, the accounts in Birds of the World are updated for several species, but there are still some accounts that are outdated, especially in the case of the neotropical species. The main objective of the workshop is to find potential authors of Birds of the World. In doing so, attendees will learn the vision and purpose of Birds of the World and will learn to use the editorial tools for revising an account of Birds of the World. There were 11 participants representing six organisations (AOS, CORBIDI, SalvaNatura, Unión Venezolana de Ornitólogos, Universidad de Baja California Sur, Audubon Panama) from seven countries (US, Perú, El Salvador, Nicaragua, Venezuela, Mexico, Panama). Action items and next steps: Development of some BOW accounts.

Whimbrel Working Group Meeting

Organized by Brad Winn (Manomet)

The Whimbrel Working Group met on August 10, 2024. This was the first in-person meeting for the Whimbrel Working Group, preceded by two virtual meetings. The meeting was a hybrid format, with an English/Spanish translator available for both in-person and virtual participants. The meeting was attended by 25 people representing at least five countries. The agenda consisted of two presentations and a series of discussions, followed by a breakout session for Whimbrel Working Group subcommittees. Several topics were discussed at the beginning of the meeting such as building a demographic model collaboratively using information from GPS and satellite tracking data. An additional discussion took place on how to define a population given that breeding pairs are mixing between Pacific and Atlantic populations. Juliana Almeida, Rob Clay, and Roberta Rodrigues (SAVE Brazil) gave a presentation on

building momentum for the delivery of conservation on the north coast of South America. The presenters are working on identifying critical roosting and foraging sites, looking at existing protected areas and their management plans, and safeguarding new sites through WHSRN designations. They are building capacity for surveys on the ground and hosting a series of workshops over the next couple of years. Current work also includes educating students and engaging with the environmental police and state agency. Through this presentation, the working group discovered the need to share tracking data in a key area of Brazil with local researchers. A discussion occurred on identifying and understanding use of nocturnal roost sites, where participants working in Cape Cod, Virginia, Georgia, and the Gulf coast contributed perspectives on objectives, challenges, and best practices of roost counting. An additional discussion followed on the best practices and alternative options for transmitter attachment methods, and it was indicated that a focus group should continue this discussion. Subcommittees of the working group were officially defined as: a steering committee, a science committee, and a conservation & engagement committee. A breakout session occurred where each group could discuss objectives and action items that will help the working group move towards conserving Whimbrel. Participants viewed a video of the Deveaux Bank Whimbrel roost and heard from Felicia Sanders afterwards about the effectiveness of the video and how it helped to pass legislation that protects shorebirds on the coast. Rob Clay presented a certificate to Felicia for an official WHSRN designation of the site. Finally, a presentation was given by Anthony Levesque on the status of Whimbrel conservation on Guadalupe and reflections on capacity needs across the Caribbean Islands. In summary, the Whimbrel Working Group made great progress during this meeting. There were several concrete outcomes such as the first in-person meeting for the steering, conservation, and science committees. Three presentations highlighted Whimbrel research needs and conservation actions being taken in the Caribbean and South America. Objectives, challenges, and best practices for roost site surveys and transmitter attachment methods were discussed, as well as how to define a population. The need for collaboration across populations and research projects remained a constant theme throughout the meeting. The approach and structure of the Whimbrel working group aligns with the Road to Recovery (R2R) framework for species conservation. R2R and Avian Conservation Assessment Database (ACAD) identify Whimbrel as a tipping point species requiring immediate, focused scientific action to pinpoint causes of declines and develop strategies for recovery. The Whimbrel working group is committed to this goal and over the past year has expanded to include 56 members. The group is in the process of self-assessment using the R2R Species Recovery Progress tool.

Migratory Shorebird Project Partnership: Connecting Communities across the Americas from Alaska to Chile

Organized by Diana Eusse (Calidris/Point Blue), Matthew E. Reiter and Catherine Hickey (Point Blue)

During the 10th Western Hemisphere Shorebird Group meeting, the Migratory Shorebird Project (MSP) partnership joined in a side meeting. The MSP is the largest coordinated survey ever of wintering shorebirds on the Pacific Coast of the Americas. It was initiated in 2011 and is a cooperative effort of conservation science organizations and agencies from all 13 countries along the Pacific Coast of the Americas.Thirty five participants from 22 organizations and 11 countries, except Costa Rica and Honduras,

were part of this meeting - the maximum representation that we have had in the history of the project. Objectives of the meeting were to 1) share progress at sites and in countries within the framework of the MSP project, 2) consider ways to evaluate success of MSP efforts in different regions, and 3) collect new ideas or ways in which partners can join efforts to collaboratively develop activities among multiple organizations or countries. We gathered around three main activities to share and build the knowledge in the MSP network, and to focus the partnership effort for the coming years: an "MSP Story Map" to locate new sites or sites where the partners could implement conservation actions, a "Measures of Success Table" to gather the metrics partners use to assess MSP efforts, and an "Innovation Wall" to discuss new ideas and directions to move in the coming years. The MSP Story Map included about 190 sites in 13 countries. Partners located 44 sites where the MSP needs to invest efforts to build capacity, 35 sites with opportunities to address sea level rise and apply adaptive capacity management, 36 sites where using an ecosystem services approach to conservation would be fruitful, 30 sites where shorebird conservation needs more alternatives for the productive sectors like shrimp, salt, rice, oysters, tourism and sugar cane, and 22 new sites to expand the network. The Measures of Success Table included traditional metrics like the number of shorebirds, people (volunteers, other partners, and students) and sites involved in each survey season, and also the outreach, training or science events partners attended or led to promote MSP activities and results. It also included contributions of MSP results in nine Western Hemisphere Shorebird Reserve Network designations, and three protected areas declarations in five national shorebird plans. All participants reported that they use MSP data and results to inform conservation actions at their sites. Other measures discussed involved the channels through which MSP partners communicate. Partners submitted or are preparing twenty-six peer review publications, and in the last year used at least six different communications channels, mainly social media, but also traditional channels like TV and radio. Those measures and the usefulness to understand the impacts of MSP were part of a symposium during the 10th WHSG meeting about how to measure outputs, outcomes or impacts of conservation initiatives and networks. Finally on the Innovation Wall, partners discussed new ideas, and needs or priorities they have to promote or strengthen the MSP in the coming years. The partnership is instrumental to the long-term success of MSP. These results are key to continuing activities and having innovative solutions for the situations we face. And these innovations - which include feedback from multiple perspectives from each partner - will allow us to keep MSP central to informing decision-making in the conservation of shorebirds.

Considering an overarching conservation science strategy for understanding drivers of decline in North American-breeding Shorebird Populations

Organized by Matthew Reiter and Catherine Hickey (Point Blue), Caz Taylor (Tulane University), Stephen Brown (Manomet)

Recent studies suggest that many populations of shorebirds in the Western Hemisphere are experiencing significant declines in abundance. However, the causes of these declines are not well understood, which limits the identification of conservation actions to mitigate the drivers of declines. Given limited conservation resources, there is an urgent need to accurately identify and implement conservation actions that can reverse shorebird population declines. To mobilize strategic conservation science of the causes of trends, we are working with experts from throughout the Western Hemisphere to

develop an overarching conservation science strategy for understanding drivers of decline in North American-breeding Shorebird Populations. We took advantage of the 10th WHGSM to have a second workshop to chart a path forward for understanding drivers of shorebird population change and to identify research and implementation priorities to test which drivers are most important, including collaboratively engaging the broader shorebird conservation science community. The half-day workshop was attended by 46 people representing 33 organizations (NGO, government agencies, and Universities) and nine countries. Our desired outcomes were to (1) develop conceptual models for addressing the impacts of selected threats and causes of declines in key species, (2) identify research concepts to address hypothesized drivers of declining species, (3) strengthen the community of shorebird researchers focused on understanding causes of population declines, and (4) create a list of opportunities for ongoing conservation and monitoring projects to address threats. We started the workshop by sharing the workshop motivation and the results from the first workshop for this effort that occurred in February 2024. We then split into groups focused on specific species to detail the hypothesized behavioral and demographic impacts of selected threats on the species and to identify the studies and needed data to assess if the threat is contributing to species' decline. Groups worked on a total of nine species (Wilson's Plover, Lesser Yellowlegs, Least Sandpiper, Wilson's Phalarope, Western Sandpiper, Red Knot, Upland Sandpiper, Long-billed Dowitcher, Dunlin) and a variety of threats including, habitat loss and conversion, climate change (sea-level rise and phenological mismatch), extreme events, aquaculture, human disturbance, changes in water management, and modified salinity in interior saline lakes. At least one study was identified for each species. And while studies focused on using behavioral or abundance data were common and appeared feasible, participants also highlighted the challenges associated with understanding the demographic impacts of threats. We are further synthesizing the results of the workshop and requesting additional feedback from participants, addressing additional species, and assessing how to best collate and share this work with the broader shorebird conservation science community so that it can guide future science investments and serve as a model to assess other shorebird species. We hope that the results of this effort will guide shorebird conservation science in the years to come as we move from documenting trends in shorebird populations to fully understanding why these trends are occurring and acting to mitigate the critical drivers of declines.

Shorebirds and Shrimp farming working group

Organized by Juanita Fonseca (CSFP, CornellU) and Salvadora Morales (Manomet)

The working group meeting was held to review efforts made in shorebird conservation in shrimp farms, assess short- and long-term objectives, and define the necessary actions to achieve them. It was attended by 16 participants from nine countries, representing 13 organizations and agencies. During the session, various strategies for improving shorebird conservation within the context of aquaculture were discussed. The importance of standardizing monitoring methods, promoting the adoption of good management practices in shrimp farms, and establishing alliances between producers, shrimp farms, and key actors in the sector were emphasized. These alliances are crucial for achieving an aquaculture model that is compatible with both production and shorebird conservation. Participants received valuable feedback on how to more effectively structure the working group's actions, enabling progress in bird protection

while promoting sustainable production. The meeting helped reinforce the group's commitment and strengthen international collaboration to ensure effective, long-term conservation.

Human recreational disturbance community of practice meeting

Organized by Diana Eusse (Calidris/Point Blue), River Gates (NAS), Abril Heredia (Terra Peninsular) and Olivia Saiz (Calidris)

Human disturbance is recognized as a key threat in shorebird conservation and recovery plans throughout the Americas, especially in coastal environments (beaches, wetlands and uplands where birds roost). Causes of major disturbance to breeding and migratory shorebirds include uncontrolled dogs and cats, human recreational disturbance, feral dog/native predators, and vehicle traffic on beaches. Conservation practitioners have developed innovative and effective approaches and strategies to reduce disturbance. In 2022, the Pacific Shorebird Conservation Initiative started a "*Pacific Shorebird Recreational Disturbance Community of Practice*" to strengthen regional knowledge, collaboration and resources that reduce human disturbance to shorebirds in Pacific Latin America. We provided a forum for discussion for members of the Community of Practice to discuss a suite of tested approaches to address the major causes of disturbance. 19 people attended the 2- hour evening workshop representing six countries (e.g., México, Panamá, Chile, Colombia, Nicaragua, USA) and 15 organizations (e.g., Cornell University's Coastal Solutions Fellows Program, Universidad Católica del Norte, Fundación Conservación Marina, Red de Observadores de Aves y Vida Silvestre de Chile (ROC), Asociación para el Estudio y Conservación de las Aves Acuáticas en Colombia (Calidris), Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), Terra Peninsular, Quetzalli Nicaragua, Audubon Panamá, Audubon, Manomet Conservation Science, Point Blue Conservation Science, U.S. Forest Service, and Virginia Tech.

Diana Eusse, Olivia Saiz, and Abril Heredia facilitated the group activity called "World Café" where we selected three key topics for break-out group discussions: needs, challenges, and opportunities to manage or mitigate human disturbance impacts on shorebirds. Needs that were identified include: understanding the dynamics of each site and effective actions that can be taken to reduce threats; understanding how to work and engage with communities; and securing consistent funding to support change over time at sites. The opportunities identified include research and monitoring; working with local authorities to build and enforce legal protection at sites; bird festivals; best management practices; and creating strong alliances with other conservation groups (e.g., turtles, terns, surfers, artists). Challenges include: a lack of local laws and enforcement capacity; lack of local understanding of the impact on migratory birds; safety for conservationists who report on the problem; lack of public interest and investment in reducing impacts on birds. The *Pacific Shorebird Recreational Disturbance Community of Practice* will continue to convene via topic-specific webinars, information exchange and in-person workshops. If you'd like to join the group to access our shared resources and participate in on-going activities, please reach out to River Gates (river.gates@audubon.org).

Celebrating the Midcontinent Shorebird Framework

Organized by Benoit Laliberté (ECCC) and Isadora Angarita-Martínez (Manomet)

Midcontinent regions in the Americas are critical to numerous breeding, wintering and migrating populations of shorebirds, yet this geography was lacking, until recently, a comprehensive strategic approach for shorebird conservation. The Midcontinent Shorebird Conservation Initiative (MSCI) fills that gap and provides a framework to guide management and conservation actions for shorebirds at the scale of the Midcontinent Flyway. It also complements existing strategic frameworks developed for the Atlantic and the Pacific Flyways. The celebration event of the Midcontinent Shorebird Framework at the Western Hemisphere Shorebird Groups Meeting in Sackville, Canada in August 2024 had three major goals. Present the progress on the development of the plan in terms of geographies covered, prioritized threats, and strategies developed to mitigate threats; acknowledge the approximately 50 people present in Sackville for their participation at various stages of the plan development; and invite participants to participate in working groups to advance the implementation of the strategic framework. The working lands working group will be the first set up and will officially mark the beginning of the Midcontinent Shorebird Conservation Initiative's framework implementation. Next steps include finalizing flyway-scale strategic Framework and making it available in 2025, hosting webinars to launch and further introduce Framework, and advancing collaboration with other flyway initiatives.

Purple Sandpiper Working Group

Organized by Elliot Johnston (Maine Natural History Observatory [MNHS])

Set amongst the rocky coastlines of Atlantic Canada, the conference was an appropriate setting for the inaugural meeting of the Purple Sandpiper Working Group. Fourteen participants gathered to share ongoing research on the species along the Atlantic Flyway and establish research priorities for this relatively understudied shorebird. Given Purple Sandpiper's affinity for overwintering on offshore islands and ledges, targeted surveys are critical for understanding population sizes and trajectories. There are active population status assessments happening in Atlantic Canada (Julie Paquet and Jen Rock) and Maine (Glen Mittelhauser and Elliot Johnston, MNHS), and surveys are planned for the upcoming winter in Massachusetts (Alan Kneidel, Liana DiNunzio, Brad Winn, Shiloh Schulte). There are also planned efforts to track Purple Sandpipers during spring staging and migration periods to assess exposure to offshore wind development and better understand migratory corridors (Rebeca Linhart, Peter Paton). Elliot Johnston presented an overview of Purple Sandpipers along the Atlantic Flyway that underscored the justifications for forming a working group and highlighted several aspects of the species' winter ecology that require more research. The group met again in November 2024 to coordinate winter surveys across the flyway, with Rhode Island (Sam Miller) and Delaware (Kat Christie) joining the provinces and states with planned surveys. Those interested in the working group are invited to join by contacting Elliot Johnston (elliot@mainenaturalhistory.org).

Abbreviations

Agricultural and Mechanical College of Texas [Texas A&M], Alaska Department of Fish and Game [ADFG], AQUASIS - Associação de Pesquisa e Preservação de Ecossistemas Aquáticos [Aquasis], Audubon Canyon Ranch [ACR], Asociación

Calidris [Calidris], Atlantic Flyway Shorebird Initiative [AFSI], Aves Uruguay, Centro de Investigación Científica y de Educación Superior de Ensenada [CICESE], Centro de Ornitología y Biodiversidad [CORBIDI], Consejo Nacional de Investigaciones Científicas y Técnicas [CONICET], Coastal Bend Bays & Estuaries Program [CBBEP], Coastal Solutions Fellows Program, Cornell University [CSFP, CornellU], Eastern Woodcock Migratory Research Cooperative (EWMRC), Environment and Climate Change Canada [ECCC], International Conservation Fund of Canada (ICFC), Manomet Conservation Sciences [Manomet], Massachusetts Audubon [Mass Audubon], Michigan State University [MSU], Midcontinent Shorebird Conservation Initiative (MSCI), Migratory Shorebird Project (MSP), Mount Allison University [MTA], National Audubon Society [NAS], Nature Conservancy of Canada [NCC], New Jersey Audubon [NJA], Point Blue Conservation Science [Point Blue], Program for Regional and International Shorebird Monitoring [PRISM], Pronatura Noreste A.C. [PNE] Red de Observadores de Aves y Vida Silvestre [ROC], Simon Fraser University [SFU], Smithsonian Migratory Bird Center [Smithsonian], Terra Peninsular, Texas Coast Migratory Shorebird Habitat Initiative (TCMSHI), Thompson Rivers University [TRU], Trent University [TrentU], Tulane University [TulaneU], Universidad Austral de Chile [UAC], Universidad Autonoma de Baja California [UABC], Universidad Autónoma de Baja California Sur [UABCS], Universidad Autonoma de Campeche [UAC], Universidad Autónoma de Sinaloa [UAS], Universidad Nacional Autonoma de Mexico [UNAM], Universidad Nacional de la Patagonia San Juan Bosco [UNPSJB], Universidad Nacional Experimental de los Llanos Occidentales Ezequiel Zamora (UNELLEZ), Universidad de la República Uruguay [URU], Université de Moncton (UdeM), University of Idaho [UIdaho], University of Massachusetts [UMass], University of Maine [Umaine], University of Rhode Island [URI], University of Saskatchewan [USask] U.S. Fish & Wildlife Service [USFWS], US Geological Survey [USGS], Virginia Polytechnic Institute and State University [Virginia Tech], Wader Quest Brasil [WQB]

10th WHSG attendees with Shep the shorebird in Dorchester, New Brunswick, Canada.

Watching shorebirds at sunset at Johnson’s Mills, Bay of Fundy, New Brunswick, Canada.

Conference co-chairs Diana Hamilton (left) and Julie Paquet (right) and conference coordinator Coni Rivas (center).

Lifetime Achievement Awards and Pablo Canevari award winners

Veronica D'Amico (left) and River Gates (right) present the Allan Baker Lifetime Achievement Award for shorebird conservation to Patricia González (center).

Rob Clay (left) and River Gates (right) present the Allan Baker Lifetime Achievement Award for shorebird conservation to Brad Andres (center).

River Gates (left) and Kirsty Gurney (right) present the Lewis W. Oring Lifetime Achievement Award for Shorebird Research to Cheri Gratto-Trevor (center).

Paul Smith (left) and River Gates (right) present the Lewis W. Oring Lifetime Achievement Award for Shorebird Research to Erica Nol (center).

Rob Clay (left) presents the Pablo Canevari memorial award to Sandra Giner (right).

Rob Clay (left) presents the Linking sites award to Jim Chu (right).

Diana Hamilton (left) and Margaret Eng (right) present the Best Poster Award to Erin MacMillan (center).

Diana Hamilton (left) and Margaret Eng (right) present the Runner-up Poster Award to Julian Garcia Walther (center).