

Pacific Flyway Council  
Nongame Technical Committee  
Partners Meeting

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Pacific Flyway Council, Nongame Technical Committee  
January 2021

## TABLE OF CONTENTS

Executive Summary.....	iii
Introduction .....	1
Meeting Goal.....	2
Objectives.....	2
Attendees.....	2
Approach.....	3
Objective 1: Highlight Achievements Since the Previous Partners Meeting.....	3
Priority #1: Assessment of migratory pathways and important stopover areas .....	3
Priority #2: Implement coordinated monitoring for Short-eared Owls .....	3
Priority #3: Assessment of wetland connectivity .....	4
Priority #4: Reduce exposure to and secondary poisoning from rodenticides .....	4
Priority #5: Conduct monitoring and research for riparian-obligate species, primarily Yellow-billed Cuckoo.....	4
Objective 2: Establish Top Priorities for Western Bird Conservation Partners .....	4
Pre-meeting Process .....	4
Objective 3: Identify Opportunities for Collaboration.....	6
Meeting Process.....	6
Break-out Group Discussions.....	7
PFNTC Prioritization .....	15
Appendix A. Attendees .....	16
Appendix B. Homework Assignments.....	17
Appendix C. Agenda .....	19

## EXECUTIVE SUMMARY

The Pacific Flyway Nongame Technical Committee (PFNTC) hosted a meeting of western bird conservation partners in December 2019. This was the second PFNTC-hosted forum to implement the 2011 recommendations from the National Flyway Council and U.S. Fish and Wildlife Service to expand the role of the nongame technical committees. The goal of this meeting was to *Enhance bird conservation and management across the Pacific Flyway by identifying common priorities and through coordination and collaboration between the Pacific Flyway Nongame Technical Committee and regional partners.*

The objectives of the meeting were to:

- 1) Highlight achievements on bird conservation priorities identified in December 2014.
- 2) Establish and discuss top priorities for western bird conservation partners
- 3) Identify opportunities for collaboration.

Participants included eight PFNTC state representatives, four additional state representatives, and 23 partner organizations. Partners were briefed on the status of PFNTC accomplishments and progress on priorities identified in the first partners meeting.

For a pre-meeting homework assignment, partners submitted 147 bird conservation priorities, which the PFNTC organized into broad categories comprising 14 conservation topics. These categories were:

- Wetland Bird Movement and Connectivity
- Landbird Full Life Cycle Conservation
- Shorebird Monitoring and Conservation
- Landbird Migratory Pathways
- Grassland Species Monitoring and Conservation
- Aerial Insectivore Declines.

These categories were the subjects of further evaluation at the meeting through break-out sessions to identify common themes and priority actions. Following the meeting, the PFNTC compiled all comments and priorities. Actionable items for the PFNTC will be prioritized and presented to the Pacific Flyway Council.

This report summarizes the products and the process to achieve the meeting goal.

# Pacific Flyway Council Nongame Technical Committee Partners Meeting

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## INTRODUCTION

At the request of the Association of Fish and Wildlife Agencies (AFWA), the Flyway Councils' Nongame Migratory Bird Technical Committees (NTCs) were first established in 2006. The NTCs were created so that states and the U.S. Fish and Wildlife Service (USFWS) could consult more effectively on nongame migratory bird issues and regulations on behalf of the Flyway.

Five years later, two independent reviews of the NTCs were conducted by the National Flyway Council (in response to a request from the USFWS's Regulations Committee), and the USFWS (in response to a request from AFWA). While conducted independently, these two reviews generated similar results. Both concluded that the NTCs were performing valuable functions that strengthened the North American migratory bird conservation system and should be retained; further, there was a need and desire to grow the capacity of the NTCs to more fully address the full spectrum of nongame migratory bird management and conservation. Specific recommendations included:

- 1) Evolving to include more non-regulatory work such as monitoring, species assessment and management, and habitat conservation;
- 2) Developing processes for determining priorities to enhance NTC effectiveness in the conservation of migratory birds;
- 3) Greater integration with other existing bird programs (Partners in Flight [PIF], AFWA Bird Conservation Committees, Joint Ventures [JVs], etc.); and
- 4) Taking steps to coordinate NTC efforts with other groups working on similar issues, to avoid duplication of efforts – and to this end, consider having joint meetings with other organizations working on bird conservation and that are addressing topics of mutual interest.

In response to these national reviews and their respective recommendations, the Pacific Flyway Nongame Technical Committee (PFNTC) held a meeting with partners in December 2014. The goal of that meeting was to: *To enhance bird conservation and management across the western states through improved coordination and collaboration between PFNTC and regional partners.* Twelve partners participated in the meeting, and results were summarized in a March 2015 paper entitled *Increasing the Effectiveness of the Pacific Flyway Nongame Migratory Bird Technical Committee: Partners Meeting.*

In addition, the PFNTC completed an assessment of state bird conservation priorities following the meeting. In September 2015, the Pacific Flyway Council approved five priorities with 13 actions that became part of the PFNTC work plan for the next five years. These priorities were:

- Assessment of migratory pathways and important stopovers areas
- Implement coordinated monitoring for short-eared owls
- Assessment of wetland connectivity
- Reduce exposure to and secondary poisoning from rodenticides
- Conducting monitoring and research for riparian obligates species, primarily the yellow-billed cuckoo.

The PFNTC held a second meeting with partners on December 10-11, 2019 (i.e., five years after the first meeting). While the goals of this meeting were similar to the first, this second meeting streamlined the approach by identifying common priorities or interests of all partners, including PFNTC, prior to the meeting and focusing discussions on those common topics during the meeting itself. This second meeting builds on the efforts to enhance partner relationships. This document summarizes the results of those efforts.

## Meeting Goal

The PFNTC goal for this meeting was to: *Enhance bird conservation and management across the Pacific Flyway by identifying common priorities and through coordination and collaboration between the PFNTC and regional partners.*

## Objectives

To accomplish this goal, the PFNTC worked with regional partners to:

- 1) Highlight achievements on bird conservation priorities identified in December 2014.
- 2) Establish and discuss top priorities for western bird conservation partners.
- 3) Identify opportunities for collaboration.

## Attendees

In addition to eight PFNTC state representatives and four additional state representatives, 23 partner representatives attended from the following organizations (see Appendix A):

- American Bird Conservancy
- CICESE Department of Conservation Biology
- Cornell Laboratory
- Great Basin Bird Observatory
- Intermountain Bird Observatory
- Intermountain West Joint Venture
- Klamath Bird Observatory
- National Audubon Society
- Pacific Birds Habitat Joint Venture
- Pacific Flyway Study Committee
- Point Blue Conservation Science
- Sonoran Joint Venture
- U.S. Fish and Wildlife Service
- U.S. Shorebird Conservation Plan Council
- U.S. Forest Service

## APPROACH

### Objective 1: Highlight Achievements Since the Previous Partners Meeting

To highlight the power of partnerships and the collective achievements of bird conservation partners in the west, the PFNTC compiled state and partner activities over the past 5 years that directly related to Pacific Flyway Council priorities identified after the December 2014 Partners Meeting. Below is a list of projects that the participating partners described:

#### *Priority #1: Assessment of migratory pathways and important stopover areas*

- Transmitters were deployed on Golden Eagles, Burrowing Owls, Harlequin Ducks, Olive-sided Flycatchers, Aleutian Terns, Rough-legged Hawks, Common Ravens, Long-billed Curlews, and Lesser Yellowlegs to identify migration routes, important stopover habitats, and/or overwintering areas.
- Western Warblers Initiative was launched for investigating full life cycle ecology.
- Geolocators were used to study movements of Hermit Warblers, Yellow-breasted Chats, Swainson's Thrush, Golden-crowned Sparrows, Sooty Fox Sparrows and Gambel's White-crowned Sparrows.
- Long-term landbird and raptor migration stations (counting and banding) were operated in multiple locations and states.
- Papers were published on Band-tailed Pigeon movements, and bird migration in relation to water levels and invertebrates at Lake Abert, Oregon.
- Support for development of a Motus network grew, and a prospectus for expansion in the west was created.
- Although unsuccessful, a National Conservation Needs proposal was twice submitted to AFWA, via the Bird Conservation Committee, for migration, stopover, and site use assessments to determine important migratory bird use areas for informing renewable energy project siting.
- A wetland hydrology model was developed for the western U.S. and regions of the Mexican Highlands to examine long-term resiliency of continental migration networks supporting waterbird populations.
- The multi-partner Pacific Flyway Shorebird Survey and Migratory Shorebird Project continued in all 13 countries on the Pacific Coast of the Americas.

#### *Priority #2: Implement coordinated monitoring for Short-eared Owls*

- A Competitive State Wildlife Grant (C-SWG) proposal was submitted and funded for implementing coordinated monitoring throughout eight flyway states. Implementation will continue through 2021.
- As part of the C-SWG grant, an Avian Knowledge Network data entry portal was developed and is currently publicly available.
- Satellite transmitters were purchased for deployment on Short-eared Owls in 2020.

### ***Priority #3: Assessment of wetland connectivity***

- Transmitters were deployed on American White Pelicans in Idaho and Utah, providing information on wetland use and migratory pathways throughout the west.
- Synchrony of wetland flooding and waterbird migration was quantified by reconstructing bi-monthly surface water patterns from 1984 to 2015 across 11.4 million ha of the Great Basin.
- An extension of the Avian Knowledge Network for managing colonial waterbird data was developed.
- PFNTC hosted two connectivity workshops during spring meetings.
- Creation and enhancement of Water Tracker, an online, open source system that provides near real time data and summaries of open water and wetland habitat across the Central Valley of California ([www.pointblue.org/watertracker](http://www.pointblue.org/watertracker)).
- A phalarope monitoring workshop was hosted for collaboration on investigations of important wetland linkages between breeding, stopover, and wintering areas.

### ***Priority #4: Reduce exposure to and secondary poisoning from rodenticides***

- A white paper on rodenticide impacts to birds was developed and shared with Flyway states.
- Raptor carcasses have been collected, and some tested, for rodenticide exposure.
- Funding was provided to an herbicide and rodenticide reduction project in Seattle.

### ***Priority #5: Conduct monitoring and research for riparian-obligate species, primarily Yellow-billed Cuckoo***

- Short- and long-term monitoring projects for Yellow-billed Cuckoos, and other riparian-obligates, were implemented or continued in multiple states and locations.
- A C-SWG proposal for a flyway-wide Yellow-billed Cuckoo occupancy assessment project was submitted three times. In January 2021, the project was selected for funding.

In addition to these priorities, the PFNTC also completed actions identified at the December 2014 meeting that were simple, feasible, and effective. These included:

- Support of the National Nightjar Survey Network
- Support of the Pacific Flyway Shorebird Survey
- Exploring mechanisms for evaluating Southern Wings projects
- Appoint a PFNTC member to the Avian Knowledge Network
- Develop a process to submit National Conservation Needs to the AFWA
- Conduct a state-by-state assessment of data sharing limitations and opportunities to explore development of a west-wide data management strategy.

## **Objective 2: Establish Top Priorities for Western Bird Conservation Partners**

### ***Pre-meeting Process***

In preparation for the second partners meeting, and to start the assessment of the Pacific Flyway Council's bird conservation priorities, the PFNTC created a homework assignment that was

distributed to each partner several months before the meeting (see Appendix B). Each participant was asked to provide their organization’s top five or six conservation priorities for western birds over the next five years. The PFNTC compiled and summarized submissions across all partner organizations.

There were 147 conservation priorities submitted by 21 partners. The planning team reviewed the submissions, and based on similarities, organized them into 42 conservation topics. The PFNTC ranked these 42 topics based on the number of organizations that submitted a conservation priority that was related to that topic. Some of the identified topics were unlikely to lead to broad collaborative opportunities, as they derived from only one or two organizations. However, 14 topics were identified as priorities for over 25% of respondents. These 14 topics were deemed most likely to allow for broad collaboration between the partners. The 14 topics fell within these broad categories: monitoring, threats, wetlands and water management, upland habitats management, and data management (Table 1).

Table 1. The 14 Top Ranking Conservation Topics.

Category	Conservation Topic
Monitoring	• Wetland bird movement and connectivity
	• Aerial insectivore/pollinator declines (pesticide concerns)
	• Piñon-Juniper bird monitoring and conservation
	• Landbird migratory pathways
	• Cuckoo monitoring and conservation
	• Shorebird monitoring and conservation
	• Desert thrasher monitoring and conservation
	• Landbird full life cycle conservation (includes wintering habitat)
Threats	• Climate change Impacts
	• Solar/wind energy development (includes siting)
Wetlands and Water Management	• Wetlands/water resources management; playa lakes restoration
Upland Habitats Management	• Grassland species/habitat monitoring and conservation
	• Riparian habitat/species conservation
Data Management	• Data sharing and analysis

To center conversation on highest priorities, the PFNTC queried all invited partners a second time for the top priorities of the 14 identified by their colleagues. Each partner ranked their relative interest in priority topics from highest (1) to least (14). Based on the rankings, five topics were identified by more than half of the partner organizations. These topics were included for discussion at the partners meeting:

- Wetland bird movement and connectivity
- Landbird full life cycle conservation
- Shorebird monitoring and conservation
- Landbird migratory pathways
- Grassland Species Monitoring and Conservation

The topic of aerial insectivore declines did not rank highly overall, but 25% of partner organizations ranked it in their top three topics. For this reason, the topic was included on the meeting agenda for further discussion.

Of the remaining eight topics, two were ranked highly by some organizations, but the PFNTC thought that these issues could be incorporated into discussion of other high priority topics: “climate change impacts” and “data sharing and analysis.” Other topics were not considered further.

### **Objective 3: Identify Opportunities for Collaboration**

#### ***Meeting Process***

The meeting was structured to provide substantial opportunity for feedback from the partners by convening breakout groups to discuss the topics (see Appendix C). Participants were able to select their choice of breakout groups, however, some topics were discussed concurrently in separate sessions. After the first two concurrent sessions, a session was added to focus on bringing the shorebird conservation and wetland connectivity groups together to discuss wetland conservation and management.

PFNTC representatives chose facilitators for each breakout group, and each group was assigned a note taker. Each participant was asked the overarching question, “what do you consider to be the priority actions for this topic?” All ideas were captured via participant notecards. Groups categorized all priority actions documented on participant cards into common themes.

After themes were identified, each breakout group was asked to categorize the themes into research, monitoring, management, and outreach/education. The group discussed the following questions for each theme (generally starting with the most ‘popular’ or common theme):

- What have been the barriers to success in the past?
- What are the opportunities for collaboration?
- What is achievable over 5 years?

Lastly, participants identified the action items within their discussion, and the processes necessary to implement those action (e.g., Who can implement? What is required to make it happen? Where do partners fit in?).

Each breakout group reconvened with all partners to share ideas, themes, and potential action items to allow for all partners to engage. The themes identified, and summarized discussions for each, are included for each topic below. Full descriptions can be found in the meeting notes. At the end of the meeting, the collective group discussed all action items and identified the necessity to discuss with absent partners.

Following the meeting, the PFNTC compiled all comments and priorities. Actionable items for the PFNTC will be prioritized and presented to the Pacific Flyway Council. All identified priorities and action items will be shared with the participants.

## *Break-out Group Discussions*

### WETLAND BIRD MOVEMENT AND CONNECTIVITY

Participants: John Alexander, Elisabeth Ammon, Brad Andres, Brad Bales, Blake Barbaree, Joe Barnes, Joe Buchanan, Dan Collins, Patrick Donnelly, Osvel Hinojosa, Edwin Juarez, Jeff Knetter, Vanessa Loverti, Michelle McDowell, Colleen Moulton, Russ Norvell, Eduardo Palacios, Stan Senner, Nanette Seto, Blair Stringham, and Brian Tavernia

#### Theme 1. Collection and evaluation of monitoring data.

This theme recognized the need for coordination of monitoring efforts and data amongst partners, and for additional monitoring capacity. Both topics were seen as necessary to address threats to wetland bird migratory movements. Coordinated monitoring, through the integration of protocols and datasets and analyses, would allow the creation of products at scale such as west-wide distribution, abundance, and trends of wetland birds in relation to changing environmental conditions (e.g., water availability) and management actions (e.g., protected status). Some products could be made available in near-real time by taking advantage of rapidly transforming technologies.

Discussion of barriers to integration centered on the lack of coordination amongst current programs (objectives, technologies, data sharing) and the absence of best practices, tools, and funding needed to catalyze broad coordination. Identified opportunities included smaller and cheaper tracking technologies such as Motus, compiling and coordinating data in the Avian Knowledge Network, and potentially using the Pacific Flyway to facilitate the coordination.

Identified actions fell into two categories: 1) create a working group to coordinate existing monitoring data to define, prioritize, and address regional needs through data-sharing and joint modelling, and 2) collaboratively design work to address unmet needs and identified gaps. Specific identified working group actions included:

- Evaluate the applicability of Motus as an effective tool for use on waterbirds
- Clarify, prioritize, and coordinate partners and needs through a working group to parse the topic in manageable sections, clarify joint objectives, identify key connectivity questions and priority species, and to standardize protocols.
- Use a specific system, such as saline lakes, to demonstrate the value of a collaborative connectivity monitoring approach, and use this regional framework to inform site-specific strategies.

#### Theme 2. Identify critical unprotected landscapes along migratory corridors.

This theme sought to use shared monitoring data to identify places in migratory corridors that are critical but unprotected. The group recognized that conserving migratory connectivity in a full life-cycle context means crucial unprotected landscapes or conservation gaps may exist:

- Seasonally
- Based on availability of appropriate water resources
- By species

- By life-stage.

While information gaps were recognized as bottlenecks to taking conservation actions, the group believed an inventory and prioritization of hotspot wetlands, migratory corridors, and stopover sites for conservation using existing data was already possible and worthwhile. Actions to conserve these sites (e.g., designation of Important Bird Areas) can then be justified and implemented.

### Theme 3. Identify emerging threats to migratory pathways.

The group identified topics relating to our ability to usefully predict trends in threats that will undermine existing protections, and to take preemptive or preventative conservation action. These included:

- Broadening the base of support for wetland conservation by identifying cross-species benefits to migratory network protection
- Assessing wetland and coastal habitats vulnerability to sea level rise and climate changes,
- Determining how wetland species distributions are shifting in response to climate change.

### Theme 4. Assess site connectivity at international- and regional-scales within the migration network.

The group identified topics related to defining and prioritizing a network of wetland sites connected by bird use, many with analogues in other themes.

- Identify a suite of wetland species that can serve as umbrella species to describe the different classes of wetlands (to represent habitat types/species guilds).
- Model (e.g., network analysis) the linkages between hydrology, wetland productivity, and movements of priority wetland dependent species within a network of important wetland sites.
- Use technology to investigate trans-border movement of resident species and short distance migrants to understand how these species move across the border.

### Theme 5. Communication & coordination of wetland science and management needs

Having identified coordination amongst partners as the primary need, the group identified topics around the communication, coordination, and support needed to achieve this primary goal:

- Develop a communication strategy for sharing results of connectivity studies
- Disseminate connectivity science to policy makers and public
- Conservation delivery strategy - put the models to work
- Implementation of water delivery – ensure there is capacity to deliver water needs for migrant shorebirds among a network of important wetlands
- Find alignment between waterfowl management and management for other species
- Develop a centralized database for wetland birds (e.g., AKN) available to all partners
- Research on importance of flooded agriculture on waterbirds and raptors; develop best practices.

## LANDBIRD FULL LIFE CYCLE CONSERVATION

Participants: John Alexander, Carie Battistone, Allison Begley, Jay Carlisle, Neil Clipperton, Geoff Geupel, Adam Hannuksela, Edwin Juarez, Thomas Leeman, Brian Holmes, Rema Sadak, Nat Seavy, Scott Somershoe, and David Younkman.

### Theme 1. Connect populations across breeding grounds, stopover sites, and wintering grounds to provide for more comprehensive conservation.

This theme focused on the need to identify locations and habitats used by priority bird species across the full life cycle. Emphasis was on methods that can be used to track birds to improve our knowledge of these important locations and address other research needs, and the ultimate goal of landscape-level conservation to protect a range of habitats throughout entire ranges of species. The group also discussed difficulties in implementing conservation actions south of the U.S. border, including a lack of understanding of existing management options and a reluctance or inability to provide funds for international projects.

- Connecting current work being done south of the border with decision makers and land managers from the U.S. This could be in the form of a succinct white paper or briefing document, highlighting the relevance of research and conservation to decision makers
- Outreach to JVs to encourage full life cycle conservation within JV boundaries
- Target Southern Wings projects as a tool for species conservation
- Pursue funding opportunities for assessing full life cycle movements and for work south of the border
- Fund a dedicated staff person to crosswalk what is being done and what else needs to be done. Position could also assist in messaging to states and JVs about the importance of conservation outside of state boundaries.

### Theme 2. Assessment of threats across full life cycle.

This theme identified the need to identify the greatest threats to migratory birds during migration and winter to inform population limiting factors and how to best invest conservation dollars. The group also discussed the need to assess the effect of current agency land management actions on important stopover sites. As with other themes in this and other conservation topics, a need to identify important wintering, breeding, and migratory locations through increased tracking of migratory birds was identified. Integrated population modeling for select species and existing species prioritization efforts in Central America were identified as opportunities.

- Assess existing plans that identify/address threats across full life cycle of birds
- Consider endorsing existing assessments or business plans
- Identify SGCN that are also priority species in Central America
- Use PIF priority assessment for all birds to align multi-state priorities
- Identify species for full-life cycle modeling (priority species that capture most states)
- Identify species that have data available to inform Integrated Population Models, and those with data gaps
- Support west-wide or national bird banding programs for demographic data and for support in bird tracking efforts
- Outreach on why large-scale banding programs are important

- Integrate Motus with map stations or other banding programs.

### Theme 3. Protect lands on wintering grounds.

This theme covered the need to identify areas in Latin America that provide important stopover and winter habitat and the need to expand conservation efforts south of the border. Identification of existing monitoring and conservation efforts on the wintering grounds and support of existing conservation strategies (e.g., tropical deciduous forest, western forests), along with expansion of the Southern Wings program, were discussed as mechanisms for moving conservation forward. Development of new sources of funding (or use of existing fund sources like Section 6) to protect habitat for migrating and wintering birds in Latin America. There are opportunities to partner with local in-country NGOs to implement conservation actions.

- Identify areas where conservation is needed
- Develop collaborative relationships to work in priority conservation areas
- Support capacity building in the Latin American conservation community via education, multi-faceted funding, training, and staffing (e.g., manuscripts, staff exchanges, training sessions, internships, mentorship). This is being done, but Council can further support it
  - Build on what is working – tap into ongoing work of partners
  - Consider making it an all-bird issue, not just a nongame bird issue
  - “Environments for the America’s” – possible mechanism for internships.

### SHOREBIRD MONITORING AND CONSERVATION

Participants: Brad Andres, Brad Bales, Blake Barbaree, Joe Barnes, Carie Battistone, Joe Buchanan, Jay Carlisle, Dan Collins, Patrick Donnelly, Jamey Driscoll, Osvel Hinojosa, Brian Holmes, Jeff Knetter, Thomas Leeman, Vanessa Loverti, Michelle McDowell, Eduardo Palacios, Stan Senner, Nanette Seto, Blair Stringham, and Brian Tavernia.

### Theme 1. Human Dimensions.

Topics ranged broadly from impacts from shooting and recreational activities to raising public awareness, developing collaborations with economic, political, and social scientists, and elevating the imperiled status of saline lakes across the Great Basin.

### Theme 2. Wetland Habitat Availability.

Topics covered issues such as improving coordination with land and water managers to benefit aquatic birds, promoting irrigation practices to mutually benefit aquatic birds and West-wide aquifer recharge, linking shifting hydrology to migration timing, and strengthening connectivity needs throughout the migration cycle and identifying bottlenecks within the flyways.

### Theme 3. Wetland Habitat Management.

Creating capacity in Mexico and Latin America for shorebird conservation was discussed. As were identifying strategies that prioritize habitat conservation with system-wide metrics and species-specific considerations, while identifying critical conservation areas and assessing capacity of water managers to manage for shorebird habitat needs were some of the many topics discussed.

#### Theme 4. Research

This theme had a wide variety of topics brought forward, including:

- Status updates for several species, the identification of appropriate umbrella species that could further conservation efforts on a broader scale.
- The desire to ensure monitoring strategies are using standardized protocols and to strengthen various monitoring and conservation efforts across the region.
- A desire for broader coordination between entities.
- An expansion of the shorebird monitoring network.
- Regional efforts to identify the importance of saline lakes, and initiate a regional survey of shorebirds.

This break out group covered a wide array of topics that tended to overlap with the Wetland Bird Movement and Connectivity group at times, so an additional session was planned for the following day to synthesize topics from the two groups and identify actionable items to prioritize (see *Wetlands Topics* below).

#### LANDBIRD MIGRATORY PATHWAYS

Participants: Elisabeth Ammon, John Alexander, Allison Begley, Neil Clipperton, Geoff Geupel, Adam Hannuksela, Edwin Juarez, Colleen Moulton, Russ Norvell, Nat Seavy, Rema Sedak, Scott Somershoe

#### Theme 1. Identify important areas used by migratory birds and the physical locations on the landscape that are important during migration.

Within this theme, several partners identified the need to identify the most important areas for birds during their full annual life cycle (i.e., breeding, wintering, stopover sites). These included:

- Developing a spatial database
- Developing a process to identify areas of high conservation value
  - Using movement data to identify these important areas
- Focusing on large and diverse landscapes
- Identifying areas of connectivity between breeding, stopover and winter locations
- Conservation actions to protect the most important stopover areas
- Identify places for landbird conservation
- Look at priority birds between states and look for overlap between Pacific Flyway states.

#### Theme 2. Identification of important movement corridors used by migratory birds.

This theme was distinguished from the group's important areas discussion by the focus on movement corridors. The group identified potential threats to migrating birds along their migratory pathways that are distinct from important breeding, wintering, and stopover areas, and therefore movement corridors was categorized as its own important theme. Identified actions or needs within this theme were:

- Identify critical connectivity corridors and migration routes.

- Use a better understanding of migratory pathways to assist with bird friendly siting of wind and solar project, and protect airspace along these identified pathways (including renewable energy siting, bird safe glass, reduced lighting).
- Identify riparian migration corridors.

### Theme 3. Motus.

Motus technology wove through most of the conversations on migratory pathways, and the group opted to identify needs for this as its own theme that could support and address knowledge gaps in many of the other themes. Identified actions or needs included:

- Identifying local area questions for each Motus tower or cluster
- Prioritizing species that could address local questions as well as broad scale movement studies
- Identify flyway-level questions (including local needs, large scale questions and species of interest)
- Identify priority areas for Motus station deployment
- Establish a flyway-wide network from breeding areas to wintering grounds to track broadscale movement (e.g., Mexico, U.S., and Canada)
- Build a framework to identify local opportunities to establish Motus and/or understanding on migratory pathways. Partners to start framework and bring to PFNTC.
- Develop process for sharing nanotags or other tags.

### Theme 4. Other research tracking technologies.

The group felt it was worthwhile to consider technologies other than Motus that can be used to track movements of birds within breeding, wintering, and stopover habitats; these technologies include geolocators and GPS. The group supported use of multiple technologies to identify migratory pathways and important areas for birds. The use of individual technologies will depend on species and the research questions being considered.

### Theme 5. Share and coordinate databases.

The group discussed the importance of sharing information on bird movements, and barriers to sharing. There was a need identified to develop a central database for movement data, and to better coordinate among partners to share and analyze the data.

### Theme 6. Outreach.

The group identified the importance of engaging the public in migration using technologies such as BirdCast which uses technology in real time. The partnership should develop common talking points and coordinated messaging.

### GRASSLAND SPECIES MONITORING AND CONSERVATION

Participants: Carie Battistone, Allison Begley, Jay Carlisle, Neil Clipperton, Jamey Driscoll Geoff Geupel, Adam Hannuksela, Brian Holmes, Thomas Leeman, Rema Sadak, Nat Seavy, and Scott Somershoe.

### Theme 1. Maintaining ranching and keeping grassland landscapes.

This was one of the primary themes discussed by the group. Conversation centered on the need to protect existing native and other functional habitat from loss or conversion—this included the need to maintain unplowed grasslands and prevent conversion to intensive agriculture or urban development. Methods of grassland protection/conservation were discussed, including ranching and other working-lands incentive programs. The group discussed the need for restoration of grasslands and management of grasslands for desired grasses/forbs and soil health. There is a need to identify the threats to grasslands, including an assessment of recent and ongoing habitat loss, and development of maps for priority grassland conservation areas (with incorporation of climate change in conservation planning). The need for better understanding of migration, stopover sites, and threats to grassland birds across the full life cycle was also identified.

- Support for cooperatively funded NRCS Partner Biologists for improved implementation of Farm Bill programs
- Identify areas of loss/conversion. Incorporate partner input (e.g., Plow Initiative)
- Identification of priority areas and species
- Investigate NAWCA and PR funds for grassland conservation, integrating with state wildlife agencies game programs
- Presentation to PFNTC and Pacific Flyway Study Committee regarding “conservation roadshow”
- Increase bird-friendly stewardship of acquired land and easements

### Theme 2. Monitoring.

Discussion of this theme focused on data gaps for grassland bird species and opportunities to develop or implement monitoring programs to inform conservation actions. Compilation of lists of grassland bird SGCN in the Pacific Flyway states, identification of monitoring needs, and development of standardized survey and monitoring protocols were priority topics. The need for better monitoring of wintering grassland birds and identification of migration stopover sites were also discussed. A need to assess distribution of grassland types and to study the distribution and abundance of grassland birds within these types was identified.

- Work with partners to develop a standardized protocol for wintering grassland species monitoring (e.g., Integrated Monitoring of Bird Conservation Regions protocols for wintering grassland birds). Consider the scale (broad vs. specific) and process
- Support Motus or other technology for tracking species
- Work with Cornell to identify grassland hotspots (consider use of eBird Avicaching)
- Identify species with important data gaps, and prioritize these for future actions
- Identify opportunities where land access exists and determine opportunities for a two-way benefit, such as comprehensive bird lists, soil health, or invasive species management (relationship building with landowners)

### Theme 3. Outreach and Education.

This theme was not discussed in detail by the group. Topics that arose during the notecard exercise included a need to communicate the relevance, appreciation, and need for grassland habitat conservation. A need for increased education on the availability of partner (NRCS)

incentive programs for bird-friendly agriculture was identified, along with the need to identify win-win opportunities for the ranching community to promote grassland conservation and data gathering. The group also discussed the need to include the importance of non-grassland habitats (e.g., certain cultivated agricultural lands) to grassland birds in education efforts.

#### WETLANDS TOPICS

Participants: Elisabeth Ammon, Brad Andres, Brad Bales, Blake Barbaree, Joe Barnes, Joe Buchanan, Dan Collins, Patrick Donnelly, Jamey Driscoll, Osvel Hinojosa, Jeff Knetter, Vanessa Loverti, Michelle McDowell, Colleen Moulton, Russ Norvell, Eduardo Palacios, Stan Senner, Blair Stringham, and Brian Tavernia,

This was a breakout group intended to find common ground with the Shorebird Monitoring and Conservation group and Wetland Bird Movement and Connectivity group meetings on December 10<sup>th</sup>, and to focus the action items to those that could be reasonably addressed by the PFNTC and partners. Because of the large number of themes and potential actionable items covered in the previous two group meetings, this meeting used a two-tiered approach to pull together a pooled list of higher priority potential actions, and a final list of the priority actionable items that could conceivably be attempted first.

- Conduct shorebird surveys (interior west and coastal areas)
- Assess site conditions and infrastructure across the flyway
- Map flyway waters and develop step-down modeling to provide annual summaries
- Establish various topical working groups
- Consider all tracking/survey technologies for furthering aquatic bird conservation
- Flyway support site for data sharing and species management
- Identify bottlenecks and understand site resiliency to Climate Change
- Develop partnerships (networking maps for collaboration) and training capacity
- Identify priority species (SGCN) and indicator species across the region

#### Priority Action Items to Move Forward:

- Form a working group to define criteria for evaluating emerging technologies for tracking aquatic birds (cost, infrastructure, reliability).
- Identify priority species. It was thought the Habitat Committee of the Pacific Flyway Council would be the best platform to identify key/umbrella species of interest to the states. The species list should be generated considering both game and nongame species, and species should ideally include Species of Greatest Conservation Need but should provide the best information relative to health and status of various habitat types.
- Form a working group to assess the ability to conduct a synoptic shorebird survey across the interior West, and ideally including Canada and Mexico. The intention is to move toward a project along the scope of the effort led by Point Blue (formerly Point Reyes Bird Observatory) in the early 1990s, and would ideally encompass the saline lakes of the Intermountain West as well as coastal regions and other wetlands.

- Develop a questionnaire for managers of National Wildlife Refuges and state-managed reservoir and wetland areas that would inquire about staff capacity, infrastructure, local threats, legal species-specific mandates, and ability to move water to benefit various species and wetland processes.

### AERIAL INSECTIVORE DECLINES

Participants: Geoff Geupel, Blake Barbaree, Jay Carlisle, Jamey Driscoll, Neil Clipperton, Elisabeth Ammon, Rema Sadak, Adam Hannuksela, Edwin Juarez, Mike Green, David Younkman.

Discussion of the Aerial Insectivore priority was conducted in a rapid session at the end of the partners meeting. Therefore, the notecard exercise was not conducted, and no themes were identified. Discussion focused on the data gaps in exposure of birds to pesticides and the difficulties in determining the direct and indirect effects of pesticides on bird populations. Actions identified to address these data gaps included:

- Determine appropriate insect population monitoring methods to estimate effect of pesticides on specific bird prey species
- Incorporate pesticide and insect monitoring as actions in conservation plans for insectivorous bird species, working groups, or other insectivorous bird species monitoring efforts
- Promote studies to measure demographic rates (e.g., survival, productivity) of birds as they relate to pesticide exposure – detect linkage between pesticides and drivers of bird populations
- Partner with insect experts and collaborate with PIF WWG to promote studies of insect prey populations

### PFNTC PRIORITIZATION

Following the partners meeting, the PFNTC compiled a list of actions identified in each break-out group. A list of 93 actions were identified for the six conservation topics. The PFNTC evaluated these to determine which actions the PFNTC could have a role in implementing. Thirty-five actions were identified for further consideration and consolidated into similar conservation issue statements. These issues were discussed and put to an initial vote by the 10 active PFNTC member states. The highest-ranking issues and actions were discussed further to identify how some actions are related and could contribute to multiple priority conservation issues, and to assess the degree to which the actions were appropriate for implementation by the PFNTC and the feasibility that they could be achieved over the next five years. Based on these discussions, a final set of four priority initiatives and associated tasks/actions were identified and refined for presentation to the Pacific Flyway Council in March 2021.

## **APPENDIX A. ATTENDEES**

### **Partners**

David Younkman, American Bird Conservancy  
Eduardo Palacios, CICESE Department of Conservation Biology  
Osvel Hinojosa, Cornell Laboratory  
Elisabeth Ammon, Great Basin Bird Observatory  
Jay Carlisle, Intermountain Bird Observatory  
Patrick Donnelly, Intermountain West Joint Venture  
John Alexander, Klamath Bird Observatory  
Nat Seavy, National Audubon Society  
Stan Senner, National Audubon Society  
Brian Tavernia, National Audubon Society  
Brad Bales, Pacific Birds Habitat Joint Venture  
Blake Barbaree, Point Blue Conservation Science  
Geoff Geupel, Point Blue Conservation Science  
Adam Hannuksela, Sonoran Joint Venture  
Dan Collins, U.S. Fish & Wildlife Service  
Vanessa Loverti, U.S. Fish & Wildlife Service  
Nanette Seto, U.S. Fish & Wildlife Service  
Scott Somershoe, U.S. Fish & Wildlife Service  
Brad Andres, U.S. Shorebird Conservation Plan  
Rema Sadak, U.S. Forest Service

### **Pacific Flyway Nongame Technical Committee and Invited Guests**

Edwin Juarez, Arizona Game and Fish Department  
Carie Battistone, California Department of Fish and Wildlife  
Jamey Driscoll, Pacific Flyway Nongame Technical Committee -Arizona  
Neil Clipperton, Pacific Flyway Nongame Technical Committee - California  
Brian Holmes, Pacific Flyway Nongame Technical Committee -Colorado  
Colleen Moulton, Pacific Flyway Nongame Technical Committee -Idaho  
Allison Begley, Pacific Flyway Nongame Technical Committee -Montana  
Joe Barnes, Pacific Flyway Nongame Technical Committee -Nevada  
Russell Norvell, Pacific Flyway Nongame Technical Committee -Utah  
Joe Buchanan, Pacific Flyway Nongame Technical Committee -Washington  
Jeff Knetter, Pacific Flyway Study Committee - Idaho  
Blair Stringham, Pacific Flyway Study Committee - Utah  
Mike Green, U.S. Fish & Wildlife Service  
Thomas Leeman, U.S. Fish & Wildlife Service  
Michelle McDowell, U.S. Fish & Wildlife Service

## APPENDIX B. HOMEWORK ASSIGNMENTS

### 2019 Pacific Flyway Bird Conservation Partners Meeting, Dec 10-11

#### Homework Assignment – Due August 16th

The 2014 partners meeting was an opportunity for western bird conservation partners to share their respective roles, responsibilities, and recent activities, and for the Pacific Flyway Council's Nongame Technical Committee (PFNTC) to further define its own unique roles and responsibilities. Discussions by partners at the 2014 meeting also greatly informed a prioritization process completed by NTC the following year. The top five priority actions identified through this process, and approved by the Pacific Flyway Council, included:

1. Assessment of migratory pathways and important stopover areas
2. Implement coordinated monitoring for Short-eared Owls
3. Assessment of wetland connectivity
4. Reduce exposure to and secondary poisoning from rodenticides
5. Conduct monitoring and research for riparian-obligate species, primarily Yellow-billed Cuckoo

Additional priorities discussed at the partners meeting but that were not necessarily identified as PFNTC priorities included:

- Coordinate monitoring program protocols, methods, and data sharing with partners
- Fill data gaps for full life cycle conservation
- Highlight importance of saline lakes
- Greater coordination/involvement in Partner Biologist programs
- Coordinate monitoring of poorly monitored species (e.g., YBCU, Nightjars)
- Integrate bird conservation objectives and public land management plans
- Focal/indicator species monitoring
- Investigate how wind/renewable energy affects migration of shorebirds (and other species)

At the upcoming December 2019 partners meeting, PFNTC will present progress on achieving priority tasks identified as a result of the 2014 meeting.

***Homework Assignment #1: Have the activities undertaken by your organization contributed to any of the identified priorities? Please highlight a few of the top achievements by your organization in contributing to these priorities. Concise responses preferred!***

*Example: Point Blue continued to host and staff the Avian Knowledge Network (AKN). The AKN has developed regional nodes that bring together multiple partners to aggregate bird and ecological monitoring data. In particular, Point Blue worked with the Pacific Flyway NTC and other partners to develop an AKN data entry portal for Short-eared Owl survey data collected by community scientists across eight western states.*

For the 2019 meeting, we would like to update our assessment of bird conservation priorities, focus on our collective top priorities moving forward, and discuss opportunities for collaboration.

***Homework Assignment #2: Please provide your organization's top conservation priorities for western birds over the next five years.***

A simple bulleted list of priorities is fine, but feel free to provide as much detail as you would like. Remember that the focus is on top priorities, so we suggest limiting your list to the top five or six priorities for your organization. Meeting organizers will compile priorities across all partner organizations and summarize at our meeting. We will strive to identify areas of overlap and opportunities for collaboration, so we can focus our discussion at the meeting on HOW we can collaborate moving forward!

**As an important partner in western bird conservation, your participation in this assignment will be extremely helpful in ensuring the meeting is as productive as possible for all participants. To assist us in ensuring there is broad inclusion of conservation partner activities and priorities in planning for this meeting, please send your responses to Colleen Moulton ([colleen.moulton@idfg.idaho.gov](mailto:colleen.moulton@idfg.idaho.gov)) by August 16, 2019.**

## APPENDIX C. AGENDA

**Pacific Flyway Nongame Technical Committee  
Bird Conservation Partners Meeting  
December 10–11, 2019 — Bahia Resort Hotel, San Diego, CA**

### AGENDA

- Meeting Goal** - Enhance bird conservation and management across the Pacific Flyway by identifying common priorities and through coordination and collaboration between the Pacific Flyway Nongame Technical Committee and regional partners
- Meeting Objectives**
- Highlight achievements on bird conservation priorities established at the previous partners meeting held in December 2014
  - Establish and discuss top priorities for western bird conservation partners
  - Identify opportunities for collaboration
- Meeting Registration** \$40

#### TUESDAY, DECEMBER 10

- 0800–0830 Introductions, agenda overview, review meeting goals and objectives
- 0830–0900 ***Where have we been?***
- Review outcomes, objectives, and accomplishments from previous Partner Meeting
- 0900–0945 ***Where are we now?***
- Discussion of current and projected priorities (next 5 years) for all partners
- 0945–1000 Introduce breakout group structure and directions
- 1000–1015 Break
- 1015–1200 ***Breakout groups 1 and 2***
- |                                       |  |   |
|---------------------------------------|--|---|
| <b>1. Landbird Migratory Pathways</b> |  | <b>2. Shorebird Monitoring and Conservation</b> |
|---------------------------------------|--|---|
- 1015–1025 **Introduction**
- Brief participant introductions, background on topic, and review of partner priorities for topic

- 1025–1200 **Discussion**
- Identification of priority actions for each topic, past barriers to success, ongoing work, opportunities for collaboration, role of partners, action items achievable over next five years
- 1200–1330 Lunch
- 1330–1400 Reconvene – Summaries and Discussion from Breakouts 1 and 2
- 1400–1500 **Breakout groups 3 and 4**
- |  |   |
|--|---|
| <b>3. Wetland Bird Movement and Connectivity</b> | <b>4. Grassland Species Monitoring and Conservation</b> |
|--|---|
- 1400–1410 **Introduction**
- Brief participant introductions, background on topic, and review of partner priorities for topic
- 1410–1500 **Discussion**
- Identification of priority actions for each topic, past barriers to success, ongoing work, opportunities for collaboration, role of partners, action items achievable over next five years
- 1500–1515 Break
- 1515–1615 **Breakout groups 3 and 4 Discussion continued**
- 1615–1645 Reconvene – Summaries and Discussion from Breakouts 3 and 4
- 1645–1700 Assess progress/feedback on Day 1 process

**WEDNESDAY, DECEMBER 11**

- 0800–0815 Review strategy for the morning
- Include discussion of themes/breakout group needs (e.g., waterbirds/landbirds)
- 0815–1015 **Breakout group 5 – Landbird Full Life Cycle Conservation**
- Note: potential for concurrent Wetland/Water Resources Management and Restoration Breakout group 6 – TBD**
- 0815–0825 **Introduction**
- Brief participant introductions, background on topic, and review of partner priorities for topic

0825–1015 **Discussion**

- Identification of priority actions for each topic, past barriers to success, ongoing work, opportunities for collaboration, role of partners, action items achievable over next five years

1015–1030 Break

1030–1100 Reconvene – Summaries and Discussion of Breakout 5, and others TBD

1100–1200 ***Wrap-Up/Action Items/Parking Lot***

1200–1300 **Group discussion – Aerial Insectivore Declines**

1300 Adjourn