Pacific Flyway Council

Recommendations, Informational Notes,
and Subcommittee Reports

A Product from the Meetings of the:

Pacific Flyway Nongame Technical Committee

and the

Pacific Flyway Study Committee

February 12-16, 2024
Virtual and In-person Meeting

for the

Pacific Flyway Council

March 26, 2024
Virtual and In-Person Meeting

Spring 2024

Preface

The Migratory Bird Treaty Act implemented multiple international treaties addressing migratory bird conservation and established federal authority over migratory birds. The U.S. Fish and Wildlife Service (Service), under the authority of the Secretary of the Interior, collaborates with the Pacific Flyway Council (Council) to develop regulations for migratory birds in the United States Pacific Flyway. Two technical committees advise the Council: the Study Committee (SC) and the Nongame Technical Committee (NTC), collectively referred to as Committees. The Committees are scientific fact-finding bodies whereas the Council is an administrative and policy setting body.

The Service develops migratory game bird hunting regulations annually by establishing frameworks including outside dates, season lengths, bag limits, and hunting areas. The Council makes framework recommendations annually to the Service according to biological status, management objectives, and policy considerations. Members of the Council and the SC meet in late summer/early fall to share data, review the status of populations and actions outlined in management plans, and propose annual hunting frameworks. They meet again in late winter to develop cooperative management programs, and coordinate research and management for the protection and conservation of migratory game birds. The Council typically makes season framework recommendations to the Service in October.

The NTC also meets twice each year with the Council and SC. The NTC provides a consolidated forum for the Service and state fish and wildlife agencies to discuss, plan, and coordinate actions to address management, regulations, monitoring, and other issues related to nongame migratory birds. The NTC both responds to emerging issues originating with the Council or the Service and works proactively with conservation partners and with other states to identify and prioritize flyway-relevant issues that require attention.

Recommendations, informational notes, and subcommittee reports are prepared by the Committees and forwarded to the Council for consideration or adoption. The Council may develop or modify Committee recommendations as necessary. The Council has a policy of considering management plans for adoption only after having received the management plan for review at least 45 days in advance. The Service assumes the Council support for continuation of the previous year's frameworks if no recommendation is received.

Each recommendation and informational note identifies a contact person. The contact person drafts the recommendation or informational note (or facilitates its development) to represent the position of the Committee or the Council. The contact person is usually knowledgeable on the specific subject matter and serves as a contact for more information. If the recommendation or informational note comes from a subcommittee, that subcommittee is identified on the recommendation or note. The Chair of each subcommittee ensures the preparation of the subcommittee's report and is identified on that report.

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Dusky Canada Goose
Emperor Goose
Interior Band-Tailed Pigeon
Taverner's Cackling Goose and Lesser Canada Goose
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Pacific Trumpeter Swan
Rocky Mountain Sandhill Crane
Rocky Mountain Trumpeter Swan
Western and Eastern Tundra Swans
Western Canada Goose
White Geese
White-Fronted Goose

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RECOMMENDATIONS

Recommendation 1 — Allocation of Captive-reared Trumpeter Swans to Approved Release Sites

Recommendation

The Pacific Flyway Council (Council) recommends allocation of captive-reared trumpeter swans to approved restoration sites in this priority order:

1. Summer Lake, Oregon
2. Middle Madison, Montana
3. Yellowstone National Park
4. Teton Basin, Idaho
5. Big Sandy, Wyoming

Additionally, Council recommends State leads meet by conference call in early July to determine the specific number of swans to allocate to each release site. The specific number of swans available for allocation to each restoration site will depend upon hatching success during spring 2024 (not known until early July) and genetic origin of swans.

In 2024, it is anticipated swans will be available from the Wyoming Wetlands Society (WWS); all swans from the WWS are of Rocky Mountain Population (RMP) origin. The only other sources of birds for the 2024 allocation include birds from Zoo Idaho (21 yearlings and subadults); all swans from Zoo Idaho are of Pacific Coast Population (PCP) or mixed PCP/RMP origins and would only be available for release in Oregon. These birds will be released during summer 2024 at Summer Lake Wildlife Management Area, OR.

Justification

As described in the allocation process document (Appendix E) in the Plan, the Study Committee will make a recommendation to Council regarding an equitable allocation of trumpeter swans for release at approved restoration sites. Only swans of RMP origin may be released in the tri-state region; however, swans of other origin, PCP or mixed PCP/RMP, may be released outside the tri-state region. As described in the Plan, allocation of captive-reared swans to areas outside the tri-state region will be constrained to no more than 20% of the total number of swans available for release in the tri-state region in any year. Therefore, not more than 20% of RMP origin birds available for release can be allocated to Summer Lake, OR; currently, the only restoration site outside the tri-state region.

Adoption Contact: Claire Gower

Pacific Flyway Study Committee
February 16, 2024

Sean Yancey, Chair

Pacific Flyway Council
March 26, 2024

Doug Brimeyer, Chair

Recommendation 2 — Regulatory Decision Frameworks

Recommendation

The Pacific Flyway Council (Council) recommends the U.S. Fish and Wildlife Service (Service) adopt the attached decision frameworks specific to the Pacific Flyway as part of the proposed rule for the new federal annual hunting regulations process collaboratively developed by the Service and Councils. This recommendation is contingent on the Service publishing a proposed rule for the new federal annual hunting regulations process in 2024. Any Council recommendations for changes to Council harvest strategies, and federal frameworks or harvest strategies will be incorporated into this decision framework before publication as a Service proposal for adoption.

Justification

To better serve State partners and the hunting public, the Service seeks to develop a more efficient process to promulgate and publish annual migratory game bird hunting regulations while continuing to meet the conservation purpose and legal requirements of the Migratory Bird Treaty Act.

In coordination with the Service's Office of Law Enforcement, Department's Solicitors Office, and the Flyway Councils, the Service is considering a new process to establish annual hunting regulations. There are no proposed changes to the current Flyway Council process, only to the internal federal promulgation process. The new process would be promulgated as a proposed and final rulemaking, which includes a public comment period for the proposed rule.

As with the current hunting regulation process, the new process applies biological data (i.e., game bird abundance, habitat conditions, hunter activity, and harvest information) to the decision frameworks (e.g., Adaptive Harvest Management protocols, other harvest strategies, or fixed) to inform appropriate annual limits for hunting seasons. The Service would adopt the outcome of the decision frameworks as the limits for annual hunting seasons. If the Service Regulations Committee recommends any deviation to the annual hunting season limits or regulations, those changes would be reviewed by the Service, and if supported, rulemaking would then be initiated.

For decision frameworks, the Service will use harvest strategies adopted by the Service in U.S. Code, Code of Federal Regulations, or in the Federal Register as a final rule to determine annual hunting season limits (e.g., national harvest strategies for duck, mourning dove, brant, and sandhill crane seasons). Currently, determination of some flyway-specific hunting season limits depends on Flyway Council recommendations based on formal Council harvest strategies (e.g., goose and swan seasons) and ad hoc decisions (e.g., coot and gallinule seasons). The attached decision frameworks will allow the Service to adopt these decision frameworks into federal regulations that have not previously been adopted by the Service, and are a necessary component of the new federal annual hunting regulations process.

Adoption Contact: Jeff Knetter

Pacific Flyway Study Committee
February 16, 2024

Sean Yancey, Chair

Pacific Flyway Council
March 26, 2024

Doug Brimeyer, Chair

General Decision Frameworks for Determination of Federal Limits for Annual Migratory Game Bird Hunting Seasons: Pacific Flyway and Hawaii

Date: February 16, 2024

The below general decision frameworks are used to determine appropriate Federal limits for annual migratory game bird hunting seasons in the Pacific Flyway. Other general decision frameworks applicable to the Pacific Flyway are contained in a second document titled "General Decision Frameworks for Determination of Federal Limits for Annual Migratory Game Bird Hunting: Atlantic, Mississippi, Central, and Pacific Flyways" where the results apply to two or more flyways. Where noted, these general decision frameworks are supplemented by other species-specific decision frameworks similarly adopted by the U.S. Fish and Wildlife Service (Service) in a Federal Register final rule. The most currently available data is applied to these decision frameworks to determine the appropriate Federal outside limits. All prescribed Federal outside limits resulting from these decision frameworks are maximums. If the Pacific Flyway Council and the U.S. Fish and Wildlife Service Migratory Birds Regulations Committee (SRC) recommends more restrictive season limits than prescribed by these decision frameworks, then this would be discussed during Flyway Council and SRC meetings open to the public. If supported by the Service, this would be noted in the Federal policy memorandum with the annual hunting season limits including the restrictions and unforeseen substantiating circumstances for public review and comment.

Decision Frameworks

1) Special Youth and Veterans—Active Military Personnel Waterfowl Hunting Days

See "General Decision Frameworks for Determination of Federal Limits for Annual Migratory Game Bird Hunting: Atlantic, Mississippi, Central, and Pacific Flyways".

2) Duck, Merganser, Coot, and Gallinule Seasons

Outside Dates and Season Lengths: Outside dates and season lengths are determined by western mallard Adaptive Harvest Management (AHM) decision framework (16 USC 704 (c), 73 FR 43290, July 24, 2008). The season lengths for scaup are determined by scaup AHM decision framework (73 FR 43290, July 24, 2008; and 73 FR 51124, August, 29, 2008).

Daily Bag Limits: The daily bag limit for ducks and mergansers is in the aggregate and is determined by the western mallard AHM decision framework (73 FR 43290, July 24, 2008). The duck daily bag limit may include no more than 2 redheads. The daily bag limits for pintail, scaup, and canvasbacks are determined by the respective AHM decision framework for pintail (75 FR 44856, July 29, 2010) and scaup (73 FR 43290, July 24, 2008; and 73 FR 51124, August, 29, 2008) and the Canvasback decision support tool (81 FR 17302, March 28, 2016). The daily bag limit of coots and gallinules is 25 in the aggregate.

Zones and Split Seasons: Montana and New Mexico may split their seasons into 3 segments. Arizona, Colorado, Oregon, Utah, Washington, and Wyoming may select seasons in each of 2 zones; Nevada may select seasons in each of 3 zones; California may select seasons in each of 5 zones; and all these States may split their season in each zone into 2 segments. Idaho may select seasons in each of 4 zones.

Other Provisions: The seasons, limits, and shooting hours should be the same between the Colorado River Zone of California and the South Zone of Arizona.

3) Special Early Canada and Cackling Goose Seasons

Outside Dates: September 1–20.

Season Lengths: 15 days.

Daily Bag Limits: 5 geese in the aggregate, except in Pacific County, Washington, where the daily bag limit is 15 geese in the aggregate.

4) Canada Goose, Cackling Goose, and Brant Seasons

Outside Dates: Except as subsequently provided, Saturday nearest September 24–February 15.

Season Lengths: Except as subsequently provided, 107 days.

Daily Bag Limits: Except as subsequently provided, in Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming, the daily bag limit is 5 Canada and cackling geese and brant in the aggregate. In Oregon and Washington, the daily bag limit is 4 Canada and cackling geese in the aggregate. In California, the daily bag limit is 10 Canada and cackling geese in the aggregate.

Split Seasons: Seasons may be split into 3 segments. Three-segment seasons require Pacific Flyway Council and U.S. Fish and Wildlife Service approval and a 3-year evaluation by each participating State.

Other Provisions:

California: In the Balance of State Zone, outside dates are Saturday nearest September 24 and March 10. The season may be split into 3 segments. In the Balance of State Zone, North Coast Special Management Area, hunting days that occur after January 31 should be concurrent with Oregon's South Coast Zone.

Oregon: In the Northwest Permit Zone, outside dates are Saturday nearest September 24 and March 10. The daily bag limit is 3 cackling and Canada geese in the aggregate. The season may be split into 3 segments. In the South Coast Zone, outside dates are Saturday nearest September 24 and March 10. The daily bag limit is 6 geese in the aggregate. The season may be split into 3 segments. Hunting days that occur after January 31 should be concurrent with California's Balance of State Zone, North Coast Special Management Area.

Washington: In Areas 2 Inland and 2 Coastal (Southwest Permit Zone), outside dates are Saturday nearest September 24 and March 10. The daily bag limit is 3 cackling and Canada geese in the aggregate. The season may be split into 3 segments. In Area 4, the season may be split into 3 segments.

Permit Zones: In Oregon and Washington permit zones, the hunting season is closed on dusky Canada geese. A dusky Canada goose is any dark-breasted Canada goose (Munsell 10 YR color value 5 or less) with a bill length between 40 and 50 millimeters. Hunting is by State-issued permit only. Shooting hours for geese may begin no earlier than sunrise. Regular Canada and cackling goose seasons in the permit zones of Oregon and Washington remain subject to the Memorandum of Understanding entered into with the Service regarding monitoring the impacts of take during the regular Canada and cackling goose season on the dusky Canada goose population.

5) Brant Seasons

See Pacific brant harvest strategy (85 FR 51854, August 21, 2020).

6) White-fronted Goose Seasons

Outside Dates: Saturday nearest September 24 (September 23)–March 10.

Season Lengths: 107 days.

Daily Bag Limits: Except as subsequently provided, 10 geese.

Split Seasons: Seasons may be split into 3 segments. Three-segment seasons require Pacific Flyway Council and U.S. Fish and Wildlife Service approval and a 3-year evaluation by each participating State.

Other Provisions:

California: In the Balance of State Zone, Sacramento Valley Special Management Area, the season must end on or before December 28, and the daily bag limit is 3 white-fronted geese. In the Balance of State Zone, North Coast Special Management Area, hunting days that occur after January 31 should be concurrent with Oregon's South Coast Zone. In the Northeastern Zone, the season may be split into 3 segments.

Oregon: In the Eastern Zone, for Lake County only, the daily bag limit is 1 white-fronted goose. In the Northwest Permit Zone and South Coast Zone, the seasons may be split into 3 segments. Hunting days that occur after January 31 should be concurrent with California's Balance of State Zone, North Coast Special Management Area.

Washington: In Areas 2 Inland and 2 Coastal (Southwest Permit Zone) and Area 4, seasons may be split into 3 segments.

7) Light Goose Seasons

Outside Dates: Saturday nearest September 24–March 10.

Season Lengths: 107 days. Seasons may be split into 3 segments.

Daily Bag Limits: 20 geese, except in Washington where the daily bag limit for light geese is 10 on or before the last Sunday in January (January 28).

8) Swan Seasons

Areas: Idaho, Montana, Nevada, and Utah.

Outside Dates: Saturday nearest September 24–January 31.

Season Lengths: 107 days. Seasons may be split into 2 segments.

Permits: Hunting is by State-issued permit only. The total number of permits issued may not exceed 50 in Idaho, 500 in Montana, 750 in Nevada, and 2,750 in Utah. Permits will authorize the take of no more than 1 swan per permit. Only 1 permit may be issued per hunter in Idaho, Montana, and Utah; 2 permits may be issued per hunter in Nevada.

Quotas: The swan season in the respective State must end upon attainment of the following reported harvest of trumpeter swans: 20 in Utah and 10 in Nevada. There is no quota in Idaho and Montana.

Monitoring: Each State must evaluate hunter participation, species-specific swan harvest, and hunter compliance in providing either species-determinant parts (at least the intact head) or bill measurements (bill length from tip to posterior edge of the nares opening, and presence or absence of yellow lore spots on the bill in front of the eyes) of harvested swans for species identification. Each State should use appropriate measures to maximize hunter compliance with the State's program for swan harvest reporting. Each State must achieve a hunter compliance of at least 80 percent in providing species-determinant parts or bill measurements of harvested swans for species identification, or subsequent permits will be reduced by 10 percent in the respective State. Each State must provide to the Service by June 30 following the swan season a report detailing hunter participation, species-specific swan harvest, and hunter compliance in reporting harvest. In Idaho and Montana, all hunters that harvest a swan must complete and submit a reporting card (bill card)

with the bill measurement and color information from the harvested swan within 72 hours of harvest for species determination. In Utah and Nevada, all hunters that harvest a swan must have the swan or species-determinant parts examined by a State or Federal biologist within 72 hours of harvest for species determination.

Other Provisions: In Utah, the season is subject to the terms of the Memorandum of Agreement entered into with the Service in January 2019 regarding harvest monitoring, season closure procedures, and education requirements to minimize take of trumpeter swans during the swan season.

9) Sandhill Crane Seasons

See "General Decision Frameworks for Determination of Federal Limits for Annual Migratory Game Bird Hunting: Atlantic, Mississippi, Central, and Pacific Flyways".

10) Rail Seasons

See "General Decision Frameworks for Determination of Federal Limits for Annual Migratory Game Bird Hunting: Atlantic, Mississippi, Central, and Pacific Flyways".

11) Snipe Seasons

See "General Decision Frameworks for Determination of Federal Limits for Annual Migratory Game Bird Hunting: Atlantic, Mississippi, Central, and Pacific Flyways".

12) Interior Band-tailed Pigeon Seasons

See "General Decision Frameworks for Determination of Federal Limits for Annual Migratory Game Bird Hunting: Atlantic, Mississippi, Central, and Pacific Flyways".

13) Pacific Coast Band-tailed Pigeon Seasons

Areas: California, Oregon, Washington, and Nevada

Outside Dates: September 15–January 1.

Seasons Lengths: 9 days.

Daily Bag limits:

Alternatives	
Restrictive	**Moderate**
2	4

The regulatory alternative for daily bag limit is determined based on the estimated summer population size from monitoring data. The Pacific Coast Band-tailed Pigeon Mineral Site Survey (MSS) was developed specifically to index abundance of Pacific Coast band-tailed pigeons. It was initiated on an experimental basis in 2001 and became operational in 2004. The survey is a coordinated effort among state and provincial wildlife agencies in California, Oregon, Washington, and British Columbia, and the U.S. Fish and Wildlife Service and Canadian Wildlife Service. The MSS involves a visual count of the total number of band-tailed pigeons visiting each site from one-half hour before sunrise until noon on 1 day during July at select mineral sites throughout the population's range. For analysis, counts were limited to those in July at sites naturally occurring with a known source of minerals, with at least 2 annual counts, and that would likely be accessible for counting in the future (n = 61 sites; 12 in California, 22 in Oregon, 17 in Washington, and 10 in British Columbia; see appendix A for specific sites).

The annual index of abundance is estimated range-wide using a log-linear hierarchical model and Bayesian analytical framework (see annual status report for more details). The annual indices are used to calculate the mean index of abundance during the first 5 years of the survey (2004–2008) as a reference period population objective and also over the most recent 3-year interval. Markov-chain Monte Carlo methods are used to iteratively produce sequences of parameter estimates which form a posterior probability distribution (PPD) for each parameter, a natural and intuitive way to portray uncertainty in parameter estimates.

The PPD for the mean index of abundance over the most recent 3-year interval is used in a decision analysis framework to establish quantitative criteria for harvest regulation change. Regulatory alternatives are prescribed based on the degree of confidence that the estimated recent 3-year mean index of abundance exceeds a given amount. Regulations (season frameworks) are established according to closed, restrictive (2-bird daily bag limit), and moderate (4-bird daily bag limit) regulatory alternatives. Alternative regulatory options involve only changes in daily bag limit, otherwise season frameworks (i.e., opening and closing dates and season length) are unchanged.

Specifically, the season is restrictive unless a closed or moderate season is prescribed. A closed season is prescribed when ≥80% of the PPD for the recent 3-year mean abundance is at or below the closure threshold, and a moderate season is prescribed when ≥80% of the PPD for the recent 3-year mean abundance is at or above the moderate threshold. The closed and moderate thresholds are established based on 25% below and above the population objective, respectively. Once the season is closed, an open season may be prescribed when ≤80% of the PPD for the recent 3-year mean abundance is ≤15% below the population objective (effectively the threshold between a closed and restrictive season is moved up 10% to reduce the likelihood of toggling between open and closed seasons annually). The estimated 5-year mean index value can change annually with additional count data as parameter estimates in the hierarchical model are updated.

Zones: California may select seasons in each of 2 zones. The season in each zone may not exceed 9 days. The season in the North Zone must close by October 3.

14) Western Management Unit Dove Seasons

Outside Dates: September 1–January 15.

Idaho, Nevada, Oregon, Utah, and Washington

Season Lengths and Daily Bag Limits: The daily bag limits are mourning and white-winged doves in the aggregate. Season lengths and daily bag limits are determined in the national dove harvest strategy (78 FR 52658, August 23, 2013).

Zones and Split Seasons: Idaho, Nevada, Utah, and Washington may split their seasons into 2 segments. Oregon may select hunting seasons in each of 2 zones and may split their season in each zone into 2 segments.

Arizona and California

Season Lengths: 60 days, which may be split between 2 segments, September 1–15 and November 1–January 15.

Daily Bag Limits: The daily bag limits are mourning and white-winged doves in the aggregate, of which no more than 10 may be white-winged doves, and are determined in the national dove harvest strategy (78 FR 52658, August 23, 2013).

15) Special Falconry Regulations

See "General Decision Frameworks for Determination of Federal Limits for Annual Migratory Game Bird Hunting: Atlantic, Mississippi, Central, and Pacific Flyways".

16) Alaska

Duck, Goose, Sandhill Crane, and Snipe Seasons

Outside Dates: Except as subsequently provided, September 1–January 26.

Season Lengths: Except as subsequently provided, 107 days for ducks, geese (except brant), sandhill cranes, and snipe. The season length for brant will be determined based on the most recent brant winter survey results and the Pacific brant harvest strategy (85 FR 51854, August 21, 2020).

Zones and Split Seasons: A season may be established in each of 5 zones. The season in the Southeast Zone may be split into 2 segments.

Closed Seasons: The hunting season is closed on the spectacled eider and Steller's eider.

Daily Bag and Possession Limits and Special Conditions Ducks: The basic daily bag limit is 7 ducks. The basic daily bag limit in the North Zone is 10 ducks and in the Gulf Coast Zone is 8 ducks. The basic daily bag limits may include 2 canvasbacks and may not include sea ducks. In addition to the basic daily bag limits, the sea duck daily bag limit is 10, including 6 each of either harlequin or long-tailed ducks. Sea ducks include scoters, common and king eiders, harlequin ducks, long-tailed ducks, and common, hooded, and red-breasted mergansers.

Light Geese: The daily bag limit is 6 geese.

Canada and Cackling Geese: The daily bag limit is 4 Canada and cackling geese in the aggregate with the following exceptions, and subject to the following conditions:

1. In Game Management Units (Units) 5 and 6, in the Gulf Coast Zone, outside dates are September 28–December 16.

2. On Middleton Island in Unit 6, in the Gulf Coast Zone, all hunting is by permit only. Each hunter is required to complete a mandatory Canada and cackling goose identification class prior to being issued a permit. Hunters must check in and check out when hunting. The daily bag and possession limits are 1 goose. The season will close if incidental harvest includes 5 dusky Canada geese. A dusky Canada goose is any dark-breasted Canada goose (Munsell 10 YR color value 5 or less) with a bill length between 40 and 50 millimeters.

3. In Unit 10, in the Pribilof and Aleutian Islands Zone, the daily bag limit is 6 geese in the aggregate.

White-fronted Geese: The daily bag limit is 4 geese with the following exceptions:

1. In Unit 9, in the Gulf Coast Zone, Unit 10, in the Pribilof and Aleutian Islands Zone, and Unit 17, in the North Zone, the daily bag limit is 6 geese.

2. In Unit 18, in the North Zone, the daily bag limit is 10 geese.

Emperor Geese: The emperor goose season is subject to the following conditions:

1. All hunting is by permit only.

2. One goose may be harvested per hunter per season.

3. Total harvest may not exceed 500 geese.

4. In Unit 8, in the Kodiak Zone, the Kodiak Island Road Area is closed to hunting. The Kodiak Island Road Area consists of all lands and water (including exposed tidelands) east of a line extending from Crag Point in the north to the west end of Saltery Cove in the south and all lands and water south of a line extending from Termination Point along the north side of Cascade Lake extending to Anton Larsen Bay. Marine waters adjacent to the closed area are closed to harvest within 500 feet from the water's edge. The offshore islands are open to harvest, for example: Woody, Long, Gull, and Puffin islands.

Brant: The daily bag limit is 2 brant.

Snipe: The daily bag limit is 8 snipe.

Sandhill Cranes: The daily bag limit is 2 cranes in the Southeast, Gulf Coast, Kodiak, and Pribilof and Aleutian Islands Zones, and Unit 17 in the North Zone. In the remainder of the North Zone (outside Unit 17), the daily bag limit is 3 cranes.

Tundra Swan Seasons

Outside Dates: September 1–October 31.

Season Lengths: 61 days.

Daily Bag and Possession Limits and Special Conditions: All hunting is by permit only according to the following conditions.

1. In Unit 17, in the North Zone, 200 permits may be issued; 3 tundra swans may be authorized per permit, and 1 permit may be issued per hunter per season.

2. In Unit 18, in the North Zone, 500 permits may be issued; 3 tundra swans may be authorized per permit, and 1 permit may be issued per hunter per season.

3. In Unit 22, in the North Zone, 300 permits may be issued; 3 tundra swans may be authorized per permit, and 1 permit may be issued per hunter per season.

4. In Unit 23, in the North Zone, 300 permits may be issued; 3 tundra swans may be authorized per permit, and 1 permit may be issued per hunter per season.

17) Hawaii

Mourning Dove Seasons

Outside Dates: October 1–January 31.

Season Lengths and Daily Bag Limits: 65 days with a daily bag limit of 15 doves or 75 days with a daily bag of 12 doves.

Note: Mourning doves may be taken in Hawaii in accordance with shooting hours and other regulations set by the State of Hawaii, and subject to the applicable provisions of 50 CFR part 20.

End of Document

General Decision Frameworks for Determination of Federal Limits for Annual Migratory Game Bird Hunting Seasons: Atlantic, Mississippi, Central, and Pacific Flyways

Date: February 16, 2024

The below general decision frameworks are used to determine appropriate Federal limits for annual migratory game bird hunting seasons in the Atlantic, Mississippi, Central, and Pacific flyways. Other general decision frameworks applicable to each flyway are contained in a second document specific to each flyway. Where noted, these general decision frameworks are supplemented by other species-specific decision frameworks similarly adopted by the U.S. Fish and Wildlife Service (Service) in a Federal Register final rule. The most currently available data is applied to these decision frameworks to determine the appropriate Federal outside limits. All prescribed Federal outside limits resulting from these decision frameworks are maximums. If the Flyway Councils and the U.S. Fish and Wildlife Service Migratory Birds Regulations Committee (SRC) recommends more restrictive season limits than prescribed by these decision frameworks, then this would be discussed during Flyway Council and SRC meetings open to the public. If supported by the Service, this would be noted in the Federal policy memorandum with the annual hunting season limits including the restrictions and unforeseen substantiating circumstances for public review and comment.

Decision Frameworks

18) Special Youth and Veterans—Active Military Personnel Waterfowl Hunting Days
See guidance in 16 USC 704 (c); 84 FR 42996, August 19, 2019.

19) White-fronted Goose Seasons (Midcontinent Population)

Areas: Mississippi, Central, and Pacific Flyways within the range of the Midcontinent Population of white-fronted geese.

Outside Dates: September 1–February 15 in the Mississippi Flyway and Saturday nearest September 24–the Sunday nearest February 15 in the Central Flyway.

Season Length and Daily Bag Limits:

	Alternatives	
Area	**Standard**	**Restrictive**
Pacific Flyway		
Alaska	107 days, 4 geese	107 days, 4 geese
Central Flyway		
West tier States[1] except Texas	107 days, 5 geese in the aggregate with other dark geese	107 days, 5 geese in the aggregate with other dark geese
Texas West Goose Zone	95 days, 5 geese in the aggregate with other dark geese	95 days, 5 geese in the aggregate with other dark geese
Balance of States	107 days, 1 goose; 88 days, 2 geese; or 74 days, 3 geese	88 days, 1 goose; or 74 days, 2 geese
Mississippi Flyway		

Low-harvest States[2]	107 days, 5 geese in the aggregate with other dark geese	107 days, 5 geese in the aggregate with other dark geese
Balance of States	107 days, 1 goose; 88 days, 2 geese; or 74 days, 3 geese	88 days, 1 goose; or 74 days, 2 geese

[1] West tier States includes Texas and the Central Flyway portions of Montana, Wyoming, Colorado, and New Mexico.
[2] Low-harvest State status applies if the most recent 5-year average harvest for the state is <1,000 white-fronted geese annually.

Seasons may be split into 3 segments in the Central Flyway and 4 segments in the Mississippi Flyway.

The regulatory alternative for season length and daily bag limit is prescribed based on the estimated fall population size and harvest rate from monitoring data. Population size is derived from a Lincoln estimator using band and harvest data. The analytical framework derives a recent three-year average for each demographic parameter; population size and harvest rate. The probability distribution of the most recent 3-year averages relative to threshold values is used in a decision-analysis framework for setting harvest regulations. The harvest strategy requires that 85% of the distribution (confidence in the parameter estimate) be below or above critical thresholds to prescribe a specific regulatory alternative. The 85% distribution corresponds to a confidence interval (CI) of 70% for the parameter estimate. Thus, if the upper or lower 70% CI for the parameter falls below or above the critical threshold value, then ≥85% of the distribution is below or above the threshold. The season is closed when ≥85% of the distribution for the most recent 3-year average population size is below 250,000 geese. A restrictive regulatory alternative is prescribed when ≥85% of the distribution for the most recent 3-year average population size is below 1,200,000 geese and ≥85% of the distribution for the most recent 3-year average harvest rate is above 7.5%. A standard regulatory alternative is prescribed when conditions are not meet for either the restrictive or closed season regulatory alternative.

20) Sandhill Crane Seasons (Rocky Mountain Population)

Areas: Arizona, Colorado, Idaho, Montana, New Mexico, Utah, and Wyoming within the range of the Rocky Mountain Population (RMP) of sandhill cranes.

Outside Dates: September 1–January 31.

Season Lengths: 60 days. The season may be split into 3 segments.

Daily Bag and Possession limits: The daily bag limit is 3 cranes, and the possession limit is 9 cranes per season.

Permits: Hunting is by State-issued permit only.

Other Provisions: Numbers of permits, open areas, season dates, protection plans for other species, and other provisions of seasons must be consistent with Councils' management plan and approved by the Central and Pacific Flyway Councils, with the following exceptions:

1. In Utah, 100 percent of the harvest will be assigned to the RMP crane quota;

2. In Arizona, monitoring the species composition of the harvest must be conducted at 3-year intervals unless 100 percent of the harvest will be assigned to the RMP crane quota;

3. In Idaho, 100 percent of the harvest will be assigned to the RMP crane quota; and

4. In the Estancia Valley hunt area of New Mexico, the level and species composition of the harvest must be monitored; greater sandhill cranes in the harvest will be assigned to the RMP crane quota.

Note: See Rocky Mountain population sandhill crane harvest strategy (81 FR 17302, March 28, 2016) for annual determination of allowable harvest for each state.

21) Rail Seasons

Areas: Atlantic, Mississippi, and Central Flyways and the Pacific Flyway Portions of Colorado, Montana, New Mexico, and Wyoming.

Outside Dates: September 1–January 31.

Season Lengths: 70 days. Seasons may be split into 2 segments.

Daily Bag Limits:

Clapper and King Rails*:* In Connecticut, Delaware, Maryland, New Jersey, and Rhode Island, 10 rails in the aggregate. In Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Texas, and Virginia, 15 rails in the aggregate.

Sora and Virginia Rails*:* 25 rails in the aggregate.

22) Snipe Seasons

Outside Dates: September 1–February 28, except in Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia, where the season must end no later than January 31.

Season Lengths: 107 days.

Daily Bag limits: 8 snipe.

Zones and Split Seasons: Seasons may be selected by zones established for duck seasons. The season in each zone may be split into 2 segments.

23) Interior Band-tailed Pigeon Seasons

Areas: Arizona, Colorado, New Mexico, and Utah

Outside Dates: September 1–November 30.

Season Lengths: 14 days.

Daily Bag Limits: 2 pigeons.

Zones: New Mexico may select seasons in each of 2 zones. The season in each zone may not exceed 14 days. The season in the South Zone may not open until October 1.

24) Special Falconry Regulations

In accordance with 50 CFR 21.82, falconry is a permitted means of taking migratory game birds in any State except for Hawaii. States may select an extended season for taking migratory game birds in accordance with the following:

Outside Dates: September 1–March 10.

Season Lengths: For all hunting methods combined, the combined length of the extended season, regular season, and any special or experimental seasons must not exceed 107 days for any species or group of species in a geographical area. Each extended season may be split into 3 segments.

Daily Bag Limits: Falconry daily bag limits for all permitted migratory game birds must not exceed 3 birds in the aggregate, during extended falconry seasons, any special or experimental seasons, and regular hunting seasons in each State, including those that do not select an extended falconry season.

Note: General hunting regulations, including seasons and hunting hours, apply to falconry. Regular season bag limits do not apply to falconry. The falconry bag limit is not in addition to shooting limits.

End of Document

Recommendation 3 — Adaptive Harvest Management Task Force

Recommendation

The Pacific Flyway Council recommends the National Flyway Council re-form the Adaptive Harvest Management Task Force and invite appropriate members to serve.

Justification

See the Harvest Management Working Group's attached white paper "The Need to Re-form an Adaptive Harvest Management Task Force."

Adoption Contact: Brandon Reishus and Jason Schamber

Pacific Flyway Study Committee
February 16, 2024

Sean Yancey, Chair

Pacific Flyway Council
March 26, 2024

Doug Brimeyer, Chair

The Need to Re-form an Adaptive Harvest Management Task Force

Harvest Management Working Group

13 February 2024

Since 1995, waterfowl sport harvest regulations in the U.S. have been informed through a formal decision process that represents one of the best-known applications of the principles of adaptive management. Over the last two decades, the adaptive harvest management (AHM) program has grown to include seven formal AHM decision protocols to meet the harvest management demands of all four Flyways. Unfortunately, due to declining budgets for migratory bird management programs and reduced technical capacity, the ability of the U.S. Fish and Wildlife Service to support and implement these decision protocols has reached a tipping point, threatening the capability to meet regulatory obligations and monitoring commitments specified in the most recent Environmental Impact Statement for the issuance of annual hunting regulations (SEIS 2013).

The Harvest Management Working Group (HMWG) has recognized these looming threats and has begun discussions about possible responses that may require fundamental changes to existing AHM decision frameworks. To date, most of this work has focused on problem-framing exercises to fully scope out how the harvest management process may be re-envisioned to meet existing harvest objectives and technical demands while minimizing the costs of promulgating regulations. More recently, the HMWG has also begun discussions focused on the possible implications of reduced monitoring efforts on current decision-making performance that will result from declining annual budgets and monitoring resources. Throughout these deliberations, the HMWG has affirmed a commitment to the principles of structured decision making to ensure that partners and the larger harvest management community are explicitly involved with the reconsideration of appropriate management objectives and regulatory alternatives during the transformation of AHM.

Need for a Steering Committee in Review of Policy Elements

The HMWG serves in an advisory capacity to the U.S. Fish and Wildlife Service and Flyway Councils by providing technical guidance, evaluation, and coordination for the development and improvement of harvest strategies for waterfowl management. The HMWG is not a decision-making body for policies, regulations, or management programs. The four Flyway Councils, as advised by the HMWG, deliberate on and make formal recommendations to the U.S. Fish and Wildlife Service on policies, regulations, and management programs affecting migratory game bird harvest management. Policy guidance from key administrators that represent relevant stakeholders is necessary to help identify appropriate solutions to current challenges faced by the HMWG and the waterfowl management community. Policy guidance derived from a Steering Committee composed of key administrators will help ensure that resultant strategies receive widespread support by all stakeholders with a legal mandate to preserve the migratory bird resources for public use.

AHM Task Force History

An AHM Task Force was assembled at least twice in the past: January 1995 and again in December 2002. Each Task Force was dissolved after completing their charge. The general mission of each AHM Task Force was to foster understanding and support for continued strategic development and implementation of AHM. The Task Force was asked to review key policy elements associated with US duck harvest management, particularly Adaptive Harvest Management, with the recognition that strategic direction must be consistent with capabilities for science-based monitoring and assessment of the waterfowl resources. The Task Force was sanctioned by the U.S. Fish and Wildlife Service Director in 1995 and by the Association of Fish and Wildlife Agencies (AFWA) in 2002. Membership of each Task Force generally consisted of 4 State Directors (one from each Flyway), 1 or 2 U.S. Fish and Wildlife Service Directors (Deputy Director, Regional Director, or Assistant Director of Migratory Birds), and the President of the Wildlife Management Institute. Membership of the Task Force was expanded in 2002 to also include the USGS Chief of Research and a Ducks Unlimited, Inc. Regional Director.

Conclusions and recommendations from the Task Force were finalized and then submitted to the Service Director or AFWA Executive Committee for approval and distribution. The AHM Task Force was analogous to the HMWG in that it was an advisory body without decision-making powers. The Task Force assembled information, reviewed and discussed alternative approaches, and made nonbinding recommendations to the AFWA, Flyway Councils, and the U.S. Fish and Wildlife Service. The Task Force relied heavily on the HMWG and technical committees of the Flyway Councils for help in assessing the biological and regulatory implications of alternative policy choices. The Task Force also worked closely with the AFWA, Flyway Councils, and U.S. Fish and Wildlife Service to establish priorities and timetables for deliverables.

Foundational Principles of AHM

The HMWG recently reviewed several decision-framing elements while re-envisioning the waterfowl harvest management process to meet existing harvest objectives and technical demands while minimizing the costs of promulgating regulations. There was unanimous consensus within the HMWG to maintain State-Federal partnerships and the use of a formal decision-analytic approach to informing harvest management decisions under uncertainty. All other aspects of duck harvest management in the United States could be reconsidered in the transformation of AHM to meet new constraints, challenges, and opportunities.

Request of the Flyway Councils

The HMWG recognizes the implications of declining Federal budgets and technical resources on AHM programs and the capability to meet regulatory obligations and monitoring commitments specified in SEIS 2013. These immediate circumstances combined with other lessons learned from AHM signal a real need to adapt and an opportunity for meaningful change in reconsidering the policy elements in duck harvest management in the United States. The HMWG can provide technical guidance, evaluation, and coordination for the re-envisioning of AHM decision protocols, but paramount to this effort is guidance on the policy elements that may need to be reconsidered in the transformation process. The HMWG encourages the Flyway Councils to

consider taking this issue up at the upcoming National Flyway Council meeting in March 2024. The National Flyway Council should consider the re-formation of an AHM Task Force and appropriate membership, while the HMWG stands ready to assist such a group of key stakeholders in the reconsideration of the policy elements of U.S. duck harvest management.

Recommendation 4 — Northern Pintail Harvest Strategy Revision

Recommendation

The Pacific Flyway Council (Council) recommends implementation of the Pintail Working Group's (PWG) Proposed Interim Northern Pintail Harvest Strategy beginning with the 2025–2026 hunting season. The strategy: 1) uses Maximum Sustained Yield as the objective function; 2) allows a 3-bird daily bag limit (L3); 3) prescribes a closure threshold of 1.2 million; and 4) prescribes a fixed L3 in the Atlantic Flyway (AF) when the strategy calls for an open season in the other flyways. Council also recommends Alaska continue to be excluded from the northern pintail harvest strategy.

Council continues to support the fundamental objectives to conserve the northern pintail population in perpetuity, provide high-quality hunting opportunities commensurate with population status, minimize regulatory burden on the public, communicate effectively with stakeholders and the public, encourage hunter participation, maintain parity of hunting opportunity across flyways, and provide other non-consumptive uses.

Justification

The PWG completed development of a revised northern pintail harvest strategy (attached) and believes it is ready for implementation. An Integrated Population Model (IPM) was developed to address concerns underlying the current population model. The IPM integrates breeding population size, banding data, and harvest surveys into a Bayesian estimation framework.

In August 2023, Council responded to several policy preference questions posed by the PWG. Council preferred a policy that all four flyways adhere to the same regulatory packages and allow the strategy to determine the optimal closure threshold. After considerable discussion among PWG members, Council amends our position on these two policies, recognizing the AF request for a fixed bag when the season is open in other flyways has limited effect on continental pintail harvest (and the predicted breeding population). Additionally, Council supports, allowing a prescribed closure threshold of 1.2 million birds, which further reduces potential for closed seasons to occur.

Council supports implementation of an interim strategy until three seasons of an L3 have been selected, with an allowance of two additional years for data collection, analysis, review of performance, and evaluation of the IPM. The review will continue to involve deliberations among the Flyway councils and the U.S. Fish and Wildlife Service (Service) and may consider the strategy as operational.

Lastly, Council emphasizes and renews the need for the flyways, Service, including National Wildlife refuges, and other partners to maintain annual pre-season banding operations that traditionally banded northern pintail, particularly during this evaluation and assessment period.

Adoption Contact: Melanie Weaver

Pacific Flyway Study Committee
February 16, 2024

Sean Yancey, Chair

Pacific Flyway Council
March 26, 2024

Doug Brimeyer, Chair

To: Flyway Technical Committees
From: Pintail Working Group
Date: 9 February 2024
Re: Proposed Interim Northern Pintail Harvest Strategy

Executive Summary

Over the past five years, scientists from the U.S. Geological Survey (USGS) and the U.S. Fish and Wildlife Service (USFWS), in consultation with the Flyway Councils, have collaborated on the development of a derived framework for pintail harvest management. The Flyway Councils and USFWS undertook the revision process due to several concerns about the current strategy, including public desires for inclusion of a more liberal regulatory alternative, reliance on outdated modeling techniques and data, and communication challenges associated with the regulatory schedule. In response to these concerns, the USFWS convened a Pintail Working Group (PWG), composed of 2 representatives from each Flyway, the 4 Division of Migratory Bird Management (DMBM) Flyway Representatives, and technical experts from the USFWS and USGS. The PWG has overseen a full evaluation of pintail population and harvest dynamics and has developed and evaluated a large number of alternative harvest strategies. New models for pintail population dynamics and harvest dynamics have been built from scratch, using updated data and modern estimation methods. These models have been embedded in optimization algorithms to generate state-dependent harvest strategies, and the alternative strategies have been evaluated through simulation modeling. Throughout this period, the PWG has provided regular updates to the Flyway Councils and has sought feedback, notably on policy preferences.

In January 2024, after extensive consultation, the PWG identified a new proposed interim harvest strategy for northern pintails. The purpose of this interim harvest strategy is to inform harvest management decisions for northern pintails and to learn about the effects of a 3-bird daily bag limit on management objectives. In consultations with the Flyways, the PWG identified the following set of fundamental objectives: conserve pintail population in perpetuity, provide high-quality hunting opportunities commensurate to population status, minimize regulatory burden on the public, communicate effectively with stakeholders and the public, encourage hunter participation, maintain parity of hunting opportunity across Flyways, and provide other non-consumptive uses. The harvest strategy seeks an appropriate balance of this set of fundamental objectives by (a) seeking to maximize cumulative harvest over the long term, which inherently requires perpetuation of a viable population; (b) providing an open hunting season when the observed breeding population is above 1.2 million birds; (c) allowing a liberal season length with a 3-bird bag under some conditions; and (d) providing a fixed 3-bird bag-limit in the Atlantic Flyway whenever the pintail season is open elsewhere. The derived harvest strategy is state-dependent in that it specifies pintail harvest regulations as a function of breeding population size and latitude. The strategy calls for a closed season whenever the observed breeding population size falls below 1.2 million. Assuming that harvest management adheres to this strategy (and that current model parameters accurately reflect population dynamics), breeding-population size would be expected to average 2.01 million birds with a mean annual observed harvest of 467,000 birds. The expected frequency of closed seasons is 12.6%, the frequency of liberal seasons with a 1-bird bag is 31.4%, and the frequency of liberal seasons with 2- and 3-bird bag limits is 0.8% and 55.2%, respectively. The regulatory alternative is expected to change in 20.9% of years.

The interim pintail harvest strategy is intended to be implemented on an experimental basis until three seasons of the 3-bird daily bag limit have been selected, with an allowance for an additional 2 years to allow for data collection, analysis, review of performance, and evaluation of updated strategies. The results of the evaluation will be provided to the Flyway Technical Committees for consideration, with the expectation that deliberation by the Flyway Councils will follow. It is intended that an operational Northern Pintail Harvest Strategy will be negotiated and implemented based on the results of the interim phase, with the support of the Flyways and the USFWS.

Background

Each year, the Director of the U.S. Fish and Wildlife Service (USFWS), acting on behalf of the Secretary of the Interior under authority granted by the Migratory Bird Treaty Act (MBTA), opens a hunting season for ducks, including northern pintails (*Anas acuta*), if conditions allow. The decisions of the Director, typically made through the Service Regulations Committee (SRC), are informed by input from the four Flyway Councils, which were established based on a 1951 International Association of Fish and Wildlife Agencies recommendation, and which are guided by individual Memoranda of Understanding with the USFWS. The broad framework and process for this set of decisions is described in a Final Supplemental Environmental Impact Statement (FSEIS) that was published in 2013, replacing earlier versions (1975, 1988). One of the significant changes between the 1988 FSEIS and the 2013 FSEIS was that the annual regulations for duck hunting are now set prior to the Breeding Waterfowl Population and Habitat Survey.

Since 2010, harvest management of pintails has been guided by a strategy that was developed cooperatively by the USFWS and the four Flyway Councils, under the framework of the 1988 FSEIS. Fourteen seasons of implementation of the current pintail strategy, including eight hunting seasons under the 2013 FSEIS, have provided valuable data and experience about both the performance of the harvest strategy and its communication.

Several concerns about the current pintail strategy have arisen. First, the FSEIS has created a difficult communication challenge, in that regulations set in advance of the breeding season are sometimes contraindicated by breeding population survey results in May. Second, there is a vocal segment of the hunting community that would like the opportunity, or at least option, for a 3-bird daily bag limit, when conditions allow. Third, none of the parameters in the population models underlying the pintail strategy have been updated since 2010 (most have not been updated since 2005, despite some changes in monitoring efforts), and there are questions about whether the model predictions are tracking observed results from monitoring programs. Fourth, there remain differences of opinion across Flyways about the relative importance of the various objectives of pintail harvest management, for example, with some Flyways asking whether increased hunting opportunity is possible and others asking whether regulations can be simpler. Fifth, resolution of critical uncertainty has been slow, because the current pintail strategy does not actively seek to reduce uncertainty; some stakeholders believe resolution of uncertainty could lead to better achievement of the objectives. Sixth, the Flyways, states, and hunting public desire a better intuitive understanding of current pintail population dynamics, the models used to describe them, and the relationship to the harvest strategy.

In November 2018, in response to these concerns, the USFWS convened a Pintail Working Group (PWG), composed of 2 representatives from each Flyway, the 4 Division of Migratory Bird Management (DMBM) Flyway Representatives, and technical experts from the USFWS and USGS. Over the past five years, the PWG has overseen a full evaluation of pintail population and harvest dynamics and has developed and evaluated a large number of alternative harvest strategies. New models for pintail population dynamics and harvest dynamics have been built from scratch, using updated data and modern estimation methods. These models have been embedded in optimization algorithms to generate state-dependent harvest strategies, and the alternative strategies have been evaluated through simulation modeling. Throughout this period, the PWG has provided regular updates to the Flyways and has sought feedback, notably on policy preferences. In January 2024, after extensive consultation, the PWG identified a new proposed interim harvest strategy for northern pintails.

This document describes the proposed harvest strategy for northern pintails, for consideration by the Flyways and the USFWS. In order to be implemented, a proposed strategy needs to be endorsed by the four Flyway Councils, approved by the SRC, then adopted by the USFWS through rulemaking. If a proposal is endorsed by the Councils in March 2024 and the SRC in April 2024, it is anticipated that it could be implemented for the 2025-2026 hunting season.

Purpose and Objectives

The purpose of this harvest strategy is to inform harvest management decisions for northern pintails. The strategy identifies annually an optimal, state-dependent, regulatory alternative to best achieve the harvest management objectives based on a set of regulatory alternatives and models of system dynamics.

In consultations with the Flyways, the PWG identified the following set of fundamental objectives for consideration in the development of the pintail harvest strategy:

A. Conserve pintail populations in perpetuity
    1. Maintain the average pintail population at or above its maximum net productivity level (the population size at maximum sustained yield), taking into account long-term habitat conditions. That is, the harvest strategy should maintain the average population at the peak of or on the "right shoulder" of the yield curve indefinitely.

B. Provide high-quality harvest opportunities commensurate to population status
    2. Maximize[1] sustained annual harvest
    3. Minimize the frequency of closed seasons
    4. Minimize the frequency of restrictive seasons
    5. Maximize the frequency of liberal seasons

[1] The terms "maximize" and "minimize" express the desired direction for each objective and should be understood to be preceded by the phrase "All other things equal…". When evaluating alternative strategies, all other things are rarely equal, that is, the strategy that has the highest sustained annual harvest may not be the one that minimizes the frequency of closed seasons. Thus, in practice, a balance is sought in which few individual objectives are maximized or minimized.

C. Minimize regulatory burden on the public
    6. No partial seasons
    7. Minimize the frequency of regulatory changes
    8. Minimize the complexity of the regulations

D. Communicate effectively with stakeholders and the public
    9. Maximize understanding of the process by which hunting regulations are set
    10. Minimize counter-intuitive regulations (regulations at odds with current conditions, resulting from the timing of decisions under the FSEIS)

E. Encourage hunter participation
    11. via (B) and (C) above

F. Maintain parity of hunting opportunity across Flyways
    12. Maintain equitable distribution of harvest across flyways

G. Provide other non-consumptive uses (e.g., wildlife viewing)
    13. Maximize sustained population size

The harvest strategy seeks an appropriate balance of this set of fundamental objectives by (a) seeking to maximize cumulative harvest over the long term, which inherently requires perpetuation of a viable population; (b) providing an open hunting season when the observed breeding population is above 1.2 million birds; (c) allowing a liberal season length with a 3-bird bag under some conditions; and (d) providing a fixed 3-bird bag-limit in the Atlantic Flyway whenever the pintail season is open elsewhere.

Regulatory Options and Harvest

The harvest strategy considers a range of regulatory alternatives that includes a closed season, and 1-bird, 2-bird, and 3-bird bag limits. The maximum pintail season length depends on the general duck season framework (characterized as liberal, moderate, or restrictive), as specified by Flyway-specific Adaptive Harvest Management (AHM) protocols.

Notably, the strategy allows for a 3-bird bag limit when the population size and expected fall flight are large enough to support the corresponding harvest. This is a significant change from the 2010 strategy, which only allows a maximum 2-bird bag limit.

For the Atlantic Flyway, the strategy calls for a fixed 3-bird bag limit, provided that the pintail season is open in the other Flyways. If the pintail strategy calls for a closed season, then the season is also closed in the Atlantic Flyway. This option was requested by the Atlantic Flyway in order to simplify regulations. In the period 2010–2018, harvest in the Atlantic Flyway constituted an average of 3.3% of the continental pintail harvest. Given this low contribution to the harvest, allowing the fixed 3-bird bag limit has very little effect on the harvest opportunity in the other flyways.

The optimal state-dependent pintail regulation is calculated under the assumption of a liberal season length in all Flyways. If the season length of the general duck season determined by Flyway-specific AHM is less than liberal in any of the Flyways, then the season length for pintails matches that of the general duck framework, and the pintail bag-limit is as called for under this strategy. (Note that this aspect of the harvest strategy differs from the 2010 pintail harvest strategy, which contained substitution rules that allowed increased bag limits when the season was shorter.)

The models that predict continental pintail harvest as a function of regulations now include an estimate of the fall flight as a predictor (Fig. 1). Such models were not possible in the 2010 strategy because reliable estimates of fall flight were not available; now the integrated population model for continental pintail dynamics can estimate fall flight. This change in the modeling has an important effect on the harvest strategies because if the population size declines, so does the fall flight, and so does the harvest under a given regulatory package; this feedback effect allows sustainable harvest under conditions that were not previously thought to be sustainable.

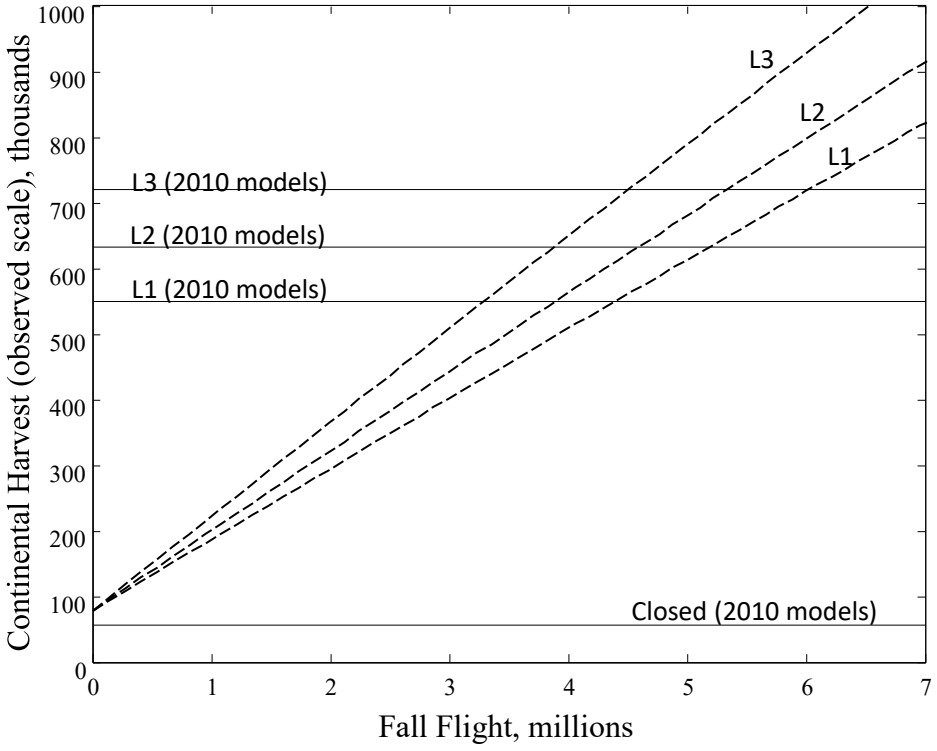

Figure 1. Predicted continental northern pintail harvest (including all four Flyways, Alaska, and Canada) as a function of the continental fall flight. The models used in the 2010 pintail harvest strategy are shown with solid lines, the new models with dashed lines. The mean fall flight over the period 1985–2018 was 4.47 million birds. Note that the predicted harvest is on the observed scale (as reported in the Harvest Survey), not the corrected scale internal to the pintail population model.

Models and Optimization

The harvest strategy relies on models for two state variables: the size and mean latitude of the continental breeding population of northern pintails, as determined from the Waterfowl Breeding Population and Habitat Survey in May in the traditional survey areas. The observed breeding population size is adjusted to account for relative bias as a function of the mean latitude of the population. Pintail breeding population size (BPOP) and mean latitude are used to predict pintail recruitment. The subsequent year's pintail breeding population size is predicted using a full balance-equation model, which accounts for summer survival, predicted recruitment, predicted kill (comprising predicted harvest and crippling loss), and winter survival. Harvest mortality is partially compensatory with natural mortality for females, and fully additive for males. The parameters for the population model are estimated from an Integrated Population Model (IPM) using Bayesian Markov-chain Monte Carlo methods (Boomer et al., *in prep.*). As noted above, the IPM can produce an estimate of fall flight as an intermediate variable.

The mean latitude of the breeding population is predicted from a first-order auto-regressive time series model. It is expected that the population model, the latitude model, and the harvest model will be updated with incoming data on a regular basis in the future.

Stochastic dynamic programming is used to find the state-dependent solution that best achieves the objectives for northern pintail harvest management (Lubow 1995, Johnson and Williams 1999). This optimization process is based on: (1) the regulatory alternatives; (2) current population, latitude, and harvest models for northern pintails; and (3) the objective of maximizing long-term cumulative harvest including the closed-season constraint.

Harvest Strategy

The derived harvest strategy is state-dependent in that it specifies pintail harvest regulations as a function of breeding population size and latitude (Fig. 2). The strategy calls for a closed season whenever the observed breeding population size falls below 1.2 million. There is a band of population size above 1.2 million and below 2.0 million where a liberal season with a 1-bird bag limit is called for; the width of this band varies with the mean latitude of the BPOP. Above this band, the strategy largely calls for liberal seasons with a 3-bird bag limit; the 2-bird bag limit is called for only in a narrow sliver of the strategy.

The proposed strategy was derived with the inclusion of a threshold at an observed breeding population size 1.2 million, above which the season was constrained to be open. "Closure thresholds" between 1.0 million and 1.75 million were explored and were shown to have a strong effect on the relative frequencies of closed, 1-bird, and 3-bird seasons. The highest threshold (1.75 million) produces the highest frequencies of 3-bird seasons but also the highest frequencies of closed seasons. The lowest threshold explored (1.0 million) produces the lowest frequency of closed seasons, but at the expense of a lower frequency of 3-bird seasons. The threshold of 1.2 million balances these effects so that closed seasons occur fairly seldom and yet the opportunity for 3-bird seasons is fairly frequent.

Use of this regulatory strategy has been simulated to determine expected performance characteristics. Assuming that harvest management adheres to this strategy (and that current model parameters accurately reflect population dynamics), breeding-population size would be

expected to average 2.01 million birds with a mean annual harvest of 467,000 birds. The expected frequency of closed seasons is 12.6%, the frequency of liberal seasons with a 1-bird bag is 31.4%, and the frequency of liberal seasons with 2- and 3-bird bag limits is 0.8% and 55.2%, respectively. The regulatory alternative is expected to change in 20.9% of years.

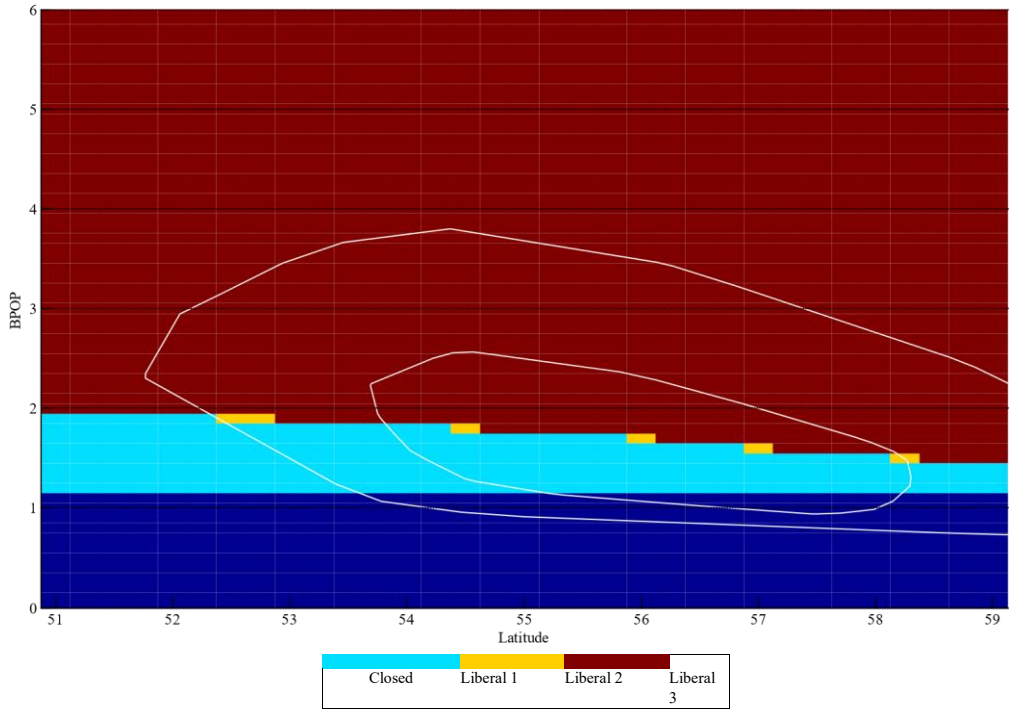

Figure 2. State-dependent harvest strategy for northern pintails as a function of the breeding population size (BPOP, in millions) and the mean latitude of the breeding population (Latitude, in degrees N). The strategy assumes that the general duck season is liberal in season length. Regulatory options are closed, liberal 1-bird, liberal 2-bird, or liberal 3-bird bag. The white contours show the 90-percent (outer) and 50-percent (inner) prediction intervals of BPOP and Latitude from a simulation of the strategy.

Implementation under FSEIS 2013

The harvest strategy was derived, using stochastic dynamic programming, under the assumption that the state variables observed in the May breeding population survey are used to set the regulations for the following autumn (in the same calendar year), as was done prior to 2013. Since the establishment of the 2013 FSEIS, state variables in year t are used to set the regulations for year t+1.

In practice, however, a pintail strategy will have to work under the framework of the FSEIS. To investigate the impact of this, the pintail harvest strategy (as derived) was simulated under the delayed conditions of the FSEIS framework. That is, to set the regulations for a given year in the simulation, the state variables from the year *before* were used. This can produce changes in regulations that are one-year late, although other more complicated patterns are possible. The effects on the performance metrics of the strategy are small (Table 1).

Table 1. Comparison of the performance of the pintail harvest strategy, with and without a oneyear delay in the availability of state variable estimates.

	Pre-FSEIS conditions	Post-FSEIS conditions
mean BPOP (obs)	2.01 M	2.02 M
mean Harvest (obs)	467 K	466 K
Freq. Closed	12.6 %	13.3 %
Freq. L1	31.4 %	29.8 %
Freq. L2	0.8 %	0.9 %
Freq. L3	55.2 %	56.0 %
Frequency of change	20.9 %	19.0 %

This analysis suggests that using a strategy that is derived under pre-2013 assumptions but implemented under post-2013 conditions will not greatly undermine the performance of the strategy. There's a more technical alternative—to derive the strategies under the post-2013 conditions, as is done for mid-continent mallards and as has been done for the current pintail strategy. For the sake of simplicity and ease of presentation, the harvest strategy omits this complexity.

Interim Implementation

For several reasons, pintail harvest management has been cautious for the last two decades. There is evidence that the continental carrying capacity for pintails declined by about 50% in the early 1980s. Pintail populations have hovered near historical lows in the last decade. When the 2010 harvest strategy was being negotiated, several flyways were concerned that allowing a 3bird bag limit option would raise the frequency of closed seasons to intolerable levels. Many of these same concerns remain, even with the updated population and harvest models. Since 1988, a liberal 3-bird season for pintail has only occurred once (in 1997), thus the estimate of the effect of a 3-bird bag on harvest is uncertain. A power analysis suggests that three additional years of experience with a 3-bird bag would be needed to clearly discern the difference between the effect of 2-bird and 3-bird regulations on the harvest in the Pacific Flyway and at the continental level, with longer periods needed to discern the same difference in the other three flyways.

For these reasons, this strategy is intended to be implemented on an experimental basis. The interim phase will last until three 3-bird seasons have been experienced. This could happen in as few as three years, but it could take longer—based on the expected frequencies of the regulatory packages (Table 1), five to six years might be expected. Implementation of the interim strategy will also continue until harvest under the third 3-bird season can be analyzed, which will include two additional years of the strategy (Tables 2 and 3), meaning the strategy will last a minimum of five hunting seasons.

Table 2. Timing of Interim Strategy: Scenario 1. In this scenario, the strategy happens to call for 3-bird bag limits in the first three years of implementation (marked by an asterisk). The data from those three seasons becomes available in August of 2028, is analyzed, and provides information to the Flyways for deliberation in early 2029, with adoption of an operational strategy in March-April 2029. But by this point, the regulations for the 2029-30 season (the fifth under the interim strategy) have already been proposed.

Year	**March-April**	**August**	**September**
2024	SRC recommends interim strategy	FWS proposes 2025-26 regulations	
2025		FWS proposes 2026-27 regulations	Interim Season 1 *
2026		FWS proposes 2027-28 regulations	Interim Season 2 *
2027		FWS proposes 2028-29 regulations	Interim Season 3 *
2028		FWS proposes 2029-30 regulations; *Data available from first 3 seasons*	Interim Season 4
2029	SRC recommends operational strategy		Interim Season 5
2030	…		Operational Season 1

Table 3. Timing of Interim Strategy: Scenario 2. In this scenario, the third 3-bird season is not called for until the 2030-31 hunting season. The interim strategy is evaluated in the winter of 2031-32, and an operational pintail strategy is in place for the 2033-34 season.

Year	**March-April**	**August**	**September**
2024	SRC recommends interim strategy	FWS proposes 2025-26 regulations	
2025		FWS proposes 2026-27 regulations	Interim Season 1
2026		FWS proposes 2027-28 regulations	Interim Season 2
2027		FWS proposes 2028-29 regulations	Interim Season 3 *
2028		FWS proposes 2029-30 regulations	Interim Season 4
2029		FWS proposes 2030-31 regulations	Interim Season 5 *
2030		FWS proposes 2031-32 regulations	Interim Season 6 *
2031		FWS proposes 2032-33 regulations; *Data available from three 3-bird seasons*	Interim Season 7
2032	SRC recommends operational strategy		Interim Season 8
2033	…		Operational Season 1

The evaluation of the interim phase will include the following analyses: (1) evaluation of the integrated population model, notably whether the parameters have remained stable; (2) evaluation

of the harvest models, especially whether the effect of the 3-bird bag limit is greater than estimated in the current models; and (3) evaluation of updated performance metrics for the harvest strategy, after the population and harvest models have been updated. Other analyses may also be called for.

The results of the evaluations will be provided to the Flyway Technical committees for consideration, with the expectation that deliberation by the Flyway Councils will follow. It is intended that an operational Northern Pintail Strategy will be negotiated (e.g., inclusion or exclusion of a 3-bird daily bag limit) and implemented based on the results of the interim phase with the support of the Flyways and the USFWS.

Acknowledgments

Significant contributions in developing this strategy were made by the members (past and present) of the Pintail Working Group: Brandon Reishus (Oregon Department of Fish and Wildlife); Melanie Weaver (California Department of Fish and Wildlife); Kevin Kraai (Texas Parks and Wildlife Department); Mike Szymanski (North Dakota Game and Fish); Larry Reynolds (Louisiana Department of Wildlife and Fisheries); Houston Havens (Mississippi Department of Wildlife, Fisheries, and Parks); Orrin Jones (Iowa Department of Natural Resources); Greg Balkcom (Georgia Department of Natural Resources); Josh Homyack (Maryland Department of Natural Resources); Doug Howell (North Carolina Wildlife Resources Commission); Todd Sanders, Jim Dubovsky, David Scott, Tom Cooper, Paul Padding, and Pat Devers (USFWS Flyway Representatives); G. Scott Boomer, Erik Osnas, Mark Seamans, Guthrie Zimmerman, Jeff Hostetler, and John Yeiser (USFWS); and Michael Runge (USGS).

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Recommendation 5 — Letter of Recognition for Eric Taylor

Recommendation

The Pacific Flyway Council (Council) approves sending the attached letter to Eric Taylor (former U.S. Fish and Wildlife Service – Alaska Region representative), in recognition of his retirement and service to the Council and Study Committee.

Justification

See attached letter.

Adoption Contact: Jason Schamber

Pacific Flyway Study Committee
February 16, 2024

Sean Yancey, Chair

Pacific Flyway Council
March 26, 2024

Doug Brimeyer, Chair

PACIFIC FLYWAY COUNCIL

Alaska ▪ Arizona ▪ California ▪ Colorado ▪ Idaho ▪ Montana
Nevada ▪ New Mexico ▪ Oregon ▪ Utah ▪ Washington ▪ Wyoming

March 26, 2024

Dr. Eric J. Taylor
Former Chief, Alaska Region Migratory Bird Management
U.S. Fish and Wildlife Service
1011 East Tudor Road
Anchorage AK 99503

Dear Eric:

On behalf of the Pacific Flyway Council, I would like to take this opportunity to recognize your contribution to the conservation and management of migratory birds in the Pacific Flyway. The birds we manage and those who rely on this resource have benefitted from your direct involvement in the Flyway Council process for many years. So too, have members of the Council benefitted from your actions and friendship during your fifteen-year tenure with the Migratory Bird Management Program.

While you represented the Alaska Region during your tenure with the Migratory Bird Management program, your focus was always on the long-term sustainability of bird populations regardless of State, Province or regional affiliation. Your commitment to working towards healthy and productive partnerships with state partners was apparent in your actions during Study Committee and Council meetings, furthering the spirit of collaborative conservation. In addition, you led a complex field program that delivered critical data needed for management decisions, for which the Council is grateful. Your direct involvement in subsistence harvest management was a great benefit to the Council as you provided a valuable perspective on management challenges.

Your commitment to mentoring and promoting the development of new wildlife managers was remarkable. On numerous topics, you brought forward your full resolve to tackle difficult management issues. Notably, you were instrumental in resolving conflicts among user groups through a structured decision-making process ultimately leading to the revision of the minima cackling goose management plan. Your investment in the revisions of the dusky Canada goose, Pacific brant, Western Tundra swan, and the uniquely Alaskan emperor goose management plans also represented a large volume of work for which the Council is grateful.

The Council acknowledges your career-long commitment for conservation of migratory birds and truly appreciates your demonstration that successful strategies come from working together. We will miss your good humor, professional conduct, and your dedication to solving difficult problems for the benefit of the migratory birds we cherish. As you enter your next steps in retirement, bring with you those fine characteristics and the knowledge that your career made an important impact. Thank you for your public service to the Council.

Sincerely,

Doug Brimeyer, Chair
Pacific Flyway Council

Recommendation 6 — Letter of Recognition for Brian Holmes

Recommendation

The Pacific Flyway Council (Council) approves sending the attached letter for Colorado Parks and Wildlife biologist Brian Holmes who served as a member of the Nongame Technical Committee from 2019–2023.

Justification

See attached letter.

Adoption Contact: Grant Frost

Pacific Flyway Nongame Technical Committee
February 16, 2024

Grant C Frost

Grant Frost, Chair

Pacific Flyway Council
March 26, 2024

Doug Brimeyer

Doug Brimeyer, Chair

PACIFIC FLYWAY COUNCIL

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Nevada ▪ New Mexico ▪ Oregon ▪ Utah ▪ Washington ▪ Wyoming

February 16, 2024

Brian Holmes
Colorado Parks and Wildlife
Meeker, CO 81641

Dear Brian,

On behalf of the Pacific Flyway Council (Council), I recognize and thank you for your four years (2019-2023) of dedicated service and contributions to the management of migratory bird populations in the Pacific Flyway.

You represented Colorado diligently in addition to your full-time duties as an area biologist with Colorado Parks and Wildlife. In your tenure, you participated in the evolution of the NTC's current priority initiatives, as well as the expansion of the Intermountain West Shorebird Survey which has been successfully implemented. Your participation in discussion and planning, as well as preparing regulatory recommendations to further migratory bird conservation in the Pacific Flyway was appreciated, and your insights to the NTC from a field biologist perspective was welcomed.

As vice-chair, you fulfilled your duties remotely using new technologies for virtual meetings during the Covid-19 pandemic. It is no small task to take notes for an animated conversation when you are not in the room! As chair, you stepped in to lead the NTC during a time of increasing turnover in NTC members. You kept the group on task and focused on responding to regulatory conversations and priority initiative implementation. You were the definition of an excellent host by volunteering to shuttle presenters from Mexico to and from Denver International Airport to Winter Park; a long round trip. We appreciate all the effort that you have invested in the success of the NTC and the Council.

We wish you well in your new endeavors and in all that lies ahead. Thank you again for your service to the Pacific Flyway Nongame Technical Committee.

Sincerely,

Doug Brimeyer

Doug Brimeyer, Chair
Pacific Flyway Council

INFORMATIONAL NOTES

Informational Note 1 — 2023 Status Report on the Pacific Flyway Council Funded Southern Wings Projects

In February 2023, through voluntary special assessments totaling $35,400.00, the Pacific Flyway Council (Council) funded three Southern Wings projects representing Flyway priorities, plus two additional projects at the request of states providing voluntary assessments. In July 2019, Council asked for status reports on Council funded projects. The following is a summary of the 2023 status reports for the five Council funded projects. Full status reports available on request.

STATUS REPORTS ON 2023 PROJECTS FUNDED BY THE PACIFIC FLYWAY COUNCIL

Project 1. The Pacific Flyway Shorebird Survey: Identifying Threats and Conservation Hotspots in Northwest Mexico

Northwest Mexico (Baja California, Baja California Sur, Sonora, Sinaloa, Nayarit)

The Pacific Coast of the Western Hemisphere supports entire populations of neotropical migratory shorebird species during the non-breeding season. A network of coastal and interior wetlands stretching from Alaska to Chile hosts significant aggregations of shorebirds, and is critical for their survival. These wetlands include 12 Western Hemisphere Shorebird Reserve Network sites in northwest Mexico. The Pacific Flyway Shorebird Survey (PFSS) and the Migratory Shorebird Project (MSP) work to fill gaps in Pacific Flyway species population status and trends, assess threats, and identify priority sites for conservation. Mexico is particularly important because globally significant populations of shorebird species spend the winter on the Pacific Coast. Primary species recorded during the annual winter surveys in Mexico include: western sandpiper, dunlin, marbled godwit, willet, black-bellied plover, sanderling, greater yellowlegs, dowitchers, snowy plover, black-necked stilt, and American avocet. The main conservation concerns for shorebirds in the region are human disturbance and habitat loss or degradation.

The MSP aims to complete annual non-breeding bird surveys at 21 sites across Mexico. These surveys collect data on the number of birds (shorebirds, waterbirds, and waterfowl), and assess human disturbance, habitat condition, and raptor presence. The project will also develop and implement a sampling design to improve monitoring for snowy plover, red knot, willet, and sanderling on sandy beaches and better understand human impacts centered on beaches. Bird survey data will be combined with habitat maps to identify conservation priority wintering sites for focal species identified in Pacific Flyway State Wildlife Action Plans. Terra Peninsular, a conservation NGO, is developing shorebird-friendly management and conservation strategies for important areas. Terra Peninsular is also working to establish private preserves within the Bahia San Quintin to conserve key wintering habitat for Pacific brant and other priority species. Surveys will also inform communication and outreach activities with local communities to raise environmental awareness on shorebird conservation.

Status Report: Conducted midwinter Pacific brant surveys in all major wintering sites in northwest Mexico (13 sites) and nonbreeding midwinter shorebird and waterfowl surveys at 21

sites (250 sampling units). Effort included monitoring five sites as part of the regional snowy plover midwinter survey. Also conducted three breeding waterbird surveys at Tobari Bay (southern Sonora) and documented 12 species breeding on 11 dredge-spoil islands. Analyzed survey data and published several scientific articles with management implications, including *Toolkit for managing human disturbance to shorebirds in the Americas*. Habitat protection activities included a) establishing temporary barriers around nesting grounds of snowy plovers and California least terns (four areas), and American oystercatchers (one area) and b) working with communities to conduct dune restoration, trail maintenance and trash removal in Monte Ceniza and Punta Mazo nature reserves. Also continued collaborating with a local hunting organization in San Quintin Bay to enhance Pacific brant habitat and reduce illegal hunting and human disturbance.

Southern Wings Partners: Pacific Flyway Council ($5,700 in 2023), Arizona, California, Terra Peninsular, Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), Centro de Investigación en Alimentación y Desarrollo, A.C. (CIAD Guaymas, Sonora), Point Blue Conservation Science, Universidad Nacional Autónoma de México (UNAM), Centro de Investigaciones Biológicas del Noroeste (CIBNOR), Universidad Autónoma de Baja California Sur (UABCS), Grupo Aves del Noroeste De México (GANO), U.S. Forest Service International Program (USFSIP).

Project 2. Restoration of Wetland Hydrology in the Marismas Nacionales of Nayarit, Mexico to benefit migratory waterfowl and shorebirds

Northwest Mexico (Nayarit)

Marismas Nacionales in Nayarit, Mexico is a complex of wetlands that form a mixture of marine waters and 11 rivers, creating a varied mosaic of ecosystems such as meanders, river deltas, marshes, freshwater lagoons, estuaries, coastal lagoons, intertidal wetlands and coastal dunes. It supports the largest mangrove area on the Pacific coast. Marismas Nacionales is one of the most important energy resupply sites for waterfowl on the Mexican Pacific Flyway, providing high quality foraging and resting sites for 15 migratory species. The area is notable for its concentration of: northern shoveler (130,000), green-winged teal (25,000), pintail (12,000), and other waterfowl. It also provides habitat for more than 427,000 wintering shorebirds of 28 species, including American avocet (137,000-20% of its total population), and western sandpiper (145,000).

These networks of wetlands face numerous threats, including retention and excessive use of water for agriculture and livestock, establishment of shrimp farms, disruption of natural hydrological flows, and invasive plants. All these threats have resulted in drastic mangrove mortality, higher lagoon salinity and reduced habitat for wetland dependent bird species. Restoring the habitat depends, to a great extent, on maintenance of fresh water flows from rivers, streams and springs and on a functional network of natural channels within the mangrove system. This project focuses on restoring hydrological flows for the recovery and conservation of mangrove ecosystems in several tidal and sub-tidal basins within Marismas Nacionales. Actions include rehabilitating approximately 8 miles of the Viejo River, part of the Chugüin-Chuiga tidal sub-basin. Restoration measures include cleaning and dredging (e.g., removal of dead mangroves) natural channels and the Rio Viejo, and reestablishment of mangroves through the collection and dispersal of seeds. Habitat enhancement work will proceed through the establishment and management of Wildlife Conservation Management Units (a formal habitat and wildlife management framework) in collaboration with private landowners, ejidos and land managers.

Status Report: Trained 60 individuals and organized community work brigades to conduct wetland restoration actions on 494 acres in Valle de la Urraca. Also worked with landowners to update and finalize the status of two Wildlife Conservation Management Units (9,884 acres in Valle de la Urraca and 123 acres in Paso Hondo) which included an option to increase the footprint of the conservation areas in the future. Also implemented three education/outreach workshops in the communities of La Puntilla, Morillos and San Andrés de las Haciendas. The workshops focused on wetland conservation and regional charismatic species and targeted adults and children.

Conducted bird surveys and monitored water quality and vegetation structure at restoration sites to track restoration progress over time. Seasonal bird surveys (October-March) at the Laguna Las Garzas and Valle de la Urraca sites indicated a cumulative richness of 66 species (35 migratory, 22 resident, and nine both) from nine orders and 17 families. The majority of the species richness (32%) consisted of shorebirds such as plovers, sandpipers and avocets. Additionally, ten species of ducks were recorded.

Southern Wings Partners: Pacific Flyway Council ($7,200 in 2023), ejidos, farmers, ranchers, fisheries cooperatives, Marismas Nacionales Biosphere Reserve, Comisión Nacional de Áreas Naturales Protegidas (CONANP), Comisión Nacional Forestal (CONAFOR), Municipality of Tecuala, Organización Vida Silvestre A.C (OVIS), US Fish and Wildlife Service.

Project 3. Conservation of Neotropical migratory birds in the dry tropical forests of El Salvador: Assessing and addressing threats to overwintering habitat and bird populations

El Salvador

Numerous migratory birds from throughout the Pacific Flyway use Central America's Pacific coast during stopover migration and overwintering. Most of this geography was once dominated by seasonally dry tropical forests. However, large-scale conversion to agriculture and pasture has made the dry tropical forest one of the world's most endangered ecosystems, with less than 2% of the original forest intact. Only 5% of remaining dry forest in Mexico and Central America receive some degree of protection. Primary threats to dry tropical forest in El Salvador include habitat conversion from forest to intensive agriculture, and degradation through timber and firewood extraction and wildfires. Approximately 364 bird species have been recorded in the dry tropical forests of El Salvador, including 38 species that are considered Species of Greatest Conservation Need (SGCN) from across 12 western states. Some SGCN species using these dry tropical forests include willow flycatcher (potentially the southwestern subspecies), yellow-billed cuckoo, Mississippi kite, peregrine falcon, Swainson's hawk, brown-crested flycatcher, Macgillivray's warbler, summer tanager, and Bell's vireo, among others.

The project aims to conserve overwintering birds and their dry tropical forest habitats in the eastern region of El Salvador. The eastern region has high conservation potential for birds due to its relatively low human population density and high cover of tropical forest. The project will use a three-pronged strategy: 1) restore and protect dry tropical forest habitat, 2) carry out targeted monitoring and research of species of special concern, and 3) build capacity amongst local people, private sector partners, and governments for improved habitat management and awareness of migratory birds.

Status Report: Maintained a team of 10 community rangers who worked on conserving a 7,413 acre tropical dry forest through fire prevention actions. The team also conducted community projects, such as promoting sustainable agriculture practices (water harvesting), planting native trees (500 seedlings), and environmental education outreach. Through the World Surf League –

One Ocean initiative, rangers removed 1400 lbs. of plastics from the ocean, beaches, rivers and roadsides. Capacity building activities included implementing a migratory birds workshop for community rangers, and working with two US-based volunteers to develop a 1-day birding guide training.

Project staff also worked with two other partners to submit a proposal on establishing a World Surfing Reserve called Oriente Salvaje (25,469 acres). This designation would expand the existing public forest reserve "Caballito" of 507 acres, and strengthen management across the western portion of the Xirihualtique-Jiquilisco Biosphere Reserve which includes vital mangrove forests. Also, began the process of purchasing a 62-acre property of tropical deciduous forest with support from Zoo Boise. As part of willow flycatcher monitoring, 87 potential wintering sites were surveyed in Eastern El Salvador, with 12 of the sites being occupied. The occupied sites were characterized as dry tropical forest habitats bordering wetlands or rivers, and they also harbored other priority species, including American redstart, brown-crested flycatcher, common yellowthroat, dickcissel, dusky-capped flycatcher, northern beardless-tyrannulet, rose-throated becard, sulphur-bellied flycatcher, summer tanager, and western tanager (all data entered into eBird). Work also continued on building a Motus network in El Salvador, by obtaining key station components and engaging in conversations with the Ministry of the Environment.

Southern Wings Partners: Pacific Flyway Council ($3,600 in 2023), Arizona, Paso Pacífico, Zoo Boise, Zoological Foundation of El Salvador (FUNZEL), Fundación Enrique Figueroa Lemus, Ministerio de Medio Ambiente y Recursos Naturales (MARN), Sociedad Salvaje, Asociación de Desarrollo Turístico de la Costa Oriental De El Salvador (ADETCO), Compañía Azucarera Salvadoreña (CASSA), Southern Sierra Research Station (SSRS), Mujeres y Naturaleza (MUNAT).

Additional Project 1: A Sustainable Grazing Network to Protect and Restore Grasslands on Private and Communal Lands in Mexico's Chihuahuan Desert

Northern Mexico (Chihuahua and Sonora)

Grassland birds are declining more rapidly than any other group of North American birds. The Chihuahuan Desert of northern Mexico is a continentally important wintering area, supporting significant populations of more than 90% of the migratory grassland bird species that breed in western North America. Intensive cropland agriculture is rapidly expanding in the Mexican Chihuahuan Desert, threatening to severely reduce the remaining low-slope native grassland habitat needed by nearly 30 high-priority grassland bird species. To reduce the threat of habitat degradation and conversion, Bird Conservancy of the Rockies (BCR) and partners have created the Sustainable Grazing Network (SGN) to engage private and communal landowners in range improvement and habitat restoration projects on their lands through development of bird-friendly management plans and technical and financial assistance in implementing rotational grazing systems (including needed infrastructure), protection of sensitive habitat, shrub-removal, erosion control, and other restoration techniques. The aim is to secure 15-year collaborative agreements with each major partnering landowner to protect conservation investments. Keeping ranchers on the land by helping them improve their management and profitability, while simultaneously improving wildlife habitat, is currently the most immediate and cost-effective way to prevent further loss of grasslands in the region. Species benefited include chestnut-collared longspur, Brewer's sparrow, grasshopper sparrow, lark bunting, clay-colored sparrow, Baird's sparrow, scaled quail, Sprague's pipit, loggerhead shrike, western meadowlark, ferruginous hawk, aplomado falcon, Mexican pronghorn, and prairie dogs.

Status Report: Enrolled two new properties totaling 86,917 acres into the SGN, protecting them from cropland development for at least 15 years and putting them on a path toward greater resiliency, both economically and ecologically, through enhanced grazing management and grassland restoration. These properties include the 24,288-acre El Mesteno Ranch, and the 62,629-acre La Esperanza Ranch, both located in the Valles Centrales Grassland Priority Conservation Area (GPCA). These additions bring the total area impacted through the SGN to 665,680 acres on 36 ranches, with 15-year conservation agreements on 31 properties encompassing 612,874 acres.

Completed 19 range improvement and grassland restoration projects in 2023 that impacted a total of 82,715 acres, including 32,035 acres of Chihuahuan grasslands. The rangeland improvements included 19.2 km of plastic tubing for water distribution, construction of 7 water storage tanks, 10 mobile drinking troughs, 3 solar pumps/panels and 200 electric fence posts. Also reduced shrub cover on 200 acres of degraded Chihuahuan grassland through mechanical control (bulldozer).

Also monitored wintering grassland birds on all SGN properties and in the surrounding GPCAs of Janos and Valles Centrales during the winter of 2023. Analyses of data from 2014-2023 indicate densities of sprague's pipits increased by 16%/year across SGN ranches from 2014-2020, and higher densities of this and other species including baird's sparrow and chestnut-collared longspur on SGN ranches in 2022 and 2023 relative to other grasslands in the GPCAs at large.

Southern Wings Partners: Pacific Flyway Council ($7,000 in 2023), Arizona, Colorado, Minnesota, Montana, New Mexico, Colorado Field Ornithologists, and City of Fort Collins. This project leverages significant additional investment from Mexican landowners, Comisión Nacional de Áreas Naturales Protegidas (CONANP), Carlos Slim Foundation-WWF, Bobolink Foundation, Dixon Water Foundation, Canadian Wildlife Service, U.S. Fish and Wildlife Service (Neotropical Migratory Bird Conservation Act), Bureau of Land Management, U.S. Forest Service International Program.

Additional Project 2. Protection of Desert Grasslands Migratory Bird Habitat in the El Tokio Grassland Priority Conservation Area

Northern Mexico (Coahuila, Zacatecas, San Luis Potosi, Nuevo Leon)

The desert grasslands, located south of the city of Saltillo (Coahuila) in northern Mexico, are high elevation (6,000 to 7,000 feet) grasslands important to numerous wintering migratory birds as well as threatened resident bird species. More than 250 bird species are found in El Tokio Grassland Priority Conservation Area (GPCA), including significant numbers of wintering long-billed curlews (up to 2,000 individuals have been seen in a single flock). This region is one of the most important wintering areas for mountain plovers and sprague's pipit. Other species include loggerhead shrike, lark bunting, brewer's and baird's sparrow and ferruginous hawk. One of the most significant threats to grassland habitat in El Tokio is overgrazing by cattle and goats. The loss of vegetative cover, in a region with naturally arid soil, has exacerbated drought conditions and is leading to desertification. Erosion and a proliferation of invasive plant species are side effects of overgrazing and contribute to a loss of grassland habitat. Another significant threat is the rapid conversion of the land to agriculture, primarily for potato production.

Pronatura Noreste's (PNE) Chihuahuan Desert Grasslands program goal is to ensure the protection and management of 2,400,000 acres of grassland habitat. American Bird Conservancy (ABC) is working with PNE to help them achieve this goal, and specifically for the improved protection, management, and restoration of grasslands within the El Tokio GPCA. Pronatura Noreste and ABC have supported conservation efforts on more than 140,000 acres of habitat through the creation of

private reserves, ejido reserves, and conservation agreements that restrict cattle ranching and agriculture practices. The project's long-term goal is to directly impact at least 370,000 acres of grasslands through improved grassland management and erosion control. A key part of achieving this goal is to create a habitat corridor that would connect approximately 15 ejidos and ensure that each has at least some percentage of ejido land dedicated to conservation. Specific conservation activities include creation of management plans and grazing recommendations, installation of erosion control systems to help restore grasslands, and installation of water infrastructure and fencing for livestock control.

Status Report: ABC and PNE have helped restore grasslands on over a dozen properties in El Tokio. This includes the protection and management of two reserves owned and managed by PNE: Loma del Gorrión and Cuatro Gorriones. Here support has gone to maintaining a guard for the two reserves, which has been crucial for deterring illegal activity and carrying out management tasks such as monitoring and repairing the fence that prevents the ingress of goats from neighboring properties and allows for sustainable grazing practices. In addition, PNE has installed erosion control devices, removed invasive plant species, developed sustainable cattle grazing plans with ejidos, and trained local ranchers on best cattle ranching practices.

Southern Wings Partners: Pacific Flyway Council ($11,900 in 2023), Pronatura Noreste (PNE), American Bird Conservancy (ABC), ejidos, Oklahoma, South Dakota, Nebraska, Iowa, Texas, Kansas.

Adoption

Pacific Flyway Nongame Technical Committee — Contact: Edwin Juarez
February 16, 2024

Grant C Frost

Grant Frost, Chair

Pacific Flyway Study Committee
February 16, 2024

Sean Yancey

Sean Yancey, Chair

Informational Note 2 — 2024 Southern Wings Projects

In July 2015, the Pacific Flyway Council (Council) adopted a process to evaluate, endorse, and collaboratively fund, if desired, Southern Wings projects that reflect priorities of Pacific Flyway states (Recommendation #10). Through this process, the Pacific Flyway Nongame Technical Committee (NTC) and Study Committee (SC) submit up to three projects to Council each year. The Southern Wings projects described below are projects that reflect Pacific Flyway priorities. The NTC and SC will continue to work with the Southern Wings Technical Committee to develop new projects or identify existing projects that reflect Pacific Flyway priorities.

In September 2018, Council approved a voluntary assessment process for states to contribute funds to Southern Wings through Council. Voluntary assessments totaled $2,500 in 2019 (three states), $23,499 in 2020 (seven states), $16,500.99 in 2021 (seven states), $26,800 in 2022 (seven states), and $35,400 (eight states) in 2023. Voluntary assessments in 2024 totaled $34,400 (eight states) and will be directed toward projects that represent Pacific Flyway priorities. There are three selected projects, as well as two additional projects at the request of states providing voluntary assessments.

PROPOSED PROJECTS IDENTIFIED FOR THE PACIFIC FLYWAY

Project 1. The Pacific Flyway Shorebird Survey: Identifying Threats and Conservation Hotspots in Northwest Mexico ($5,250 allocation in 2024)

Northwest Mexico (Baja California, Baja California Sur, Sonora, Sinaloa, Nayarit)

The Pacific Coast of the Western Hemisphere supports entire populations of neotropical migratory shorebird species during the non-breeding season. A network of coastal and interior wetlands stretching from Alaska to Chile hosts significant aggregations of shorebirds, and is critical for their survival; these wetlands include 12 Western Hemisphere Shorebird Reserve Network sites in northwest Mexico. The Pacific Flyway Shorebird Survey (PFSS) and the Migratory Shorebird Project (MSP) work to fill gaps in Pacific Flyway species population status and trends, assess threats, and identify priority sites for conservation. Mexico is particularly important because globally significant populations of shorebird species spend the winter at numerous sites along the Pacific Coast of that country. Primary species recorded during the annual winter survey in Mexico include: western sandpiper, dunlin, marbled godwit, willet, black-bellied plover, sanderling, greater yellowlegs, dowitcher spp., snowy plover, black-necked stilt, and American avocet. The main conservation concerns for shorebirds in the region are human disturbance and habitat loss or degradation.

The MSP aims to complete standardized annual non-breeding bird surveys at 21 sites across Mexico. These surveys will collect data on a number of birds (shorebirds, waterbirds, and waterfowl), and assess human disturbance, habitat condition, and raptor presence. Bird survey data will be combined with habitat maps to identify priority overwintering sites for focal species identified in Pacific Flyway State Wildlife Action plans. Project partners will work with Terra

Peninsular, a conservation NGO, to develop shorebird-friendly management and conservation strategies for important areas. Surveys will also inform communication and outreach activities with local communities to raise environmental awareness of shorebird conservation. Another action is to collaborate with local hunting organizations to strengthen conservation and management of designated wildlife conservation units through activities such as habitat enhancement, sustainable hunting and improvement of harvest data capture.

The budget need is approximately $32,000 per year. Funds will help conduct bird surveys (shorebirds, waterbirds, and waterfowl) across at least 10 of 21 established sites, continue monitoring coverage at sandy beaches (targeting snowy plover, red knot, willet, and sanderling), conserve key wintering sites, and implement conservation strategies. The MSP data will be used to assess population status and trends for several priority shorebird species. Collaboration will continue with local waterfowl hunting organizations to enhance waterfowl habitat, monitor wintering population of Pacific brant, and improve collection of harvest information. Funds will also support work to manage irrigation canals to maintain waterfowl habitat, conduct management activities on private reserves, and engage in education/outreach activities (including outreach to managers of wildlife conservation units). Individual actions can be supported for $2,500 to $9,000 each.

Southern Wings Partners: Pacific Flyway Council ($5,700 in 2023), Arizona, California, Terra Peninsular, Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), Centro de Investigación en Alimentación y Desarrollo, A.C. (CIAD Guaymas, Sonora), Point Blue Conservation Science, Universidad Nacional Autónoma de México (UNAM), Centro de Investigaciones Biológicas del Noroeste (CIBNOR), Universidad Autónoma de Baja California Sur (UABCS), Grupo Aves del Noroeste De México (GANO) U.S. Forest Service International Program.

Project 2. Restoration of Wetland Hydrology in the Marismas Nacionales of Nayarit, Mexico to benefit migratory waterfowl and shorebirds ($6,250 allocation in 2024)

Northwest Mexico (Nayarit)

Marismas Nacionales in Nayarit, Mexico is a complex of wetlands that form a mixture of marine waters and 11 rivers, creating a varied mosaic of features such as meanders, river deltas, marshes, freshwater lagoons, estuaries, coastal lagoons, intertidal wetlands, and coastal dunes. It supports the largest mangrove area on the Pacific coast. Marismas Nacionales is one of the most important energy resupply sites for waterfowl on the Mexican portion of the Pacific Flyway, providing high quality foraging and resting sites for 15 migratory species. The area is notable for its concentration of: northern shoveler (130,000), green-winged teal (25,000), northern pintail (12,000), and other waterfowl. It also provides habitat for more than 427,000 wintering shorebirds of 28 species, including American avocet (137,000, which constitutes about 20% of its total population), and western sandpiper (145,000).

These networks of wetlands face numerous threats, including retention and excessive use of water for agriculture and livestock, establishment of shrimp farms, disruption of natural hydrological flows, and invasive vegetation. All these threats have resulted in drastic mangrove mortality, higher lagoon salinity and reduced habitat for wetland dependent bird species. Restoring the habitat depends, to a great extent, on maintenance of fresh water flows from rivers, streams and springs and on a functional network of natural channels within the mangrove systems. This project focuses on restoring hydrological flows for the recovery and conservation of mangrove ecosystems

by rehabilitating approximately eight miles of the Viejo River channel in the Chugüin-Chuiga tidal sub-basin and 17 miles of tidal channels distributed across three other sub-basins. Restoration measures include cleaning and dredging (e.g., removal of dead mangroves) of natural channels and the Rio Viejo, reestablishment of mangroves through the collection and dispersal of seeds, and removal of invasive species. Monitoring is required to track progress. Habitat conservation work will proceed through maintenance or establishment of Wildlife Conservation Management Units (WCMs), conservation easements, and wetland reserves in collaboration with ejidos (communal landowners), private landowners and land managers.

The budget need is approximately $10,000. Funding will help train and organize restoration brigades (from local communities) to conduct dredging and cleaning activities and other habitat work. Bird surveys (waterfowl, waterbirds and shorebirds), water quality assessments, and vegetation monitoring will continue at restoration sites to track progress. Compiled data (bird surveys and other assessments) will be analyzed and presented to reserve managers to inform conservation management and planning. Habitat conservation will involve establishing new WCMs and strengthening existing ones in consultation with local communities and ejidos. Funding will also assist with community outreach and media campaigns to raise awareness about the benefits of the project and wetland conservation in general. Contributions of $5,000 to $10,000 will support implementation of project objectives.

Southern Wings Partners: Pacific Flyway Council ($7,200 in 2023), ejidos, farmers and ranchers, fisheries cooperatives, Marismas Nacionales Biosphere Reserve, Comisión Nacional de Áreas Naturales Protegidas (CONANP), Comisión Nacional Forestal (CONAFOR), Municipality of Tecuala and Organización Vida Silvestre A.C (OVIS), US Fish and Wildlife Service.

Project 3. A Sustainable Grazing Network to Protect and Restore Grasslands on Private and Communal Lands in Mexico's Chihuahuan Desert ($10,000 allocation in 2024)

Northern Mexico (Chihuahua and Sonora)

Grassland birds are declining more rapidly than any other group of North American birds. The Chihuahuan Desert of northern Mexico is a continentally important wintering area, supporting significant populations of more than 90% of the migratory grassland bird species that breed in western North America. Intensive cropland agriculture is rapidly expanding in the Mexican Chihuahuan Desert, threatening to severely reduce the remaining low-slope native grassland habitat needed by nearly 30 high-priority grassland bird species. To reduce the threat of habitat degradation and conversion, Bird Conservancy of the Rockies (BCR) and partners have created the Sustainable Grazing Network (SGN) to engage private and ejido (communal) landowners in range improvement and habitat restoration projects on their lands through development of bird-friendly management plans and technical and financial assistance in implementing rotational grazing systems (including needed infrastructure), protection of sensitive habitat, shrub-removal, erosion control, and other restoration techniques. The aim is to secure 15-year collaborative agreements with each major partnering landowner to protect conservation investments. Keeping ranchers on the land by helping them improve their management and profitability, while simultaneously improving wildlife habitat, is currently the most immediate and cost-effective way to prevent further loss of grasslands in the region. Species benefited include chestnut-collared longspur, Brewer's sparrow, grasshopper sparrow, lark bunting, clay-colored sparrow, Baird's

sparrow, scaled quail, Sprague's pipit, loggerhead shrike, western meadowlark, ferruginous hawk, aplomado falcon, Mexican pronghorn, and prairie dogs.

Bird Conservancy of the Rockies collaborates with other local partners with expertise in landowner outreach, grazing management and grassland birds. Thanks to support from many partners, BCR currently supports four full-time private lands wildlife biologists in northern Mexico who operate all aspects of the SGN program from outreach and landowner relations, to development and implementation of management plans and habitat restoration, to bird monitoring and evaluation. Funding is needed to support delivery of technical assistance and cost-share infrastructure (i.e., fencing, water distribution lines, water storage tanks and troughs, etc.) needed to facilitate rest-rotational grazing plans and improve grassland conditions, as well as pay for diesel and machinery rental for shrub removal ($125/acre) and sub-soil aeration ($75/acre). Funding is also needed to construct water tank escape ladders (2 m tall, $80/each) to prevent accidental drowning of birds and aplomado falcon nest platforms ($250/each) to improve reproductive success. Capacity building, training and outreach events to landowners would also be enhanced with additional funding.

Southern Wings Partners: Pacific Flyway Council ($7,000 in 2023), Arizona, Colorado, Minnesota, Montana, New Mexico, Colorado Field Ornithologists, and City of Fort Collins. This project leverages significant additional investment from Mexican landowners, Comisión Nacional de Áreas Naturales Protegidas (CONANP), Carlos Slim Foundation-WWF, Bobolink Foundation, Dixon Water Foundation, Canadian Wildlife Service, U.S. Fish and Wildlife Service (Neotropical Migratory Bird Conservation Act), Bureau of Land Management, U.S. Forest Service International Program.

Additional Project 1. Protection of Desert Grasslands Migratory Bird Habitat in the El Tokio Grassland Priority Conservation Area. ($9,900 allocation in 2024)

Northern Mexico (Coahuila, Zacatecas, San Luis Potosi, Nuevo Leon)

The desert grasslands, located south of the city of Saltillo (Coahuila) in northern Mexico, are high elevation (6,000 to 7,000 feet) grasslands important to numerous wintering migratory birds as well as threatened resident bird species. More than 250 bird species are found in El Tokio Grassland Priority Conservation Area (GPCA), including significant numbers of wintering long-billed curlews (up to 2,000 individuals have been seen in a single flock). This region is one of the most important wintering areas for mountain plovers and Sprague's pipit. Other species include loggerhead shrike, lark bunting, Brewer's and Baird's sparrow and ferruginous hawk. One of the most significant threats to grassland habitat in El Tokio is overgrazing by cattle and goats. The loss of vegetative cover, in a region with naturally arid soil, has exacerbated drought conditions and is leading to desertification. Erosion and a proliferation of invasive plant species are side effects of overgrazing and contribute to a loss of grassland habitat. Another significant threat is the rapid conversion of the land to agriculture, primarily for potato production.

Within El Tokio GPCA, American Bird Conservancy (ABC) and Pronatura Noreste (PNE) have supported conservation efforts on more than 140,000 acres of habitat through the creation of private reserves, ejido (community-owned) reserves, and conservation agreements that advance more sustainable cattle ranching and agriculture practices. They have also supported the installation of erosion control measures and ranching infrastructure, as well as implemented ranching best management practices.

The budget need is approximately $70,000. American Bird Conservancy and PNE would like to continue collaborating with ejidos already in the program to conduct habitat improvement activities and to expand this project to new properties in the region. Activities include: continue installing and restoring ranching and water infrastructure, erosion control measures, and the removal of invasive plants. Also, engage and work with new ejidos to restore degraded grasslands and enhance their livestock grazing practices, and build ejidos' knowledge on grassland birds and their importance. Contributions of $5,000 to $10,000 will support implementation of project objectives.

Southern Wings Partners: Pacific Flyway Council ($11,900 in 2023), Pronatura Noreste (PNE), American Bird Conservancy (ABC), ejidos, Oklahoma, South Dakota, Nebraska, Iowa, Texas, Kansas.

Additional Project 2. Conservation of Neotropical migratory birds in the dry tropical forests of El Salvador: Assessing and addressing threats to overwintering habitat and bird populations ($3,000 allocation in 2024)

El Salvador

Numerous migratory birds from throughout the Pacific Flyway use Central America's Pacific coast during migration and overwintering periods. Most of this geography was once dominated by seasonally dry tropical forests. However, large scale conversion to agriculture and pasture has made the dry tropical forest one of the world's most endangered ecosystems, with less than 2% of the original forest remaining intact. Only 5% of remaining dry forest in Mexico and Central America receive some degree of protection. Primary threats to dry tropical forest in El Salvador include habitat conversion from forest to intensive agriculture, and degradation through timber and firewood extraction and wildfires. Approximately 364 bird species have been recorded in the dry tropical forests of El Salvador, including 38 species that are considered Species of Greatest Conservation Need (SGCN) from across 12 western states. Some SGCN species using these dry tropical forests include willow flycatcher, yellow-billed cuckoo, Mississippi kite, peregrine falcon, Swainson's hawk, brown-crested flycatcher, Macgillivray's warbler, summer tanager, and Bell's vireo, among others.

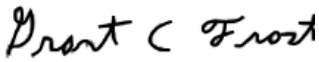
The project aims to protect overwintering bird species and their dry tropical forest habitats in the eastern region of El Salvador. The eastern region has high conservation potential for birds due to its relatively low human population density and high cover of tropical forest. The project will use a 3-pronged strategy: 1) restore and protect dry tropical forest habitat, 2) conduct targeted monitoring and research of species of special concern, and 3) build capacity amongst local people, private sector partners, and governments for improved habitat management and awareness of migratory birds.

The budget need is approximately $20,500. Specific habitat conservation actions to implement include: a) sustain a team of 10 community rangers at the Chilanguera and Olomega reserves focusing on habitat management, fire prevention (7,413 acres), community outreach, and bird monitoring, b) ground-truth potential willow flycatcher habitat patches and conduct bird surveys to prioritize for monitoring and conservation, and c) continue identifying forest parcels suitable for purchasing to expand network of private reserves. Another activity includes conducting

educational workshops with community farmers and sugarcane mill staff focused on riparian habitats. Project will also continue to promote a culture of appreciation for birds through community education events and birding activities (e.g., Global Big Day, Observadores de Aves de Oriente). Funds will also support establishment of Motus stations in El Salvador. Contributions of $2,500 to $5,000would support implementation of project objectives.

Southern Wings Partners: Pacific Flyway Council ($3,600 in 2023), Arizona, Paso Pacífico, Zoo Boise, Zoological Foundation of El Salvador (FUNZEL), Fundación Enrique Figueroa Lemus, Ministerio de Medio Ambiente y Recursos Naturales (MARN), Sociedad Salvaje, Asociación de Desarrollo Turístico de la Costa Oriental De El Salvador (ADETCO), Compañía Azucarera Salvadoreña (CASSA), Southern Sierra Research Station (SSRS), Mujeres y Naturaleza (MUNAT).

Adoption Contact: Edwin Juarez
Pacific Flyway Nongame Technical Committee
February 16, 2024



Grant Frost, Chair

Pacific Flyway Study Committee
February 16, 2024

Sean Yancey, Chair

Informational Note 3 — Harvest Allocation of Peregrine Falcons for Falconry Purposes in the United States West of 100° West Longitude

In March 2009, the Pacific Flyway Council adopted authorizations under the U.S. Fish and Wildlife Service's *Final Environmental Assessment and Management Plan on Take of Migrant Peregrine Falcons from the Wild for Use in Falconry, and Reallocation of Nestling/Fledgling Take* (2008). This allowed for the harvest of up to 116 wild first-year peregrine falcons per year (41 in Alaska, 75 apportioned among states west of 100º west longitude) for use in falconry.

In the 14 years since the harvest has been allowed, nine Pacific Flyway states (excluding Alaska) have:

1. Authorized permits for the harvest of an average of 65 (range 56 to 79) peregrine falcons per year.
2. Removed an average of 25 (range 13 to 38) peregrine falcons from the wild per year.

Two states (Nevada and California) within the Pacific Flyway, and six states within the Central Flyway west of 100º west longitude, currently do not authorize the harvest of peregrine falcons. During the 2023 peregrine falcon harvest season the Pacific Flyway states (excluding Alaska) authorized the take of 65 individuals, with 15 peregrine falcons taken for falconry. Alaska, which has their own allocation, has authorized the annual harvest of 41 peregrine falcons most years, and harvests an average of just over one individual per year.

Pacific Flyway states (excluding Alaska) have not reached the overall harvest limit of 75 peregrine falcons. Thus, the reallocation of permits across the Pacific Flyway, and states within the Central Flyway west of 100º west longitude, has not been necessary. The Pacific Flyway Nongame Technical Committee, through coordination with the Central Flyway Nongame Technical Committee, will develop an allocation process when peregrine falcon harvest begins to approach the authorized limit.

Adoption
Pacific Flyway Nongame Technical Committee
February 16, 2024

Contact: Grant Frost

Grant C Frost

Grant Frost, Chair

Informational Note 4 — Golden Eagle Allocation Procedure

In 2018 the U.S. Fish and Wildlife Service requested that the four flyway councils collectively establish and manage a Golden Eagle Allocation Procedure (NTC March 2019, Amended December 2019) to distribute the take opportunities of golden eagles (eagles) for falconry. These eagles could come from two sources: wild-caught eagles taken from designated depredation areas and rehabilitated eagles. To date, no eagles have been allocated through the rehabilitation option.

Utah and Wyoming have been the states where all wild eagles have been caught for this allocation procedure, but applications come from falconers in all four of the flyways. For the 2024 draw, applications were received from qualified falconers in 22 states: four states in the Atlantic Flyway (total of 6 applications), four states in the Mississippi Flyway (7), two states in the Central Flyway (5), and eight in the Pacific Flyway (27). Four states are split between the Pacific and Central Flyways by the Continental Divide, and applications were received from all four (11). In the six years of the allocation procedure the number of applicants increased approximately 5% per year but may be stabilizing (Figure 1).

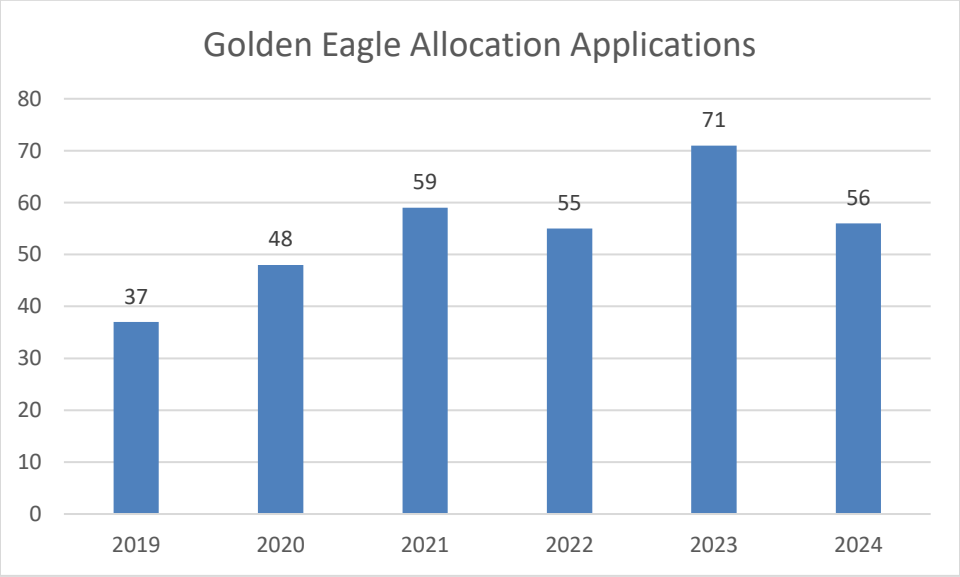


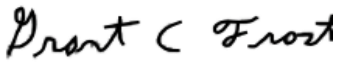
Figure 1. Total number of applications for Golden Eagle permit by falconers, 2019-2024.

An important component of the procedure was to develop an equitable method to allocate and transfer eagles from source populations to qualified falconers nationally. Wildlife agencies with jurisdiction submit the names of their qualified applicant falconers to one Designated State Wildlife Agency (DSWA). The DSWA annually conducts a random draw of the pooled applicants, informs the wildlife agencies with jurisdiction over the falconers involved with the drawing order of qualified applicants, and notifies applicants when the take opportunities arise.

Utah served as the first DSWA for three years, and Wyoming is the third year of serving as the DSWA. A DSWA will act in that capacity for 3 years, following the amended golden eagle allocation procedure. The National Flyway Council needs to solicit a new DSWA for the next three years to begin in that capacity by August, 2024.

During the six years of the allocation process, a total of 326 applications have been received by the DSWA's. Many of these applications come from falconers that apply each year.

Adoption Contact: Grant Frost
Pacific Flyway Nongame Technical Committee
February 16, 2024



Grant Frost, Chair

SUBCOMMITTEE REPORTS

Banding Subcommittee

Brandon Reishus, Oregon Department of Fish and Wildlife

The banding subcommittee discussed three issues during its meeting.

First, the subcommittee affirmed that it should meet during the joint session of the Pacific Flyway Study Committee (PFSC) and Nongame Technical Committee (PFNTC).

The subcommittee also discussed continued uncertainty about the process and minimum qualifications for adding subpermittees and/or new auxiliary marker authorizations to agency station permits, especially as new tracking technologies become available. The subcommittee requested that the Bird Banding Laboratory (BBL) provide more information to clarify the process.

The subcommittee summarized Pacific Flyway migratory game bird banding activity in 2023, compared to 2022. Approximately 55,000 migratory game birds, classified as normal, wild birds, were banded in Pacific Flyway in 2023, compared to 42,549 in 2022. This included 12,125 pre-season mallards and 9,091 pre-season mourning doves. States anticipated similar levels of banding effort in 2024, with an emphasis on attaining mourning dove banding quotas in states where effort has been minimal during the past several years.

Recommendations

The subcommittee did not adopt any recommendations.

Rocky Mountain Population Trumpeter Swan Subcommittee

Claire Gower, Montana Fish Wildlife and Parks

Population Status

Dave Olson (U.S. Fish and Wildlife Service) presented an overview of the population status and results from the 2023 Trumpeter Swan Survey of the Rocky Mountain Population, U.S. Breeding Segment Report. Observers counted 937 swans (705 white birds and 232 cygnets) in the U.S. Breeding Segment of the Rocky Mountain Population of trumpeter swans during fall of 2023, which was similar from last year's count (940). The number of white birds in the Greater Yellowstone Area (453) was a decrease of 4.2% from last year's count of 473. The total number of cygnets increased 78.3%, from 83 in 2022 to 148 in 2023. Cygnet counts increased significantly (857.1%) in Montana from seven in 2022 to 67 in 2023. Wyoming cygnet production increased by 31.8% while it decreased 32.19% for Idaho. Twenty-two white birds were observed at the Summer Lake Wildlife Management Area (WMA) and vicinity, which was a decrease of 18.5% from last year's count of 27, and three white birds were observed at Malheur National Wildlife Refuge (NWR). Ruby Lake NWR, Nevada observed no white birds. Precipitation throughout most of the Greater Yellowstone Area was 75% - 80% of normal during winter 2022-2023. During the summer months, temperatures were within the normal average while precipitation was 125-200% of normal, especially during June - August. Palmer Drought Indices for areas within the Greater Yellowstone area suggested wetter conditions for 2023 as compared to the area for 2022.

Harvest Information

Preliminary results from the 2023-2024 swan hunting seasons are listed below by state.

Idaho reported nine total swans harvested, which included one trumpeter swan.

Nevada reported a very low harvest with 67 birds harvested. These were all tundra swans and zero trumpeter swans harvested. Final numbers to be released at a later date.

Last year (2023) Utah's wildlife board took the action of making the harvest of trumpeter swans illegal, which appeared to have a positive result as far as targeting goes. Utah's season went the entire length, and nine trumpeter swans were taken and seized (the quota is 20). Most of the individuals that were encountered with trumpeter swans either didn't realize or self-reported. Preliminary results for tundra swan harvest is 939 harvested.

No data is currently available for Montana's swan harvest, but final harvest estimates and compliance rates will be provided at the August meeting. Anecdotal information from the local Freezout biologist for Montana Fish, Wildlife, and Parks, indicated migration was extremely fast, and very few birds stopped at Freezout. Consequently, there were very few swan hunters out this year, so final harvest numbers are anticipated to be low.

Management Activity

In 2023, captive-reared trumpeter swans were released at the following restoration areas:

Oregon released four yearlings in spring 2023 at Summer Lake Wildlife Area (held over from 2022 allocation), they will release six yearlings this spring which are non RMP genetics from Wyoming Wetlands Society (WWS). These were part of the 2023 allocation.

Middle Madison, Montana released two yearlings spring 2023 (held over from 2022 allocation), and eight, 100-day old cygnets in fall 2023.

Teton Basin, Idaho released eight, 100-day old cygnets in fall 2023.

Yellowstone National Park released eight, 100-day old cygnets fall 2023.

Big Sandy, Wyoming is a new Council approved project and received birds for the first time from the 2023 allocation (five cygnets), these birds were held over and will be released as yearlings this spring.

All released birds in 2023 were from WWS.

As part of the restoration work, Idaho deployed GSM/GPS collars on four of the 100-day old female cygnets released in 2023. One GSM collar was lost in October and the neck collar recovered on the Snake River. The remaining three collars are active and currently situated along the Teton River.

Colorado have been conducting some survey work on the Colorado portion of Browns Park. The last survey was completed February 14th, 2024. Of the four years that this survey has been conducted, the two highest counts were in January and February of this year, with a high of 85 trumpeter swans. Numbers of wintering birds seems to be generally increasing in this area.

The Greater Yellowstone Trumpeter Swan Working Group (GYSWG) will meet in person in April 2024; the group has met virtually the last few years but have not met in person since 2020.

Research Activity

Over the past 18 months, Oregon has been conducting a GSM transmitter project investigating trumpeter swan movement patterns from their RMP population. This work is led by Gary Ivey of the Trumpeter Swan Society and Oregon Department of Fish and Game. The Trumpeter Swan Society received funding from the Oregon Conservation and Recreation Fund and acquired 13 transmitters. Twelve of those transmitters were deployed on adult birds during February of 2023. Five of those transmitters were deployed at Summer Lake Wildlife Area and seven at Malheur National Wildlife Refuge. One more collar will go out this year on Summer Lake. Bird movements indicate the marked swans migrated into the Canada RMP areas, and the Northwest Territories.

Utah plans to capture and affix GPS/GSM units on trumpeter swans in the near future to determine if these are US breeding segment/GYE or Canadian RMP birds.

Genetics work is being conducted by Sarah Oyler McCance to develop a method for determining if birds are from the US breeding segment/GYE or Canadian RMP birds. Swan feathers were collected in WY (39 samples), Browns Park, CO (12 samples), and UT (eight samples)

Isotope work is being done by Nicole Ibrahim at University of Maryland Center for Environmental Science. Paper is in preparation and a verbal report will be made to the Pacific Flyway Study Committee by fall 2024.

GSM work is being done by Sharon Poessel with USGS in Boise, Idaho. Paper titled "Movements and habitat use vary across the Rocky Mountain Population of Trumpeter Swans" is in peer review with Ornithological Applications.

Recommendations

The subcommittee adopted one recommendation:

- The subcommittee recommends Pacific Flyway Council (Council) approval of the 2024 allocation of captive-reared trumpeter swans to approved restoration sites in this priority order:

    1. Summer Lake, Oregon
    2. Middle Madison, Montana
    3. Yellowstone National Park
    4. Teton Basin, Idaho
    5. Big Sandy, Wyoming

Pacific Brant Subcommittee

David Safine, U.S. Fish and Wildlife Service (Alaska Region)

Population Status

The most recent status estimate was provided to Council in August 2023.

Harvest Information

The most recent harvest information was provided to Council in August 2023.

Management Activity

USFWS – Migratory Bird Management Alaska Region (MBM Alaska) circulated a 2024 report to update the subcommittee on the status of the fall photographic survey of Pacific brant at Izembek Lagoon, Alaska, and to discuss the potential for changing the management index for brant. A summary of the report follows. Harvest management decisions for brant are currently based on the 3-year running average of the winter brant survey (WBS). The combined WBS population index lacks a measure of precision and does not account for sources of bias. In Alaska, there is concern regarding the WBS with respect to safety as well as logistical challenges in completing the survey. Finally, annual cost of the WBS to the USFWS is high, currently $55k for the Alaska and Mexico components.

The current Management Plan for Pacific brant identifies improvement of the management index to provide statistically rigorous estimates of abundance as a Priority (Pacific Flyway Council 2018). MBM Alaska and U.S. Geological Survey (USGS) have spent the last eight years developing an aerial fall photographic survey at Izembek Lagoon as an alternative to the WBS. Weiser et al. (2022) reported on initial efforts (2017-2019) and estimated a winter population size of roughly twice that estimated by the WBS. MBM Alaska resumed surveys in 2022 and 2023. Responsibility for the analysis was transferred from USGS to MBM Alaska. Analysis of 2022 data suggests a fall population estimate would be available by mid-February annually to the Pacific Flyway Council. MBM Alaska believes the fall Izembek photographic survey is a superior method to track Pacific brant abundance compared to the WBS, given its improvements in safety, cost, statistical validity, and repeatability.

The subcommittee agreed the best alternative monitoring method to evaluate population status of Pacific brant was the fall photographic survey of brant at Izembek Lagoon, Alaska. The subcommittee discussed that a transition to the fall photographic brant survey as the management index could lead to the loss of winter distribution information and international partnerships. Further discussions will occur within the subcommittee to identify objectives and potential new funding sources for the important international partnership with Mexico. Changing the management index would require updating the harvest strategy and some management actions in the 2018 Pacific population of brant management plan. California Department of Fish and Wildlife will lead the management plan update process, and the subcommittee plans to have an updated harvest strategy to Council for their consideration at the August 2024 Pacific Flyway Council meeting.

Research Activity

No research activities reported.

Recommendations

The subcommittee recommends that the management index for the Pacific population of brant be changed from the Winter Brant Survey (WBS) to the fall photographic survey of brant at Izembek Lagoon, and that the management plan's population objective and harvest strategy thresholds be rescaled to fit the relationship between the WBS and the fall photographic survey. Additionally, other applicable sections of the plan be revised accordingly.

American White Pelican Subcommittee

Allison Begley, Montana Fish, Wildlife and Parks
Russell Norvell, Utah Division of Wildlife Resources
Shannon Skalos, California Department of Fish and Wildlife
Michelle McDowell, U.S. Fish and Wildlife Service

2022 Implementation of American White Pelican Monitoring in the Pacific Flyway

Survey Goal

The goal of the Pacific Flyway Council's American White Pelican Monitoring Strategy (Strategy) is to establish a coordinated, long-term, flyway-level monitoring effort to estimate the breeding population size, trend, and distribution of the western population. This information is fundamental to support development of effective management recommendations, and for guiding and assessing management actions pertaining to American white pelican (pelican) depredation on fish resources.

Survey Data Summary

The Strategy was implemented in 2014, 2017, 2018, 2021 and 2022. Because of the small number of pelican colonies in the west, all known colonies identified in the 2013 Strategy (n=18), plus 5 colonies subsequently identified, were targeted for monitoring across eight states and British Columbia. Data are reported here for all 23 of these sites (Table 1, Figure 1).

The Pacific Flyway Nongame Technical Committee (NTC) coordinated collection of colony data by state and federal agencies and submitted survey result data to the U.S. Fish and Wildlife Service (Service). The Service compiled available data and produced a breeding population estimate for the western population. Surveys yielded estimates of 42,692 (2014), 46,083 (2017), 50,382 (2018), 34,015 (2021) and 22,716 (2022) breeding individuals (Table 1). Due to the Covid-19 pandemic not all planned work was accomplished in 2021 and therefore this estimate is likely low. Unnamed Island in Padilla Bay was not formally surveyed in 2022; opportunistic observations indicated bird presence but no nesting behavior. Several colonies were likely surveyed; however, data were not submitted, i.e., Stum Lake, Arod Lake and Puntzi Lake. The sole flight for Anaho Island was early in the season; the survey data are likely an underestimate of breeding pelicans. Limited monitoring took place again in 2022, to allow for analysis of population density-dependence (Information Note 2, PFC Spring 2018). In 2022, several sites were not surveyed due to capacity issues and several other sites have not reported. Both the 2021 and 2022 estimates should be considered conservative estimates of population abundance.

Future Activity

The next scheduled implementation of the monitoring strategy is 2025 and 2026.

On-going Work (in addition to work previously reported)

1. Annual banding and wing-tagging of juvenile pelicans at the Gunnison Island colony in Utah was suspended in 2021 due to pandemic protocols, but continued at Minidoka National Wildlife Refuge colony, and was initiated at the Chesterfield Reservoir colony in Idaho. This body of work continues to contribute to:
    a. Annual survivorship analysis.
    b. Documentation of strong connectivity for many Pacific Flyway colonies (e.g., between UT and ID).

c. Completion of a population viability analysis indicating the Gunnison Island colony is vulnerable to colony collapse due historically low lake levels.

2. Flyway pelican colony and movement data contributed to two graduate projects and several publications:
   a. Meehan, T.D., et al. 2022. Integrating data types to estimate spatial patterns of avian migration across the Western Hemisphere. Ecological Applications, doi:10.1002/eap.2679
   b. Rushing, C.S., et al. 2021. Integrating tracking and resight data enables unbiased inferences about migratory connectivity and winter range survival from archival tags. Ornithological Applications 123 (2). doi: 10.1093/ornithapp/duab010
   c. Van Tatenhove, A.M., et al. (*In review*). Weather radar as a tool to quantify local airspace-use of a large migratory waterbird
   d. Van Tatenhove, A.M., et al. (*In prep*). Local versus broad-scale population drivers: A Bayesian state-space analysis of long-term American white pelican colony dynamics
   e. Van Tatenhove, A.M., et al. (*In prep*). Quantifying spatial and temporal population trends of North American pelicans
3. Capturing adult pelicans to mount solar-powered GPS/GSM transmitters (UT: six of 24 planned units deployed as of August 2022) with on-board Motus receivers
4. Pelican telemetry data are now stored and served via a secure Movebank project (https://www.movebank.org/)
5. Established 2 Motus stations at the Great Salt Lake to track juvenile pelican dispersal movements and timing from the Gunnison Island Colony.

<u>Planned work</u>

1. Establishment of up 18 additional Motus (https://motus.org/) stations in and around the Great Salt Lake 2022-2024 to track movements and first-year survivorship of up to 300 juvenile pelicans per year from the Gunnison Island Colony using novel leg-mounted Motus tags and adult pelican-mounted GPS/GSM Motus receivers. Field work has been delayed first by pandemic-related delays and then HPAI restrictions.
2. Add 10 additional GPS/GSM transmitters per year through 2024 to describe pelican movements between years and in finer detail (UT).

Table 1. American white pelican colony count data, western population, 2014-2022.

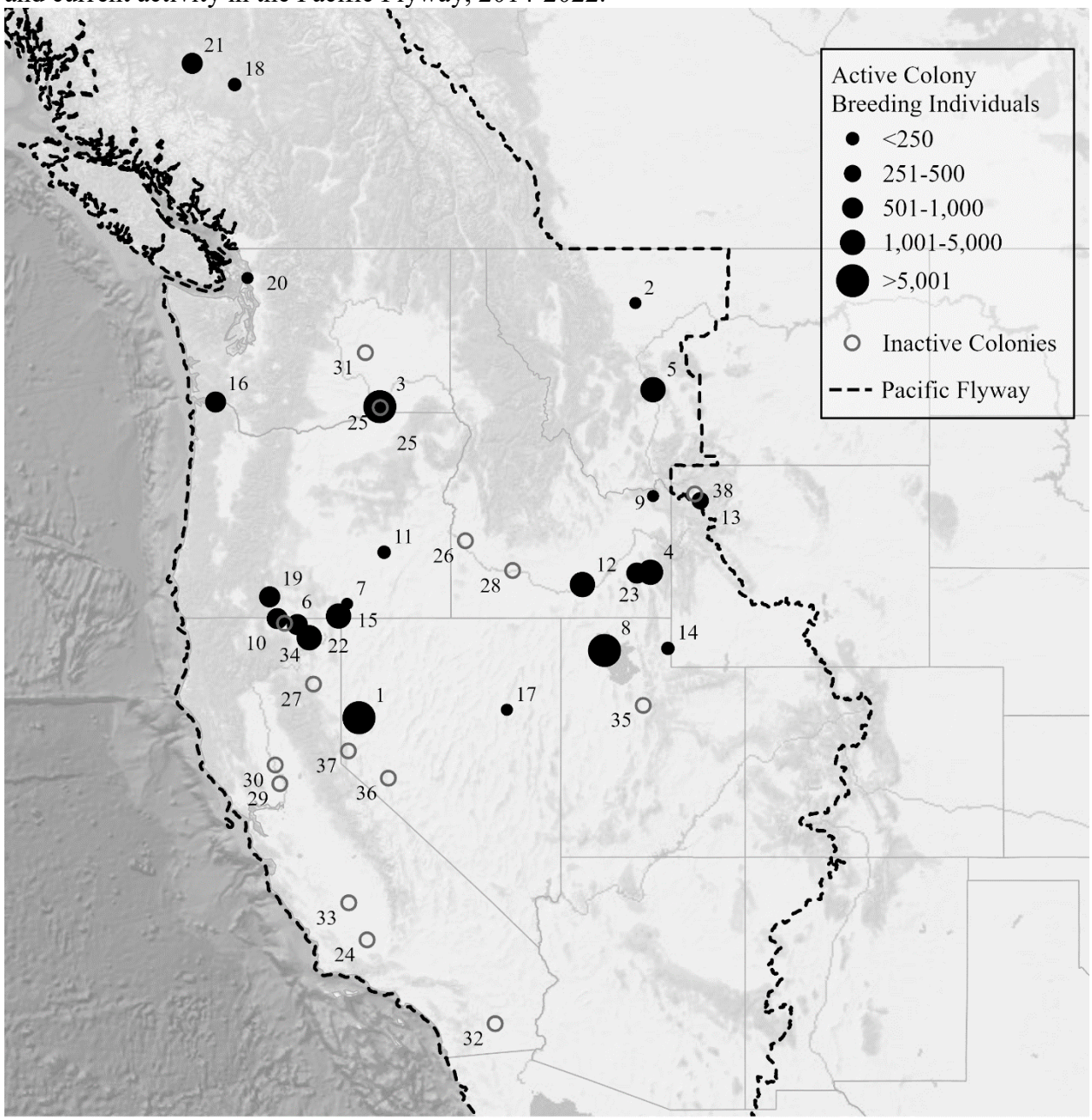
Colony Name	State	2014 Estimated Breeding Individuals (% annual total)	2017 Estimated Breeding Individuals (% annual total)	2018 Estimated Breeding Individuals (% annual total)	2021 Estimated Breeding Individuals (% annual total)	2022 Estimated Breeding Individuals (% annual total)
Anaho Island NWR	NV	16,224 (38.0)	20,860 (45.3)	19,000 (37.7)	6,677 (20.0)	--
Gunnison Island WMA	UT	9,428 (22.1)	8,342 (18.1)	10,660 (21.2)	8,012 (24.0)	5,852 (25.8)
Minidoka NWR	ID	4,264 (10.0)	2,118 (4.6)	3,676 (7.3)	2,930 (8.8)	4,780 (21.0)
Badger Island, McNary NWR	WA	3,670 (8.6)	3,770 (8.2)	5,616 (11.2)	3,624 (10.9)	3,486 (15.3)
Canyon Ferry WMA	MT	3,432 (8.0)	3,276 (7.1)	3,286 (6.5)	2,850 (8.5)	3,156 (13.9)
Blackfoot Reservoir	ID	2,096 (4.9)	1,232 (2.7)	1,416 (2.8)	0 (0.0)	658 (2.9)
Malheur NWR	OR	656 (1.5)	0 (0.0)	144 (0.3)	220 (0.7)	--
Molly Lake, Yellowstone NP	WY	614 (1.4)	560 (1.2)	394 (0.8)	964 (2.9)	--
Stum Lake	BC	590 (1.4)	77 (0.2)	88 (0.2)	--	--
Clear Lake NWR	CA	444 (1.0)	868 (1.9)	830 (1.6)	1,366 (4.1)	--
Miller Sand Spit/Rice Island	OR	366 (0.9)	204 (0.4)	796 (1.6)	1,440 (4.3)	992 (4.4)
Upper Klamath NWR	OR	348 (0.8)	466 (1.0)	770 (1.5)	0 (0.0)	--
Island Park Reservoir	ID	326 (0.8)	1,650 (3.6)	0 (0.0)	1,408 (4.2)	1,400 (6.2)
Arod Lake	MT	234 (0.5)	332 (0.7)	--	--	--
Lower Klamath NWR	CA	0 (0.0)	466 (1.0)	778 (1.5)	190 (0.6)	--
Crump Lake	OR	0 (0.0)	0 (0.0)	0 (0.0)	966 (2.9)	--
Pelican Lake	OR	0 (0.0)	674 (1.5)	1,174 (2.3)	0 (0.0)	--
Ruby Lake NWR	NV	0 (0.0)	0 (0.0)	--	0 (0.0)	--
Neponset Reservoir	UT	--	918 (2.0)	18 (0.04)	1,378 (4.1)	2,392 (10.5)
Puntzi Lake	BC	--	232 (0.5)	592 (1.2)	--	--
Unnamed Island, Padilla	WA	--	36 (0.1)	0 (0.0)	--	--
Fairchild Swamp	CA	--	--	1,128 (2.2)	0 (0.0)	--
Chesterfield[a]	ID	--	--	--	1,332 (4.0)	0 (0.0)
Total		**42,692**	**46,081**	**50,366**	**33,357**	**22,716**

[a]Colony first observed in 2020.

- denotes no data was available.

0 denotes colony was surveyed, no breeding individuals observed.

Figure 1. Western population of American white pelican colony locations, approximate sizes, and current activity in the Pacific Flyway, 2014-2022.



Active Colonies
1. Anaho Island NWR
2. Arod Lake
3. Badger Island
4. Blackfoot Reservoir
5. Canyon Ferry WMA
6. Clear Lake NWR
7. Crump Lake
8. Gunnison Island WMA
9. Island Park Reservoir
10. Lower Klamath NWR
11. Malheur NWR
12. Minidoka NWR
13. Molly Island
14. Neponset Reservoir
15. Pelican Lake
16. Rice Island/Miller Sand Spit
17. Ruby Lake NWR
18. Stum Lake
19. Upper Klamath NWR
20. Padilla Bay
21. Puntzi Lake
22. Fairchild Swamp
23. Chesterfield Reservoir*

Inactive Colonies
24. Buena Vista Lake
25. Crescent Island
26. Deer Flat
27. Eagle Lake
28. Glenns Ferry
29. Lone Tree Island
30. Lower Sacramento
31. Moses Lake
32. Salton Sea
33. Tulare Lake
34. Tule Lake
35. Utah Lake
36. Walker Lake
37. Washoe Lake
38. Yellowstone Lake

*Discovered 2020

Double-crested Cormorant Subcommittee

Emily VanWyk, Oregon Department of Fish and Wildlife
Allison Begley, Montana Fish, Wildlife and Parks
Shannon Skalos, California Department of Fish and Wildlife
Jessica Stocking, Washington Department of Fish and Wildlife
Michelle McDowell, U.S. Fish and Wildlife Service

Double-crested Cormorant Monitoring and Future Planning

Survey Goal

The goal of the Pacific Flyway Council's (Flyway) Double-crested Cormorant Monitoring Strategy (Strategy) is to establish a coordinated, long-term, flyway-level monitoring effort to estimate the breeding population size, trend, and distribution of the Western Population. This information is fundamental to support development of effective management recommendations, and for guiding and assessing management actions pertaining to double-crested cormorant (cormorant) depredation on fish resources.

Survey Summary

The Flyway Nongame Technical Committee (NTC) cormorant subcommittee provided a full briefing of surveys conducted in the March 2023 packet, including a summary of surveys conducted between 2014 and 2021. Monitoring followed standardized methodology across the Western Population developed in 2013 and coordinated through the Flyway.

The strength in using the Strategy was the ability to detect change from 2014 forward with an agreed upon level of statistical power. Monitoring methods were standardized across the Western Population for the first time, and a sampling approach was used that does not require monitoring all colonies. Moreover, coordination of the overall effort was accomplished through the NTC, with NTC members subsequently coordinating within their agencies and with partners in their states.

Future Monitoring Plans

The Strategy states that implementation will occur every third year and thereafter for at least 10 years (Pacific Flyway Council 2013). The full monitoring strategy was completed in 2021, despite COVID-19 restrictions in some areas. According to the Strategy, the next survey would be conducted in 2023 but because of postponement of the survey originally scheduled for 2020, the next survey will be conducted in 2024. This will complete the planned 10-year interval.

The subcommittee is working with the U.S. Fish and Wildlife Service's Branch of Assessment and Decision Support (Service) to update the Strategy. New technology is now available to address bias and power concerns. We are shifting to 5-year sampling. The Service is interested in using the monitoring data to inform their permitting decisions associated with the 2020 National level EIS, Management of Conflicts Associated with Double-crested Cormorants (USFWS 2020). The Strategy does need updates incorporated from the draft write-up of the sampling design for cormorant colonies in the Pacific Flyway.

- Progress on 2024 Implementation The remaining preparation steps for the 2024 survey have been completed:
    - Added any records for 2022
    - Identified desired precision; CV .020

- Decided temporal sampling regime (every 3 or 5 years); decided 5 years
- Used packages in R for optimal sample selection and estimation of abundance
- Used historical counts to define strata and place colonies within strata for sampling
- Used historical data to estimate transition probabilities between strata for use in generating uncertainty
- Identified the colonies to sample in 2024; 121 complexes totaling 138 colonies.
- Identified costs; plan to refine in the future by adding in cost on the datasheet.

References

Pacific Flyway Council. 2012. A framework for the management of Double-crested Cormorant depredation on fish resources in the Pacific Flyway. Pacific Flyway Council, U.S. Fish and Wildlife Service, Portland, Oregon.

Pacific Flyway Council. 2013. A monitoring strategy for the Western Population of Double-crested Cormorants within the Pacific Flyway. Pacific Flyway Council, U.S. Fish and Wildlife Service, Portland, Oregon.

U.S. Fish and Wildlife Service. 2020. Management of Conflicts Associated with Double-crested Cormorants, Final EIS. U.S. Fish and Wildlife Service, Falls Church, Virginia.

Diversity, Equity, and Inclusion (DEI) Ad Hoc Subcommittee

Emily VanWyk, Nongame Technical Committee (NTC), Oregon Department of Fish and Wildlife
Jeff Knetter, Study Committee (SC), Idaho Department of Fish and Game
Shannon Skalos, NTC, California Department of Fish and Wildlife
Russell Norvell, NTC, Utah Division of Wildlife Resources
Allison Begley, NTC, Montana Fish, Wildlife and Parks
Adam Behney, SC, Colorado Parks and Wildlife
Grant Frost, NTC, Wyoming Game and Fish Department
Edwin Juarez, NTC, Arizona Game and Fish Department
Jason Jones, SC, Utah Division of Wildlife Resources
Jason Schamber, SC, Alaska Department of Fish and Game
Jonathan Young, NTC, Nevada Department of Wildlife
Michelle Kemner, NTC, Idaho Department of Fish and Game
Kyle Spragens, SC, Washington Department of Fish and Wildlife
Jess Stocking, NTC, Washington Department of Fish and Wildlife
Michelle McDowell, U.S. Fish and Wildlife Service

In August 2022, the Pacific Flyway Council (Council) supported creation of an Ad Hoc Diversity, Equity, and Inclusion (DEI) Subcommittee (Subcommittee). At the request of Council, this Subcommittee developed and presented an Action Plan to Council in March 2023 and continues to keep the Council apprised of progress at each meeting.

In 2023, the emphasis for the Subcommittee was placed on learning about resources, partners, and their needs to inform and build a framework for long-term, iterative engagement, and progress toward identified goals. Additionally, the group focused on clarifying the relevancy of this effort to the Flyway process and migratory bird management across borders. This effort is ongoing, as successful engagement on DEI is not short-term, and the continued efficacy of the Subcommittee will stem from ongoing engagement initiated in 2023.

At the August 2023 meeting, Council provided funding support for two Mexican partners to attend in person and provide presentations to the technical bodies and council: Eduardo Palacios, Research Biologist with Terra Peninsular and Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE) and Fernando Gavito, Executive Director of Terra Peninsular. These presentations were well received, demonstrating the need and opportunity to partner more directly on priority initiatives and whole life-cycle conservation.

Further conversation in August, October, and December outlined the need for further discussion with Council about funding support for DEI efforts that directly pertain to the Council mission, including paying for travel to get increased representation, language translation services, and other means to increase engagement. A budget subcommittee comprised of five members of Council and one representative each from the Study Committee and Nongame Technical Committee (formed at the August 2023 meeting) proposed a budget amendment to increase the "special projects as needed" budget category to a total of $10,000 to support additional DEI activities, which could include, but were not limited to providing travel support to partners Council considered this as an off-cycle recommendation, but decided to table it until the March 2024 meeting. In support of this discussion, the Subcommittee identified broad categories of funding with specific examples and how these connect to the charge of the Flyway:

Items for consideration for immediate funding

During the current fiscal year, three items have been proposed for immediate funding that are in line with Council recommendations during the August 2023 meeting:

- Travel support for two invited international partners in August 2024 at an estimated cost of $2,000 per person. The Study Committee and Nongame Technical Committee will work together to select partners to invite that can elevate work of the Flyway.
- Funding support for half day of Spanish translation services during the August 2024 Council meeting in Jackson Wyoming to facilitate participation by invited partners at an estimated cost of $600.
- Sponsorship of a travel award for attendance to the Western Hemisphere Shorebird Group; $2000 sponsorship for a competitive travel award for a meeting in New Brunswick, Canada in August 2024. There are 102 applicants for the travel award, the majority of which are either Latin American professionals or students. This group is directly in line with priority initiatives the Flyway has been working on internally for the last several years and with Southern Wings projects funded through the Flyway.

Categories of future DEI efforts in the Flyway

Translation services

Committee members explored options for sourcing translation services that could be available, as needed, to support online and in-person meetings accessible to international partners. Through established relationships with translation service providers through Partners in Flight, the cost for services is estimated at $400-$600 for a half day and could be acquired on an as needed basis.

Technical writing translation services for existing research and gray literature written in languages other than English pertinent to the Flyway is needed to ensure available research pertinent to Flyway priorities is accessible to Council. By funding translation of these documents to English, Council could also elevate existing research in other languages by making research broadly available to more audiences. The Subcommittee will assess opportunities to provide funds through existing mechanisms, such as the Scientific Translation of Research and Knowledge grant through the North American Bird Conservation Initiative in August after the program pilot.

The Subcommittee will assess and prioritize opportunities to translate Pacific Flyway content including, but not limited to bylaws, into languages other than English to facilitate better communication and partnerships.

Sponsorship of conferences that align with Flyway priorities and attendance at conferences by Flyway members

During the August 2023 meeting, Council requested the Subcommittee pursue opportunities to support the development of skills and interest in migratory bird conservation and management by early career and student biologists relevant to the Pacific Flyway. Opportunities that may be explored to raise the profile of the Flyway with potential partners include the national and regional meetings of the Native American Fish and Wildlife Society, American Ornithological Society, Western Hemisphere Shorebird Group meeting, and others.

Attendance at conferences by Flyway members can facilitate further connection with partners. The Subcommittee proposes to provide funding for a Flyway member to attend the National Native

American Fish and Wildlife Society meeting in Welch, MN in 2024 and provide a brief presentation on the Pacific Flyway and ongoing priority initiatives within the Flyway. This would serve as a first step to provide in person connection with tribal partners as a Flyway and support efforts to continue to learn about opportunities for collaboration. The Subcommittee will reach out to other Flyway representatives to determine if they would be attending as well, and if those Flyways are not intending to participate offer to serve as a point of contact and communication.

Sponsorship of travel

The Subcommittee proposes to continue allocating funds to support travel by invited partners following the success of presentations provided in August of 2023. Sponsorship would fall into two main categories: invited partners to provide presentations and a "travel award fund" that would be available following fair and transparent criteria. The Subcommittee proposes to have a standing agenda item for August meetings where an invited partner provides a presentation on shared priorities. The travel award fund could provide travel grants for students, who wouldn't otherwise be able to afford it, to come to flyway meetings to present their research and see how the Flyway process works. To support this effort, a working group could identify students and researchers that could present research relevant to the Flyway.

Financial support for implementation of surveys that are of high priority for Pacific Flyway projects on lands owned or managed by new or non-traditional partners

Opportunities to support partners conducting Flyway priority work will be explored. Currently, the NTC is assessing how to conduct surveys for American White Pelicans (pelicans) at Anaho Island National Wildlife Refuge, which is a part of the Pyramid Lake Paiute Reservation, for pelicans in 2025. This is a high priority site for surveying pelicans for the Flyway, and barriers to implementation of surveys have prevented data collection in recent years. The NTC will work with local contacts to identify what kind of support may facilitate this work and determine if providing funds, equipment (including a drone), or other resources could allow successful implementation in 2025 and 2026.

Encourage increased engagement with stakeholders to include Mexican, Native American, and Canadian partners.

Outreach will begin through the Sonoran Joint Venture, Alaskan Migratory Bird Co-management Council, Canadian Wildlife Service, provincial wildlife management agencies, and Native American Fish and Wildlife Service. This will help identify whether financial resources are a barrier to participation and direct future opportunities for the Council to engage.

No-cost DEI support

The Subcommittee will explore no-cost opportunities to support DEI efforts that pertain to migratory bird management in the Pacific Flyway through endorsements and partnerships. Examples include:

Banders Without Borders

- The United States Bird Banding Lab recently introduced an initiative to strengthen connections with other banding efforts worldwide. This effort intends to enhance communication and information sharing between different banding schemes to allow for better understanding of bird movement and migration.

- The Subcommittee will continue conversations with the BBL to determine if an endorsement or other partnership could support this effort to ensure important bird banding data is accessible.

Birdability

- This organization provides education, outreach, and advocacy to enhance accessibility of birding to all groups.
- Work of this organization is focused on people with mobility challenges, blindness or low vision, chronic illness, intellectual or developmental disabilities, mental illness, and those who are neurodivergent, deaf or hard of hearing, or have other health concerns.

The Subcommittee will meet in March to continue to prioritize identified projects with existing funds and will provide feedback and guidance to Council on opportunities for further engagement. The Subcommittee will work with each of the bodies of the Flyway to solicit project ideas and prioritize projects to receive funding to ensure that work is in line with the mission of the Flyway.

OFF-CYCLE PRODUCTS

Recommendation 1 – Off Cycle Budget Amendment to support 2024 Double-crested Cormorant Surveys

A subcommittee comprised of Council members and technical committee members met in October 2023 to discuss budget requests related to Double-crested Cormorant surveys in addition to other items. A budget amendment request including $10,000 to support implementation of Double-crested Cormorant surveys in 2024 was voted on and approved by Council in December 2023. These funds will ensure the timely implementation of surveys in the Flyway.

Recommendation 2 — Letter to the U.S. Fish and Wildlife Service in Support of the California Central Coast Joint Venture Implementation Plan

Recommendation
The Pacific Flyway Council (Council) recommends sending the attached letter to the U.S. Fish and Wildlife Service (Service) Division of Bird Habitat Conservation in support of the California Central Coast Joint Venture Implementation Plan.

Justification

The Central Coast of California is one of the most ecologically diverse regions in the United States with high biodiversity and endemism yet remains the last region without a migratory bird joint venture dedicated to conserving bird habitat. The development of the California Central Coast Joint Venture (C3JV) and their inaugural implementation plan was born from this need. The Pacific Flyway Nongame Technical Committee and Study Committee were jointly asked by the Service to review the C3JV implementation plan and provide a recommendation for Service support. The implementation plan was developed to address the specific needs of the unique ecosystems and bird species that occur in this region. The implementation plan also adheres to the Service's policy for development of a joint venture and utilizes key regional partners and stakeholders in its inception. The plan has benefited from technical guidance from the Service and relevant established bird initiatives, like Partners in Flight, Road to Recovery, and the North American Waterfowl Management Plan. As such, this plan will guide well-rounded efforts to address habitat restoration, species monitoring and recovery, and outreach and communication with partners and the local communities alike. The enclosed letter of support from the Council will serve as our recommendation to the Service to formally recognize the C3JV as an official Joint Venture.

Adoption Contact: Shannon Skalos and Kyle Spragens
Pacific Flyway Nongame Technical Committee and Study Committee
November 8, 2023

Brian Holmes, Nongame Technical Committee Chair

Adam Behney, Study Committee Chair

Pacific Flyway Council
November 13, 2024

Brian Dreher, Chair

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October 31, 2023

Justyn R. Foth, Ph.D.
National Migratory Bird Joint Venture Coordinator
U.S. Fish and Wildlife Service
Division of Bird Habitat Conservation
5275 Leesburg Pike
Falls Church, Virginia 22041

Dear Dr. Foth,

The Pacific Flyway Council recommends the U.S. Fish and Wildlife Service (Service) formally recognize and support the California Central Coast Joint Venture (C3JV). The Pacific Flyway Council Nongame Technical Committee and Study Committee have jointly reviewed the C3JV Implementation Plan and recognize its important contributions to addressing the specific needs of the unique ecosystems, bird species, and communities that occur in this region.

The Central Coast of California is one of the most ecologically diverse regions in the United States with high biodiversity and endemism yet remains the last region without a migratory bird joint venture dedicated to conserving bird habitat. The C3JV Implementation Plan adheres to the Service's policy for development of a joint venture and utilizes key regional partners and stakeholders in its inception. The Implementation Plan has benefited from technical guidance from the Service and other relevant established national and international bird initiatives, like Partners in Flight, Road to Recovery, and the North American Waterfowl Management Plan. The Implementation Plan takes a focal species approach, with three categories to further identify key species across six major habitat types: indicator species of habitat and avian community health, conservation species that are listed or at-risk, and stewardship species that share at least 5% of their range-wide population within the C3JV region. This approach allows for greater consideration of species that are endemic, are good indicators of community health, and of high conservation priority to partners within the C3JV region. As such, this plan will guide well-rounded efforts to address habitat restoration, species monitoring and recovery, and outreach and communication with partners and the local communities alike. Importantly, the Implementation Plan provides the potential to integrate C3JV goals and initiatives with Pacific Flyway Council priorities outlined in Management Plans for key species like Pacific brant that are influenced at multi-JV levels. The Implementation Plan also focuses specifically on human wellbeing domains and international collaborations; two important themes that connect well to the Pacific Flyway Council's Diversity, Equity, and Inclusion values.

We commend the C3JV in their development of this initial Implementation Plan and recognize the vital role it will play in filling management and research gaps in a critically important region in

the Pacific Flyway. We also recognize that this Plan is a living document that will change and adapt to updated information and best science over time and look forward to and encourage continued collaborations with C3JV to help guide improvements to the Plan in the future and to strengthen our shared priorities of migratory bird conservation. Lastly, we encourage the Service to ensure new funds are used to support the C3JV rather than reallocating already limited funds from other Joint Ventures or from other Service priorities such as monitoring that are fundamental to flyway management.

Sincerely,

Brian Dreher, Chair
Pacific Flyway Council

Recommendation 3 — Letter to the U.S. Fish and Wildlife Service in Support of the Intermountain West Shorebird Survey and the Competitive State Wildlife Grant Proposal Being Submitted by Point Blue Conservation Science

Recommendation

The Pacific Flyway Council (Council) recommends sending the attached letter to the U.S. Fish and Wildlife Service - Wildlife and Sport Fish Restoration Program in support of the Intermountain West Shorebird Survey and the FY 2024 Competitive State Wildlife Grant proposal being submitted by Point Blue Conservation Science.

Justification

The Intermountain West Shorebird Survey is a collaborative project with the goal of better understanding the distribution and abundance of migrating shorebirds at freshwater wetlands and saline lakes in the interior western United States. The project will also assess potential changes in shorebird distribution and abundance with data collected 30 years ago and identify environmental and human-related factors driving shorebird distributions. The project is being coordinated by Point Blue Conservation Science and the National Audubon Society, but there are numerous other partners committed to the project. Four Pacific Flyway states are involved as "active state" contributors and 11 of the 12 Pacific Flyway states are participating in the project. The project is now entering its third year and additional funding is needed to maintain the current survey effort which includes approximately 200 sites located throughout the interior West. The enclosed letter from Council will serve as our support for the Competitive State Wildlife Grant proposal being submitted by Point Blue Conservation Science to secure additional funding for this project.

Adoption Contact: Russell Norvell
Pacific Flyway Nongame Technical Committee
December 21, 2023

Brian Holmes, Nongame Technical Committee Chair

Pacific Flyway Council
January 5, 2024

Doug Brimeyer, Chair

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January 5, 2024

WSFR CSWG Ranking Committee
U.S. Fish and Wildlife Service
Wildlife and Sport Fish Restoration Program
Mailstop: WSFR
5275 Leesburg Pike
Falls Church, VA 22041-3803

Dear Ranking Committee,

The Pacific Flyway Council (Council) wishes to convey our endorsement of Point Blue Conservation Science's proposed project "Advancing state-level conservation of at-risk migratory shorebirds within an imperiled network of freshwater wetlands and saline lakes" and emphasize the Council's commitment to support the work. Four of our 12 Pacific Flyway states are 'active state' contributors to this expansive effort, and 11 of 12 states are participants. Council understands that many shorebird species reliant upon wetlands of the interior West are declining, and they face significant challenges now and in the future. The long-term monitoring data needed to assess population trends are lacking in the interior of the Pacific Flyway and Council has identified shorebird monitoring and conservation as an important work priority for the Nongame Technical Committee. This cost-effective project directly addresses this priority by narrowing data gaps impeding managers across the Flyway. Council also recognizes the initial effort that states and NGO project partners expended to develop the necessary network of organizations, biologists and trained volunteers across the Flyway, and for helping to advance the conservation and management of these critical interior wetland habitats.

Council endorses the outcomes of the work and supports this proposal to the Competitive section of the State Wildlife Action Grant program in 2024.

Sincerely,

Doug Brimeyer

Doug Brimeyer, Chair
Pacific Flyway Council

Recommendation 4 – Off Cycle Budget Amendment to Increase Support of Diversity, Equity, and Inclusion Subcommittee Efforts

A subcommittee comprised of Council members and technical committee members met in October 2023 to discuss budget requests related to increased financial support for Diversity, Equity, and Inclusion (DEI) Subcommittee efforts. A budget amendment request of an additional $5,200 to support DEI Subcommittee efforts within the “special projects as needed” budget category in 2024 was voted on and approved by Council in March of 2024. These additional funds will ensure continued engagement and participation with DEI efforts.