

**Pacific Flyway Council
Recommendations, Informational Notes
and Subcommittee Reports**



A product of the late winter 2016
meetings of the:

**Pacific Flyway Nongame
Technical Committee**

February 29th to March 3rd, 2016
Cannon Beach, Oregon

Pacific Flyway Study Committee

February 29th to March 4th, 2016
Cannon Beach, Oregon

Pacific Flyway Council

March 15th, 2016
Pittsburgh, Pennsylvania

Distributed at March 15, 2016 Council Meeting

Preface

The Migratory Bird Treaty Act implemented multiple international treaties addressing migratory bird management and conservation, and established federal authority over migratory birds. The Secretary of the Interior, acting under the authority of the Migratory Bird Treaty Act, is authorized to determine when hunting of migratory game birds can take place in the United States and to adopt regulations for this purpose. This responsibility has been delegated to the U.S. Fish and Wildlife Service (Service). Similarly, the Secretary of the Interior's authority to regulate the take, use, and conservation of nongame migratory birds has been delegated to the Service. The Pacific Flyway Council (Council) cooperates with the Service to develop regulations for migratory birds in the United States west of the Continental Divide. Both organizations consider the welfare of migratory bird populations first, and then public demands for recreation and subsistence harvest, and other uses.

The Service sets migratory game bird hunting regulations by establishing frameworks, or outside limits, for season lengths, bag limits, and areas for migratory game bird hunting. The Alaska framework is presented as a distinct recommendation inclusive of all species. Season frameworks for individual guilds or species do not apply to Alaska. Members of Council and its technical advisory group, the Pacific Flyway Study Committee (SC), meet in late summer/early fall to disseminate information, share data, review the status of populations and propose annual hunting regulations. 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. Council typically forwards season framework recommendations to the Service in October.

In 2006, the Flyway system was expanded to provide a consolidated forum for the Service and State fish and wildlife agencies to discuss, plan, and coordinate actions to address nongame migratory bird regulatory issues. To facilitate technical review of nongame regulations and associated issues, a Nongame Technical Committee was created within each flyway.

Recommendations, informational notes, and subcommittee reports are typically prepared by the Study Committee and Nongame Technical Committee (hereafter collectively referred to as Committee[s]), and forwarded to Council for adoption or consideration. The Committees are scientific fact finding bodies whereas Council is an administrative and policy setting body. Council may develop recommendations or modify Committee recommendations to meet Council needs. In cases where a Committee recommendation is forwarded to Council for consideration of adoption, the recommendation is written on behalf of Council. Committee specific recommendations do not need to be adopted by Council. These are formal actions taken by either Committee and forwarded to Council for review. Council has a policy of considering management plans for adoption only after having received the management plan for review at least 45 days prior to their next business meeting. To expedite Council business, all Council recommendations are listed first followed by Committee recommendations, informational notes, and subcommittee reports. Council recommendations are generally ordered with routine frameworks first, special season frameworks second, and other recommendations last. Finally, the Service assumes Council support for continuation of the previous year's frameworks for which no recommendation is received.

Each recommendation and informational note identifies a contact person. The contact person does not necessarily endorse, but rather volunteers to write the recommendations or informational notes that represent the position of the Committee or Council. The contact person is usually knowledgeable on the subject matter and serves as a contact if there are any questions. If either Committee establishes a subcommittee to address specific actions, the subcommittee is identified on recommendation or informational notes they initiate. The Chair of each subcommittee prepares the subcommittee's report and is identified on that report.

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Members, Officers, and Representatives

Pacific Flyway Council

Members

Bruce Dale, Alaska Department of Fish and Game
Josh Avey, Arizona Game and Fish Department
Vacant, California Department of Fish and Wildlife
Craig McLaughlin, Colorado Parks and Wildlife
Jeff Gould, Idaho Department of Fish and Game
Ken McDonald, Montana Fish, Wildlife and Parks
Tony Wasley, Nevada Department of Wildlife
Stewart Liley, New Mexico Department of Game and Fish
Ron Anglin, Oregon Department of Fish and Wildlife
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Eric Gardner, Washington Department of Fish and Wildlife

Officers

Chair, Jeff Gould, Idaho
Vice-chair, Eric Gardner, Washington
Secretary, Brandon Reishus, Oregon
Treasurer, Jeff Knetter, Idaho

Consultants to U.S. Fish and Wildlife Service Migratory Bird Regulation Committee

Ron Anglin, Oregon
Mike Fowlks, Utah

Representative on the National Flyway Council

Mike Fowlks, Utah

Representative on the North American Wetlands Conservation Council

Ken McDonald, Montana

Representative on the AFWA Migratory Wildlife Committee

As appointed

Representative on the North American Waterfowl Management Plan Committee

Dan Yparraguirre, California

Representative on the Hunter Recruitment and Retention Strategy Team

Vacant

Representative on the Cooperative North American Shotgun Education Program

Vacant

Representative on the Sea Duck Joint Venture Management Board

Bruce Dale, Alaska

Representative on the Arctic Goose Joint Venture Management Board

Vacant

Pacific Flyway Study Committee

Members

Dan Rosenberg, Alaska

Johnathan O'Dell, Arizona

Melanie Weaver, California

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Claire Gower, Montana

Russell Woolstenhulme, Nevada

Brandon Reishus, Oregon

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Aleutian Canada Goose

Banding

Cackling Canada Goose

Dusky Canada Goose

Emperor Goose

Interior Band-Tailed Pigeon

Lesser, Taverner's, and Vancouver Canada Goose

Lower Colorado River Valley Sandhill Crane

Mourning and White-Winged Dove

Pacific Brant

Pacific Coast and Central Valley Sandhill Crane

Pacific Coast Band-Tailed Pigeon

Pacific Trumpeter Swan

Pacific/Rocky Mountain Western Canada Goose

Rocky Mountain Sandhill Crane

Rocky Mountain Trumpeter Swan

Western and Eastern Tundra Swan

White Geese

White-Fronted Goose

Pacific Flyway Nongame Technical Committee

Members

Travis Booms, Alaska
James Driscoll, Arizona
Carie Battistone, California
Colleen Moulton, Idaho
Allison Begley, Montana
Cris Tomlinson, Nevada
Andrea Hanson, Oregon
Russell Norvell, Utah
Joseph Buchanan, Washington

Officers

Chair, Colleen Moulton, Idaho
Vice-chair, Joseph Buchanan, Washington

Subcommittees

Eagle
Cormorant
Pelican

Representatives to the Pacific Flyway Council and Technical Committees

U.S. Fish and Wildlife Service

Todd Sanders, DMBM, Vancouver
Steve Olson, DMBM, Vancouver
Guthrie Zimmerman, DMBM, Sacramento
Michael Green, Region 1, Portland
Joe Sands, Region 1, Portland
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Garnet Raven, Alberta

Alberta Environment and Sustainable Resource Development

Jason Caswell, Alberta

Ministry of Forests, Lands, and Natural Resources

Myke Chutter, British Columbia

Alaska Migratory Bird Co-management Council

Patty Brown-Schwalenberg

Recommendations

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Recommendation 1 – Allocation of Wyoming Wetlands Society Trumpeter Swans to Approved Release Sites

Recommendation

The Pacific Flyway Council (Council) recommends the following allocation of captive-reared trumpeter swan cygnets from the Wyoming Wetlands Society (WWS) facility in 2016 for release at approved restoration sites. This allocation depends on hatching success during spring 2016, which is predicted to be 30 cygnets. The allocation of cygnets in priority order is as follows:

- 1) Blackfoot River Valley, Montana - 9
- 2) Summer Lake Wildlife Area, Oregon - 6 ($\leq 20\%$ of the available allocation)
- 3) Middle Madison River, Montana - 5
- 4) Yellowstone National Park - 5
- 5) Teton Basin, Idaho - 5

If there are additional birds available for release relative to the allocation above, they will be prioritized to restoration sites within the Greater Yellowstone Ecosystem (i.e., Middle Madison River, Yellowstone National Park, and Teton Basin).

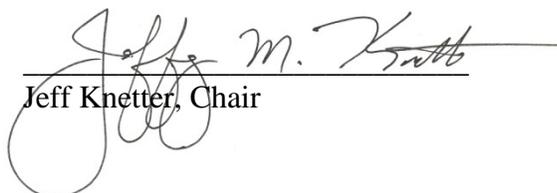
Justification

The above allocation of captive-reared trumpeter swan cygnets expected to be available in 2016 from WWS is consistent with the allocation protocol in the Council Management Plan for the Rocky Mountain Population (RMP) of Trumpeter Swans. The allocation of cygnets was developed considering input from the RMP Trumpeter Swan Subcommittee, the Greater Yellowstone Trumpeter Swan Working Group (GYTSWG), WWS, and the U.S. Fish and Wildlife Service Pacific Flyway Representative. Each restoration project lead has provided a verbal or written annual status report detailing monitoring efforts and project status to the GYTSWG and RMP Trumpeter Swan Subcommittee. None of the project leads, except for Oregon, have indicated they expect to have swans available for release from sources other than WWS.

Adoption

Pacific Flyway Study Committee
Rocky Mountain Population Trumpeter Swan Subcommittee
March 4, 2016

Contact: Claire Gower


Jeff Knetter, Chair

Pacific Flyway Council
March 15, 2016

A handwritten signature in dark ink, appearing to read "Jeff Gould", is written above a horizontal line.

Jeff Gould, Chair

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Recommendation 2 – Amendment to the 2012 Rocky Mountain Population Trumpeter Swan Management Plan Protocol and Best Management Practices for Release or Transport of Trumpeter Swans

Recommendation

The Pacific Flyway Council (Council) recommends an amendment to the Pacific Flyway Management Plan for the Rocky Mountain Population (RMP) of Trumpeter Swans (Plan) to replace Appendix 3, “The protocol for handling trumpeter swans for translocations and/or health monitoring,” with the attached updated protocol.

Justification

One of the management strategies in the Plan is to release captive-reared trumpeter swan cygnets or yearlings during summer into suitable habitats to establish new breeding flocks that winter outside the core Tri-state Area (Idaho and the portions of Montana and Wyoming within the Pacific Flyway), while maintaining connectivity to established flocks. The current Plan contains a handling protocol that is outdated and limited in scope; the revised protocol identifies best management practices for release or transport of wild and captive-reared trumpeter swans. The purpose of the protocol is to ensure captive-reared trumpeter swan cygnets are healthy prior to release into the wild. The amendment reflects updated information and clarifies issues not addressed in the previous protocol. The revised protocol was developed in consultation with State and Federal veterinarians, Wyoming Wetlands Society, and Greater Yellowstone Trumpeter Swan Working Group.

The current Plan is in the process of being revised and is expected to be completed in March 2017. This amendment will update the protocol in the current version of the Plan immediately, rather than wait for a revision.

Adoption

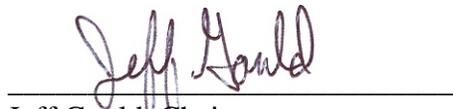
Pacific Flyway Study Committee
RMP Trumpeter Swan Subcommittee
March 4, 2016

Contact: Claire Gower



Jeff Knetter, Chair

Pacific Flyway Council
March 15, 2016



Jeff Gould, Chair

Pacific Flyway Council Protocol and Best Management Practices for Release or Transport of Trumpeter Swans.

Background

The Rocky Mountain Population (RMP) of Trumpeter Swans has recovered from a few hundred swans in the early 1900s to about 17,178 swans in 2015, most of which breed in Canada. The U.S. breeding segment population objective is 718 adults and subadults (165 nesting pairs) based on the Pacific Flyway Council's (Council) management plan (2012) for this population. The fall 2015 U.S. breeding population size was estimated to be 720 swans.

One of the Council's management strategies is to release captive-reared swan cygnets or yearlings during summer into suitable habitats to establish new breeding flocks that winter outside the core Tri-state Area (Idaho and the portions of Montana and Wyoming within the Pacific Flyway) while maintaining connectivity to established flocks.

The Wyoming Wetlands Society (WWS) is the primary source of trumpeter swans for release in the Pacific Flyway, but swans have come from the wild and other facilities including zoos and other organizations. The U.S. Fish and Wildlife Service has contributed funding annually in combination with contributions by the WWS and others to produce RMP trumpeter swans (about 35–50 swans each year) for release in the Pacific Flyway. Council approves and prioritizes release projects (sites). Rocky Mountain Population trumpeter swans have been produced and released annually since the early 1990s.

The purpose of this document is to identify the protocol and best management practices for release to the wild (hereafter release) or interstate transport of captive-reared and wild trumpeter swans in the Pacific Flyway. The overall goal is to ensure RMP trumpeter swan restoration efforts are successful in helping to establish new breeding flocks that winter outside the core Tri-state Area, while maintaining connectivity to other flocks. Guidance in this document was developed in consultation with State and Federal veterinarians, the Wyoming Wetlands Society, and the Greater Yellowstone Trumpeter Swan Working Group.

General

Transport and release of trumpeter swans must comply with all State and Federal regulations, and may be more restrictive than the guidance provided in this document.

Age at Release

Captive-reared trumpeter swans are generally released as hatchlings (by grafting to free-ranging pairs), cygnets, or yearlings. Swan cygnets are generally released at about 70–85 days of age. Cygnets fledge at about 110 days of age.

Health Certification

Each trumpeter swan must receive a Certificate of Veterinary Inspection (health certificate) prior to release or interstate transport. A health certificate may be issued after visual or physical inspection of an animal, or after sampling an animal for disease testing. Disease testing is generally based on results from one set of samples from each animal.

The health certificate should be issued within two weeks prior to release or interstate transport, but could be up to 30 days consistent with health certificate guidance. A health certificate may not be required if a swan is hatched in a sterile incubator and immediately released post hatching, but check state and federal regulations. Sampling of hatchlings for health certification may be especially challenging and could reduce survival probability, and may prevent timely grafting of hatchlings to nesting adults.

The health status of each trumpeter swan could be determined via the following methods:

Blood samples

Complete blood cell counts, serum chemistry analysis, and serological evaluation for exposure to infectious disease.

Swab samples

Cloacal and oropharyngeal swabs for avian influenza testing.

Fecal samples

Fecal flotation (microscopic examination of fecal material) for detection of eggs and larvae of gastrointestinal parasites such as *Giardia* spp., *Cryptosporidium* spp., roundworms, hookworms, and tapeworms.

Physical exam

A formal examination of the bird for detection of nasal leeches, external parasites, infectious disease, injuries, general skin and feather health, poor growth, and general body condition.

At minimum, each trumpeter swan intended for release or interstate transport must be tested consistent with the two principal disease examination protocols including: 1) bacterial infections caused by *Salmonella* spp. (pullorum, typhoid) and *Mycoplasma* spp. (mycoplasmas, pneumonia), and 2) viral infections caused by highly pathogenic strains of avian influenza (H5 and H7). All testing must be in accordance with the National Poultry Improvement Plan (NPIP). Release or interstate transport of a trumpeter swan is not allowed if the swan tests positive for either of the two bacterial diseases or highly pathogenic avian influenza.

Trumpeter swans should be evaluated for other avian diseases and parasites including fungal infection caused by *Aspergillus* spp. (aspergillosis), bacterial infection caused by *Pasteurella* spp. (pasteurellosis), protozoan infection caused by *Plasmodium relictum* (avian malaria), and parasitic intestinal worm infection caused by Acanthocephala (acanthocephalans, thorny-headed worms, or spiny-headed worms) and Platyhelminthes (flatworms, flukes) as determined appropriate by the propagator and veterinarian.

Blood and other sample collections must be conducted by an experienced practitioner to obtain appropriate samples and minimize swan handling time during processing. Following sampling, trumpeter swans must be held at a holding facility or the site of origin and kept from intermingling or sharing food and water resources with other untested swans while laboratory test results are pending and until the swans are released in the receiving state. If tested swans are allowed to intermingle or share resources, then the entire group of swans must be retested if a positive test result is returned for any swan in that group.

An import permit number issued by the importing state and the health certificate must accompany all trumpeter swans during interstate transport. Lab results should be attached to or accompany the health certificate during transit if not included on the health certificate. A copy of the health certificate, required test results, and import permit number must be provided to the appropriate representative of the wildlife agency in the receiving state.

Prior to trumpeter swan release or interstate transport, the appropriate representative (coordinator) of the importing state wildlife agency should contact the importing state wildlife agency veterinarian or agency-designated wildlife health representative and state veterinarian to determine if there are any relevant diseases of particular concern for wildlife or domestic birds in the importing state.

The weight and general appearance of each swan to be released should be evaluated at the time of release. Trumpeter swans of apparent poor health or weight should not be released at any location other than a treatment center or the site of origin.

Handling

Handling of trumpeter swans must be conducted by, or under the guidance of, an experienced practitioner to ensure swans are handled minimally, and that capture, holding, and relocation efforts are as efficient and humane as possible.

Crates and sacks used to hold or transport trumpeter swans should only be used for trumpeter swans. Crates and sacks must be disinfected between uses. Use a disinfectant such as Rocal or Virkon, which are commercially available disinfectant products, or chlorine bleach diluted to one part bleach to 10 parts water. Feed and water containers, and any other items the birds may contact, also must be disinfected following the same guidance for crates and sacks.

Veterinarians and other personnel working with swans should practice appropriate bio-security measures including wearing clean clothing and gloves when handling trumpeter swans, and avoiding contact with trumpeter swans within 48 hours of visiting an area with animals known or expected to be infected with any disease of concern. Handlers should avoid the transfer of infectious agents between other work or home areas and among captive swans, wild birds, and domestic birds including pet birds and poultry. Handlers must not have any immediate association with gallinaceous birds prior to handling swans including free-ranging and captive chickens, turkeys, quail, pheasants, and other such birds. Trumpeter swans should be sampled or examined at the site of origin and not at other areas (e.g., veterinary clinic, office, near poultry or other bird species, particularly gallinaceous birds) to decrease the risk of disease transmission.

Trumpeter swans that appear sick or injured before or during capture, handling, and transport must not be released. In this case, a veterinarian should be consulted, an evaluation conducted based on clinical signs, and appropriate action undertaken, which may include treatment and release at site of origin, extended rehabilitation, release and monitoring, or euthanasia and complete diagnostic workup at a veterinary diagnostic laboratory. Swans with apparent myopathy at the release site may be released if the attending veterinarian, wildlife agency coordinator, and captive breeder judge that release of the swan provides the greatest probability of survival. Swans that have been held at a rehabilitation facility or veterinary clinic for

examination, treatment, or rehabilitation may pose an increased risk of transmitting diseases if released into the wild. To minimize this risk, an evaluation of potential disease risk should be completed and swans should be evaluated and tested for diseases of concern prior to release. Appropriate actions should be undertaken for any swan that tests positive for a disease of concern including prophylactic treatment, release to a controlled environment, or release back to the site of origin.

Release Site

Areas intended for release of trumpeter swans should be monitored by local cooperators for waterfowl or other bird mortality events at least one month prior to, and immediately after release of any trumpeter swan. If any bird mortalities are encountered, bird carcasses, should be promptly submitted to a diagnostic laboratory. Diagnostic findings can be used to evaluate the disease risk to trumpeter swans and determine disease control activities.

Source Populations

Trumpeter swan source populations must have a health monitoring program to determine the health history of the source population and to assess the need for treatment of swans prior to movement. The program should use health certification results, laboratory tests, and necropsy information to evaluate long-term disease status of the source population. All wild and captive swans in an area have potentially been exposed to the same organisms; therefore, monitoring health parameters of subgroups of swans in an area over time can give an indication of their overall health history.

At least a subset of each captive trumpeter swan source population should be examined annually by a veterinarian in an ongoing effort to monitor population health. Examination may include visual or physical examination and sampling as determined appropriate by the veterinarian. Constraints associated with individual programs will help determine the intensity and feasibility of routine monitoring activities.

Source population areas should be managed to minimize the population's risk of excessive parasite loads and exposure to disease and contaminants where known or expected. Free-ranging birds, including wild swans, should be discouraged from intermingling with captive trumpeter swans to minimize the risk of disease transmission between wild and captive swans. Food, water, and other resources for captive swans should be managed to minimize potential to attract other wildlife.

Mortality

Any trumpeter swan from the source population that dies, or any swan that dies during capture, handling, or within a relatively short period post-release, or any wild swan encountered dead, should be submitted within 24 hours of discovery to an appropriate state, federal or university diagnostic laboratory for necropsy and ancillary testing for cause of death determination. Any such mortality should be reported to the state wildlife agency veterinarian or agency-designated wildlife health representative in the source population state. Mortality caused by an infectious disease must be reported to the state wildlife agency veterinarian or agency-designated wildlife health representative and local wildlife supervisor in the captive source population state within 24 hours of discovery.

Record Keeping

Captive breeders should keep records on hatch dates and hatching percentage, genealogy (family history), health monitoring, disease testing, treatments, movement, and release of captive trumpeter swans to trace health risks and genetic diversity and relatedness of swans produced. All captive trumpeter swans must be individually marked so they can be traced to a specific nest, breeding pair, and rearing facility. The age of each swan at the time of release must be recorded. State coordinators should keep track of known mortality of released swans and probable cause where this information is available. Over time, age information can be used to evaluate probability of survival immediately post release given age and release type (grafting, cygnet, and yearling). These records should be available for review upon request by an appropriate representative of the importing agency or organization.

Every effort should be made to maximize the genetic diversity of the source population and released trumpeter swans to increase the likelihood of success for the captive release program.

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Recommendation 3 – Harvest Information Program Feedback

Recommendation

The Pacific Flyway Council (Council) recommends the Association of Fish and Wildlife Agencies Bird Conservation Committee charter a Task Group to review current Harvest Information Program (HIP) procedures at both state and federal levels.

Suggested issues to be reviewed include (but should not be limited to):

- Consistent administration of HIP across all States (e.g., all migratory bird hunters register online or by phone)
- Issuance of HIP registrations for migratory bird hunting seasons (i.e., September 1 to March 10), rather than by calendar year or flexible 365-day periods
- Issuance of HIP registration independently of all other hunting privileges
- Only require participants seeking migratory bird hunting privileges to register for HIP (i.e., people buying migratory bird stamps, migratory bird licenses/permits, etc.)
- Simplification of the registration process by streamlining/reducing the number of questions
- Timely submission of HIP sample frame data to the U.S. Fish and Wildlife Service (Service)
- Identify and clarify specific objectives of HIP surveys (e.g., required precision levels needed for decision-making purposes)

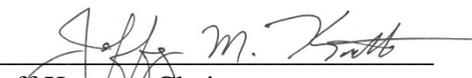
Justification

The Harvest Information Program is an important aspect of migratory game bird management. Most recently, concerns about the quality of dove harvest estimates used to make regulatory decisions have prompted a call for another review of HIP. Council supports improving sample frames, modernizing survey design, specifying objectives, and controlling costs related to HIP. It is critical that all partners work together to find solutions to HIP data issues that address information gathering at a quality and cost that does not negatively affect States or the Service.

Adoption

Pacific Flyway Study Committee
March 4, 2016

Contact: Blair Stringham



Jeff Knetter, Chair

Pacific Flyway Council
March 15, 2016



Jeff Gould, Chair

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Recommendation 4 – Harvest Management Working Group Priorities

Recommendation

The Pacific Flyway Council (Council) endorses the 2017 priority rankings and project leads for technical work proposed at the 2015 Harvest Management Working Group (HMWG) meeting

Justification

Council acknowledges a revised approach was necessary to address technical challenges associated with implementation of the preferred alternative specified in the Final Supplemental Environmental Impact Statement (SEIS) for issuance of annual regulations permitting the hunting of migratory birds. Due to staff time and resources devoted to completing the SEIS, several existing HMWG priorities were not addressed. As a result, Council supports completing existing priorities before recommending new priorities. For the Pacific Flyway, this includes revisions to the Western Mallard and Northern Pintail models. The Sea Duck Harvest Potential Assessment, a previous Council priority, was completed and removed from the list.

2017 Harvest Management Working Group Priorities

Priority rankings and project leads identified for the technical work proposed at the 2015 HMWG meeting follow:

Highest Priorities (Urgent and Important)

- Adaptive Harvest Management Revisions (aka, Double-looping)
 - Multi-stock management (Atlantic Flyway, Population and Habitat Assessment Branch (PHAB), HMWG)
 - Mid-continent mallard (Mississippi and Central Flyways, PHAB, others...)
 - Western mallard (Pacific Flyway, PHAB, others...)
 - Consideration of NAWMP objectives for waterfowl management (HDWG, Flyway Councils, FWS, NAWMP Interim Integration Committee, Joint Technical Committee, others...)
- Re-invigorate institutional support for AHM (Population and Habitat Assessment Branch, and HMWG Communications Team)

Long-range Priorities (Non-urgent, but Very Important)

- Time dependent optimal solutions to address system change (Scott Boomer, Fred Johnson, and Mike Runge)
 - Habitat change
 - Hunter dynamics
 - Climate change
- Northern pintail AHM Revision (Double-looping) (Pacific Flyway, PHAB, others...)

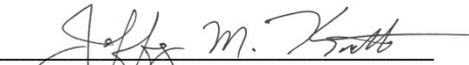
Additional Priorities

- Waterfowl harvest potential assessment methods case study development (PHAB, Tech Sections, others...)
- 2017 Canvasback harvest strategy development (PHAB, Tech Sections, others...)

Adoption

Pacific Flyway Study Committee
March 4, 2016

Contact: Jeff Knetter and Dan Rosenberg



Jeff Knetter, Chair

Pacific Flyway Council
March 15, 2016



Jeff Gould, Chair

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Recommendation 5 – Human Dimensions Stakeholder Survey Funding 2016

Recommendation

The Pacific Flyway Council (Council) approves a one-time assessment to Alaska, Arizona, California, Idaho, Nevada, Oregon, Utah, and Washington, to cover 2016 Human Dimensions Stakeholder Survey costs. This one-time assessment will be proportionally based on the estimated number of waterfowl hunters in each state:

	Estimated Active Waterfowl Hunters					
	2012	2013	2014	Average	Proportion	Assessments
Alaska	5,200	5,100	5,500	5,267	4%	\$815.94
Arizona	2,600	4,900	3,100	3,533	2%	\$547.40
California	54,700	49,200	45,100	49,667	35%	\$7,694.64
Idaho	21,100	23,100	23,800	22,667	16%	\$3,511.65
Nevada	4,700	3,800	3,100	3,867	3%	\$599.04
Oregon	20,400	15,700	20,300	18,800	13%	\$2,912.60
Utah	18,700	14,900	17,700	17,100	12%	\$2,649.23
Washington	25,500	18,700	23,100	22,433	16%	\$3,475.50
Total	152,900	135,400	141,700	143,333	100%	\$22,206.00

Justification

In July 2014, Council agreed to support the Human Dimensions Stakeholder Surveys (Recommendation 9). At the July 2015 Council meeting, Council discussed several funding methods, and favored an approach for proportional assessments based on the number of waterfowl hunters in each state. Since July 2015, all flyways have been involved in designing and refining surveys for waterfowl hunters, viewers, and the general public. Surveys are in the final design phases and will be conducted this spring/summer. Results will be available by the March 2017 Flyway meetings. The financial commitment of \$22,206 to support the Human Dimensions Stakeholder Surveys in 2016 exceeds the budget approved by Council during July 2015 (Recommendation 14), so a special assessment is needed to cover 2016 commitments.

Adoption

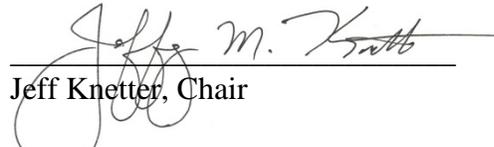
Pacific Flyway Nongame Technical Committee
March 3, 2016

Contact: Jeff Knetter



Colleen Moulton, Chair

Pacific Flyway Study Committee
March 3, 2016



Jeff Knetter, Chair

Pacific Flyway Council
March 15, 2016



Jeff Gould, Chair

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Recommendation 6 – Rocky Mountain Population Greater Sandhill Crane Management Plan Revision

Recommendation

The Pacific Flyway Council (Council) endorses the 2016 revision of the Management Plan for the Rocky Mountain Population of Greater Sandhill Cranes (Plan).

Justification

The Plan revision process included consultation with multiple stakeholders and significant interactions with the Central Flyway Webless Migratory Game Bird Technical Committee. The revised Plan was submitted to Council for review in February 2016, with the intent to seek adoption at the March 2016 meeting.

This Plan is a revision of the March 2007 version. It addresses habitats (breeding range, fall staging areas, migration routes, fall and spring stopover areas, and winter areas), status, uses, current management, problems associated with the population, and hunting guidelines.

The intent of the Plan is to manage Rocky Mountain Population greater sandhill cranes to ensure long-term conservation, meet needs for consumptive and non-consumptive uses, and minimize depredation and nuisance concerns. The current plan has four main objectives:

1. Maintain the population between 17,000–21,000 cranes, as measured by the recent 3-year average index of total cranes from the September pre-migration survey.
2. Maintain and protect suitable habitats in sufficient quantity and quality to support the population objective and recent past spatial distribution, while encouraging population expansion where desirable.
3. Provide for recreational uses of cranes (both consumptive and non-consumptive).
4. Minimize crop depredation by cranes.

This plan contains three significant changes from the March 2007 version:

1. Unused summer-allocated harvest for Colorado will be allocated to wintering range states. Previously, the unused summer allocation for Colorado was distributed to summer range states
2. A five year moving average of the September pre-migration survey will be used to allocate harvest (e.g., 2016 harvest allocation based on 2011–2015 survey data). Previously, this average was updated once every five years
3. New areas to be surveyed annually in Wyoming and Montana were added to the September pre-migration survey

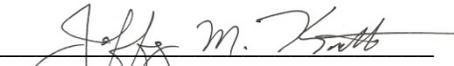
All recommended management strategies in the Plan are considered priorities and are not ranked. The degree and timing of their implementation by various lead agencies will be influenced by

staff resources, and fiscal and legislative constraints beyond the scope of the Plan. Improved coordination between state and federal agencies will enhance sandhill crane management.

Adoption

Pacific Flyway Study Committee
March 4, 2016

Contact: David Olson



Jeff Knetter, Chair

Pacific Flyway Council
March 15, 2016



Jeff Gould, Chair

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Recommendation 7 – Study Committee Representation Assignments

Recommendation

Pacific Flyway Council (Council) approves the following changes to Study Committee representation for national working groups.

- Harvest Management Working Group – Brandon Reishus (Oregon) will replace Dan Rosenberg (Alaska)
- Human Dimensions Working Group – Blair Stringham (Utah) will replace Don Kraege (Washington)

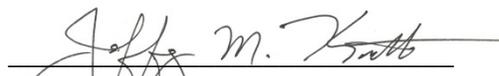
Justification

The change in representation is necessary due to upcoming personnel changes. Travel expenses for representation to each of these groups are covered by Council funds.

Adoption

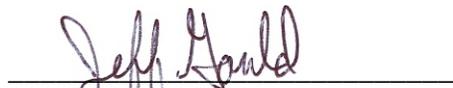
Pacific Flyway Study Committee
March 4, 2016

Contact: Jeff Knetter



Jeff Knetter, Chair

Pacific Flyway Council
March 15, 2016



Jeff Gould, Chair

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Recommendation 8 – U.S. Fish and Wildlife Service Representation to the Pacific Flyway Nongame Technical Committee.

Recommendation

The Pacific Flyway Council (Council) will send the attached letter to Jerome Ford, Assistant Director of the Migratory Bird Program for the U.S. Fish and Wildlife Service (Service), regarding future Service representation and liaison duties to the Pacific Flyway Nongame Technical Committee (NTC).

Justification

While the NTC has benefited from regular participation by one Service representative, we believe communication could be improved by implementing the following recommendations:

- 1) Additional regional Service representation at NTC meetings: because there are unique strengths among Service staff, broader Service representation would benefit both the NTC and the Service. Council encourages Service regions to send representatives knowledgeable about nongame bird issues from all five regions within the Pacific Flyway (Regions 1, 2, 6, 7, and 8).
- 2) Minimum tenure of three years for the Service Liaison: The Service dedicated personnel to act as a liaison to the NTC; since its inception the NTC liaison position has rested solely in Region 1. Engagement of all five regions in sharing the rotation of the official liaison would help to achieve a broader knowledge of the NTC's priorities among affected Service regions.

Adoption

Pacific Flyway Nongame Technical Committee
March 3, 2016

Contact: Colleen Moulton

Colleen Moulton

Pacific Flyway Council
March 15, 2016

Jeff Gould, Chair

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March 15, 2016

Jerome Ford, Assistant Director Migratory Bird Program
U.S. Fish and Wildlife Service
Migratory Bird Program
5275 Leesburg Pike
Falls Church, VA 22041-3803

Re: Expanding U.S. Fish and Wildlife Service Representation to the Pacific Flyway Nongame Technical Committee.

Mr. Ford:

At the request of the Association of Fish and Wildlife Agencies, the Pacific Flyway Nongame Technical Committee (NTC) was established in 2006 to primarily address regulatory issues related to nongame migratory birds on behalf of the Pacific Flyway Council (Council). The NTC was created so Pacific Flyway states and the U.S. Fish and Wildlife Service (Service) could consult more effectively on nongame migratory bird issues of mutual concern. To facilitate this consultation, the Service dedicated personnel to act as a liaison to the NTC.

Council has benefited from Service coordination. We believe communication could be improved by implementing the following two recommendations:

- 1) Additional regional Service representation at NTC meetings.

Since its inception, the NTC liaison position has rested solely in Region 1. Both Tara Zimmerman (retired) and Mike Green, Deputy Chief of the Division of Migratory Birds and Habitat Program, have exceeded Council's expectations in this role.

As the NTC moves into its second decade, it is expanding its role toward pro-active conservation of priority species through coordination with partners across the Flyway. As the priorities of the NTC are evolving, so too is the role of the Service liaison. In addition to being the conduit for the NTC on regulatory matters, the liaison facilitates conservation actions within the Flyway using his or her knowledge of local and regional partnerships and species groups. Because there are unique conservation challenges in various parts of the Flyway, broader participation from Service Regions 1, 7, and 8 at NTC meetings would benefit both the NTC and the Service to successfully implement bird conservation and management efforts across the Pacific Flyway.

2) Minimum tenure of three years for the Service Liaison.

Service Regions 1, 7, and 8 intended to rotate the liaison responsibilities for reasons of staffing, funding, and expedience; however, since its inception, the NTC liaison position has rested solely in Region 1. We understand that Service anticipates rotating the liaison position starting in 2017. We welcome engagement of all five Service regions in sharing the rotation of the official liaison position, as it would help to achieve a broader knowledge of the NTC's process among affected Service regions. Ultimately, investment in the NTC among western Service regions will strengthen the NTC and lead to more cohesive and efficient bird conservation for our nation's trust resources.

As the liaison position rotates among Service regions in the future, Council would like to point out the value of having tenure for Service staff assigned to this position (i.e., there is a learning curve to understanding Flyway structure, processes, and time needed to establish working relationships with Flyway members). Thus, the NTC would benefit from a minimum tenure of three years for Service liaisons. As the position rotates among western regions in the future, we suggest a transition period that involves at least two meetings in which outgoing and incoming liaisons participate.

Thank you for entertaining our request. Ultimately, greater investment in the NTC among western Service regions will strengthen the NTC and lead to more cohesive, efficient and effective bird conservation across the Pacific Flyway.

Sincerely,

Jeff Gould
Pacific Flyway Council Chair

Cc: Robyn Thorson, U.S. Fish and Wildlife Service, Region 1-Director
Dr. Benjamin N. Tuggle, U.S. Fish and Wildlife Service Region 2-Director
Noreen Walsh, U.S. Fish and Wildlife Service Region 6-Director
Geoffrey Haskett U.S. Fish and Wildlife Service Region 7-Director
Ren Lohofener U.S. Fish and Wildlife Service Region 8-Director

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Recommendation 9 – Western Mallard Adaptive Harvest Management and Banding Needs

Recommendation

The Pacific Flyway Council (Council) recommends the U.S. Fish and Wildlife Service (Service) adopt the attached technical updates to the Western Mallard Adaptive Harvest Management (AHM) strategy to incorporate two breeding areas important to the Pacific Flyway, for implementation during the 2017–2018 season. Additionally, Council recommends the Service complete the banding needs assessment for western mallards prior to July 2017.

Justification

Over the past ten years, Council has requested the Service include additional breeding and harvest areas important to the Pacific Flyway into the Western Mallard AHM strategy. The Service helped develop operational breeding surveys in British Columbia and Washington, and these areas now have time series data available from standardized surveys, with annual abundance and variance estimates since 2006 in British Columbia, and since 2010 in Washington. Incorporating survey results from these areas will address stewardship responsibilities and improve model estimates for mallards in the Flyway. Last September, Council provided guidance for the revision, and recommended the Service proceed with changes for implementation during the 2017–2018 season. The Service and the Pacific Flyway completed an assessment of adding British Columbia and Washington survey areas (attached); Council is supportive of proposed technical updates.

In March 2015, Council and the Service agreed to remove the constraint from the objective of maximizing long-term cumulative harvest of western mallards. The removal occurred because there were challenges with implementing the constraint with updated optimization software, and necessary adjustments related to the revised timing of the regulatory process. The constraint was removed for the 2015–2016 and 2016–2017 seasons, and resulted in a lower frequency of intermediate steps (moderate and restrictive) between the liberal and closed alternatives, and a higher frequency of closed and liberal seasons. The Study Committee requests additional guidance on whether it is a Council priority to consider more intermediate regulatory steps in an effort to reduce abrupt changes in regulation packages (see Recommendation 11, March 2008 for the magnitude of intermediate options targeted).

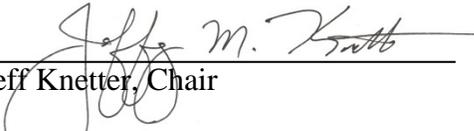
The Service has been working towards completing a revised banding needs assessment since 2010; however, as of March 2016, only the assessment for Mid-Continent mallards has been completed. Pacific Flyway states have long operated under banding goals for mallards which are now outdated, and in some cases may be unnecessary. Completion of the banding needs assessment for western mallards will provide the states and their partners (Service and Non-Governmental Organizations) with guidance on banding intensity and distribution to best meet

the needs of Western Mallard AHM and ultimately, mallard harvest management in the Pacific Flyway.

Adoption

Pacific Flyway Study Committee
March 4, 2016

Contact: Don Kraege



Jeff Knetter, Chair

Pacific Flyway Council
March 15, 2016



Jeff Gould, Chair

Proposed Revisions to Western Mallard AHM to Include British Columbia And Washington Mallards

Scott Boomer, Jeff Knetter, Don Kraege, Brandon Reishus, Dan Rosenberg, Todd Sanders,
Melanie Weaver, Guthrie Zimmerman

Western mallard adaptive harvest management (AHM) was implemented in 2008 and was based on two breeding stocks: Alaska mallards surveyed in the Waterfowl Breeding Population and Habitat Survey strata 1–12, and CA-OR mallards surveyed in state-specific breeding waterfowl surveys. The US Fish and Wildlife Service (Service) and the Canadian Wildlife Service initiated a breeding waterfowl survey in southern British Columbia (BC) in 2006 (Figure 1; Table1), with the goal of eventually including mallards from that survey in western mallard AHM. The Washington Department of Fish and Wildlife (WDFW) had been surveying breeding waterfowl in Washington (WA) since 1979 with ground-based surveys. However, the state re-designed their survey to a helicopter-based survey with a more statistically rigorous design in the eastern portion of the state in 2009. The WDFW expanded the survey to include entire state in 2010 (Figure 1; Table 1), with the intent of including the statewide survey data in western mallard AHM. The Pacific Flyway Council (Council) and Service agreed to update western mallard AHM to include mallards from the BC and WA surveys upon the completion of revisions to western mallard AHM in association with the 2013 Supplemental Environmental Impact Statement on the issuance of annual hunting regulations for migratory birds.

Council submitted a problem statement to the Service in September 2015 (Appendix A), and formed a working group consisting of Pacific Flyway Study Committee and Service personnel to work through the technical updates to western mallard AHM. We identified two primary technical issues to evaluate before incorporating the BC and WA data:

1. Geographic incorporation of the new surveys. We did not know whether the new surveys should go with the Alaska (AK) stock, California-Oregon (CA-OR) stock, or comprise a third stock.
2. Length of time series for the new surveys. The time series for the two surveys were too short to get reasonable estimates of population parameters for informing harvest management decisions.

We presented a summary of the BC and WA data to the Harvest Management Working Group (HMWG) in December 2015, and discussed technical issues. Based on our data summaries and feedback from HMWG members, we identified a potential approach to overcome technical issues and implement a revised western mallard AHM protocol that includes BC and WA breeding mallards beginning with the 2017–2018 regulations. We present a summary of how we dealt with these two main technical issues and present the revised strategy with BC and WA included in western mallard AHM.

Technical Issues

Geographic incorporation of the new surveys

The initial implementation of western mallard AHM split the AK and CA-OR stocks because the breeding mallards from those regions (1) had differing population trajectories, (2) were likely influenced by different environmental driving factors during the breeding season due to distinct geographic separation, and (3) showed different distributions of recoveries (Johnson et al. 2007). Our summaries of the revised data indicate BC and WA had fairly stable populations since the surveys began, similar to CA and OR (Figure 1). CA had more annual variability, but there was no trend. In contrast, AK rapidly increased in the mid to late 1990s, remained high and has declined recently. Therefore, the dynamics of BC and WA mallards appear to be more similar to the CA-OR stock than the AK stock. The BC surveys occur in the southern part of the Province, so the addition of these surveys result in the continuous monitoring of a breeding stock from southern BC to central CA, which is still geographically distinct from the AK stock. We summarized harvest rates from adult male mallards from BC and WA ($\bar{x} = 0.14$) which are very similar to the CA-OR stock ($\bar{x} = 0.13$), but are higher than the AK stock ($\bar{x} = 0.08$). Therefore, based on long-term population trajectories, geographic separation and assumed differences in environmental conditions, and harvest rates, we added the BC and WA breeding mallards to the CA-OR stock.

Length of time series for the new surveys

We decided inclusion of BC and WA mallards would require the imputation of population estimates for those surveys to match the time series length of CA-OR (1992–2015). We considered three approaches to impute data: (1) developing a scaling factor based on overlap between historic surveys in BC and WA to the redesigned surveys in those states; (2) developing a scaling factor based on years of overlap between CA-OR, and BC and WA (2006–2015 for BC, and 2010–2015 for WA); and (3) using the mean and variation from all years of surveys in BC and WA to specify a distribution to sample from in the Markov Chain Monte Carlo (MCMC) process of updating population parameter estimates (i.e., r , K , and process variation) from the discrete logistic model. We did not have a distinct historic time series in BC that overlapped the redesign survey that was implemented in 2006. WA had three years of overlap between their historic survey and the redesigned survey in the eastern portion of the state. The numbers based on the historic design were 34% higher in 2009, 12% lower in 2010, and 14% higher in 2011 compared to the redesigned estimates. Therefore, there was no consistent scaling pattern based on historic surveys in WA. Given the short time series and lack of clear correlations between the BC and WA surveys, and the CA-OR surveys (e.g., recent declines in CA due to drought with stable populations in BC and WA), we decided that developing an offset or scaling factor (similar to what is done currently between CA and OR) was not appropriate for BC and WA. Therefore, we felt that imputing the estimates for BC and WA based on observed means and variances within the MCMC updates would be the best available approach for imputing data back to 1992. Although this approach imputes values based on a random draw, it does acknowledge added uncertainty in those estimates compared to the years with observed data. Further, given the low annual variability and lack of trend, we have no evidence that the recent survey estimates used to generate the mean and variance are not a reasonable approximation of historical breeding population sizes.

Revised Policy

We revised the western mallard AHM framework to include information from BC and WA. Specifically, we (1) added the BC and WA breeding population data to the CA-OR stock to create a “southern” stock; (2) updated the observed harvest rates for the southern stock (AK data and estimates did not change) by including banding and recovery data from BC and WA; (3) updated estimates of population parameters (r , K , and process variance) from the discrete logistic model for the southern stock (AK estimates did not change); (4) updated expected harvest rate distributions under the four regulatory alternatives; and (5) updated the optimization and policy with the revised population parameters and expected harvest rate distributions for the southern stock.

Revised stock population estimates

The addition of WA and BC data to the CA-OR stock increased the overall breeding population size for the southern stock by approximately 38% on average when imputing estimates back to 1992. Although the population estimates were higher, adding the additional data from WA and OR did not appreciably change the annual trends with the exception of slightly mitigating the decline associated with the drought in California since 2012 (Figure 2; CA-OR = 45% decline since 2012, CA-OR-BC-WA = 33% decline since 2012).

Harvest rates for the southern stock

The harvest rates for the southern stock were slightly higher in most years compared to those estimated from just the CA-OR stock (Figure 3). However, 95% confidence intervals overlapped for all years indicating that any differences were non-significant. Consequently, the ratio of harvest rates between the AK, and southern stocks (0.66, SD = 0.19) was similar to the ratio estimated from the CA-OR stock (0.69, SD = 0.21).

Expected harvest rate distributions

Expected harvest rate distributions were similar between the full southern stock and CA-OR alone. Consistent with the raw harvest rates, overall expected harvest rates between the restrictive, moderate, and liberal regulations increased slightly, while standard deviations were identical to the 1000th decimal point (Table 2).

Population parameter estimates

The population parameters for the southern stock were consistent with the expectations from the time series data (Table 3). The estimate of carrying capacity increased by approximately 35%, which is similar to the increase in the size of the southern stock compared to CA-OR alone.

Revised policy

The updated policy that included BC and WA data was similar to the policy without these additional data (Figure 4). This is not surprising given that the control variable is a rate (i.e., harvest rate), and demographic and expected harvest rates were similar between the alternative definitions of the stocks. The primary difference was that the observed population size was higher, which moved the current population state further from the thresholds for restrictions (Figure 4).

Literature Cited

Johnson, F. A., G. S. Boomer, and T. A. Sanders. 2007. A proposed protocol for the adaptive harvest management of mallards breeding in western North America. U. S. Fish and Wildlife. Unpublished Report.

Table 1. Population size estimates for mallards breeding in British Columbia and Washington.

Region	Year	BPOP	SE
British Columbia	2006	102,140	11,733
British Columbia	2007	98,511	11,412
British Columbia	2008	73,702	4,875
British Columbia	2009	66,977	4,818
British Columbia	2010	72,404	5,236
British Columbia	2011	68,314	8,191
British Columbia	2012	78,738	8,866
British Columbia	2013	77,180	6,841
British Columbia	2014	81,595	6,203
British Columbia	2015	82,098	7,579
Washington	2010	91,782	11,261
Washington	2011	71,376	9,456
Washington	2012	89,385	7,281
Washington	2013	74,079	7,571
Washington	2014	86,466	8,860
Washington	2015	86,392	8,192

Table 2. Comparison of the expected mean and SD harvest rates for closed, restrictive, moderate, and liberal regulations in the Pacific Flyway between CA-OR mallards and CA-OR-BC-WA mallards

Regulation	CA-OR Mean(SD)	CA-OR-BC-WA Mean(SD)
Closed	0.008(0.018)	0.008(0.018)
Restrictive	0.062(0.017)	0.064(0.017)
Moderate	0.103(0.029)	0.107(0.029)
Liberal	0.123(0.029)	0.127(0.029)

Table 3. Comparison of the estimated population parameters from the discrete logistic model between a stock consisting of CA-OR mallards and one consisting of CA-OR-BC-WA mallards.

Parameter	CA-OR				CA-OR-BC-WA			
	Mean(SD)	2.50%	50%	97.50%	Mean(SD)	2.50%	50%	97.50%
K^a	0.668(0.190)	0.421	0.620	1.124	0.892(0.229)	0.602	0.835	1.461
d^b	0.681(0.410)	0.064	0.619	1.652	0.633(0.391)	0.064	0.555	1.590
r^c	0.276(0.175)	0.057	0.235	0.712	0.292(0.192)	0.060	0.246	0.781
Sigma^{2d}	0.017(0.011)	0.004	0.015	0.045	0.009(0.006)	0.002	0.008	0.025

^a Carrying capacity

^b Scaling factor

^c Intrinsic rate of growth

^d Process variance

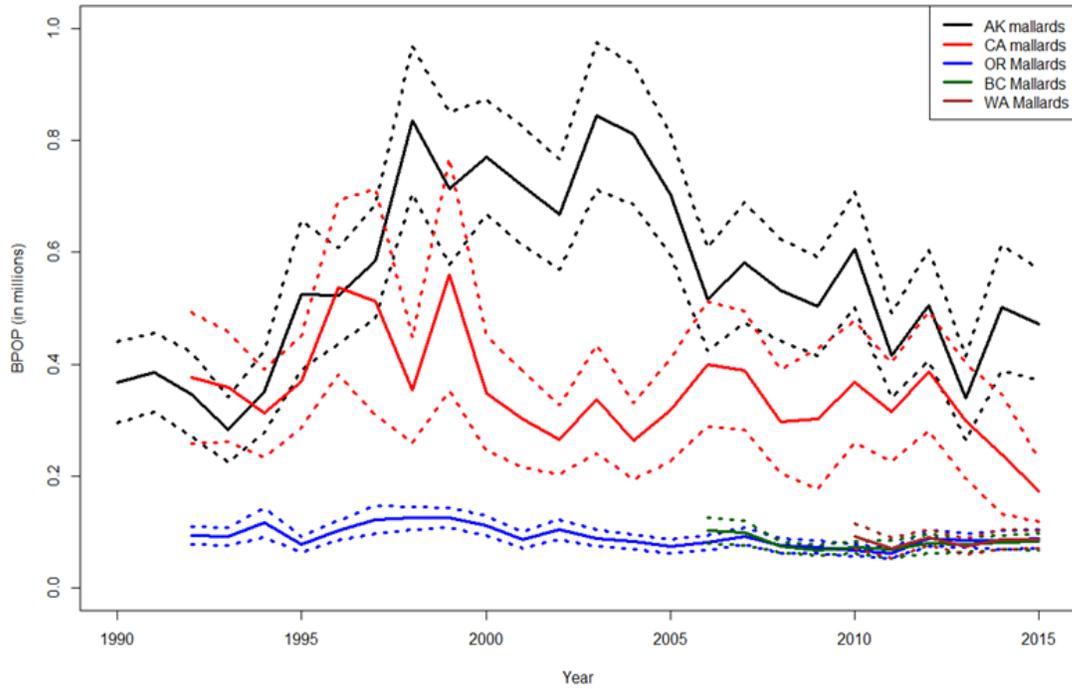


Figure 1. Time series for the population size of breeding mallard in 5 states within the Pacific Flyway, 1990–2015

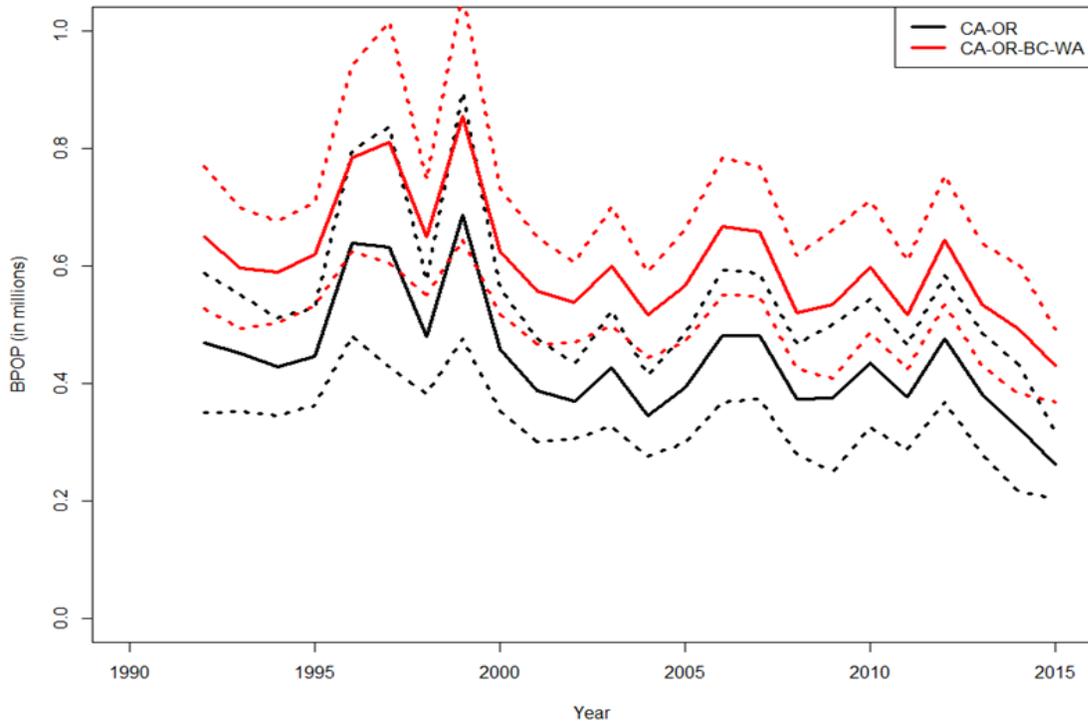


Figure 2. Comparison of time series for breeding mallards in the southern stock when BC and WA data are added to the CA-OR stock. Note: estimates for BC were imputed for 1992–2005, and WA for 1992–2009.

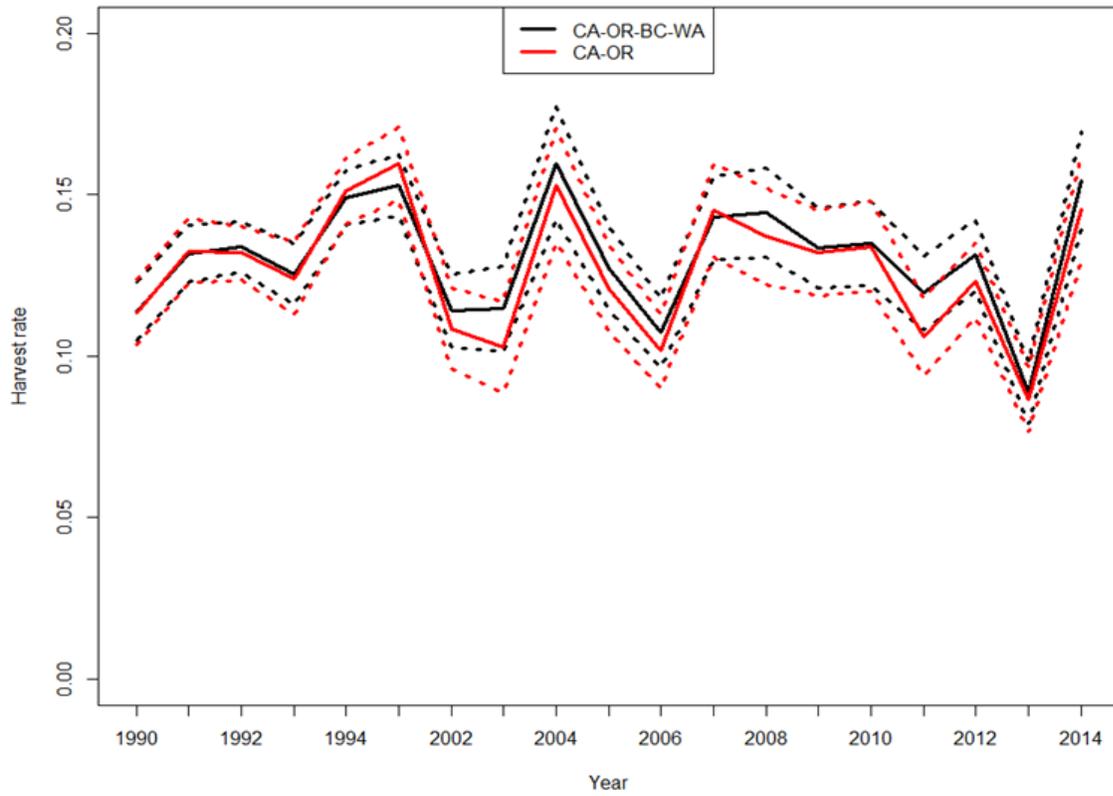


Figure 3. Comparison of observed harvest rates for the southern stock when BC and WA data are added to the CA-OR stock, 1990–2014.

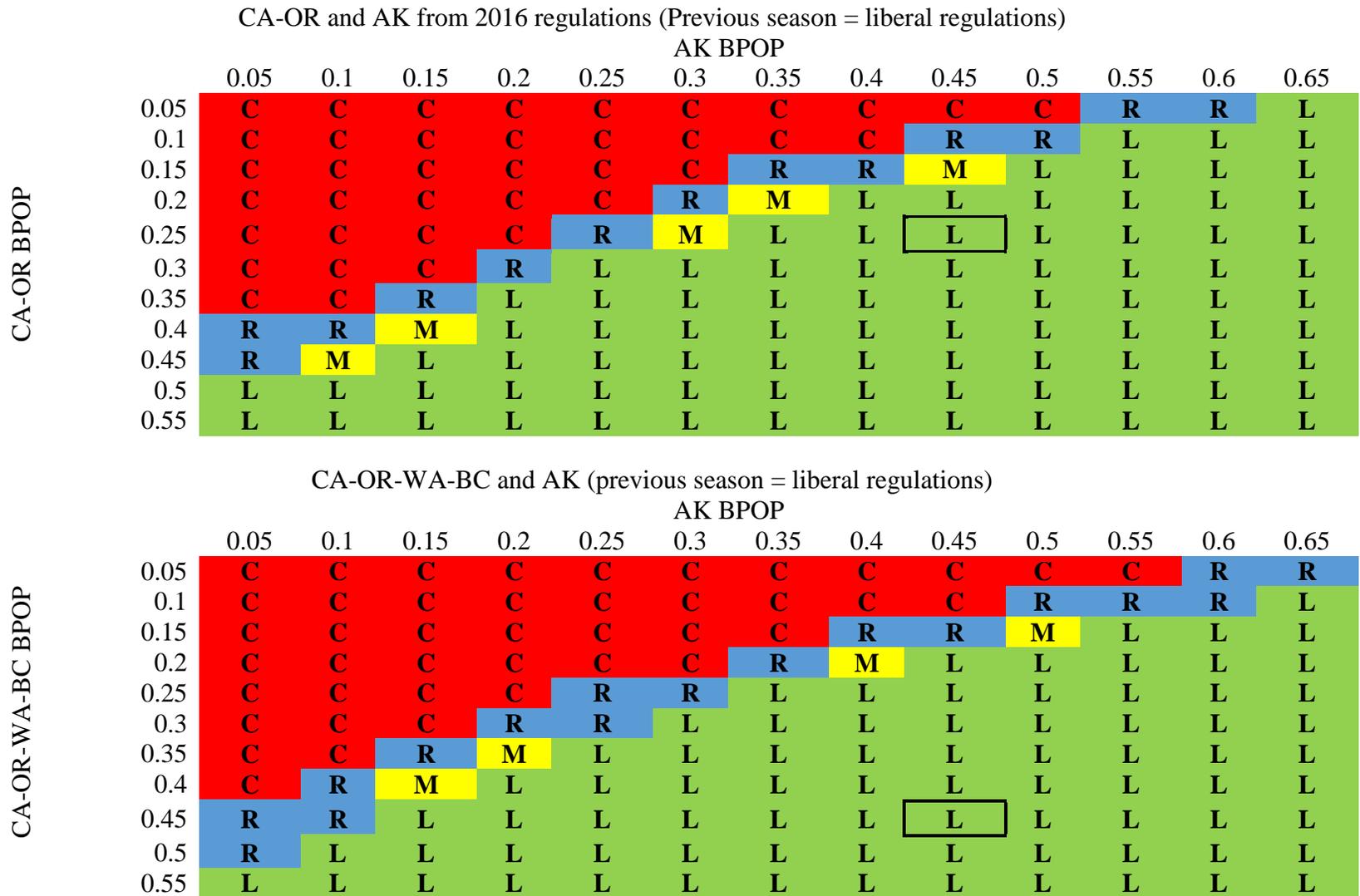


Figure 4. Comparison of optimal policies between a southern stock of mallards that consisted of CA-OR mallards compared to one that consisted of CA-OR-BC-WA mallards. The cell containing the observed breeding population size in 2015 that would have been used to inform management is outlined in black.

Appendix A. Problem statement to update western mallard Adaptive Harvest Management developed by the Pacific Flyway, September 2015.

Western Mallard Adaptive Harvest Management (AHM)

Broad Overview and Background

Since western mallard AHM was implemented in 2008, the geographic delineation of western mallards has been considered temporary, until surveys in other Pacific Flyway areas can be brought up to similar standards and an adequate time series of population estimates is available for analysis. The Service has assisted in developing operational breeding surveys in British Columbia and Washington. These areas now have time series data available from standardized surveys, with annual abundance and variance estimates since 2006 and 2009, respectively. In 2008, the Council also requested the Service explore options to incorporate mid-continent mallards from existing surveys in areas of Canada important to the Pacific Flyway (e.g., Alberta, NWT) into the decision process in the future. Incorporating survey results from more breeding areas important to the Pacific Flyway will address stewardship responsibilities and improve how model estimates reflect the status of mallards in the flyway.

Western mallard AHM was based on maximizing long-term cumulative (i.e., sustainable) harvest, subject to a constraint intended to prevent extreme changes in regulations associated with relatively small changes in population sizes (i.e. “knife-edge effect”) (see 2014 AHM report). In March 2015, Council and the Service agreed to a short-term strategy of removing the constraint to the objective of maximizing long-term cumulative harvest. This occurred because of challenges associated with implementing the constraint in the updated optimization software, and necessary adjustments related to the revised timing of the regulation setting process. The Service recommended removing the constraint for the 2015–2016 and 2016–2017 seasons with the expectation that the Service would continue working with the Council to develop an updated objective function that fully captured the Council’s harvest management objectives (see AHM Adjustments for SEIS 2013 from June 2015). The lack of constraint resulted in very few moderate and restrictive regulatory options in the resultant optimal-decision matrix, and more closed cells than in the previous approach.

The 2015 western mallard population index declined (primarily driven by drought conditions in California), and is 29% below the long-term average (1992–2014). An updated model that incorporates additional stocks and addresses the Council’s harvest management objectives will provide a better decision tool, if season changes are warranted by further population declines. As noted in the March 2015 Council recommendation, the evaluation or “double-looping” process for western mallard AHM should be a priority for implementation in the 2017–2018 regulations cycle. Technical assistance is required from the Service Population Habitat and Assessment Branch (PHAB) to provide an initial stock assessment (series variability, correlations, trajectories, and recovery distributions) that will guide the revision process.

Nature of Decision Problem

How to inform Pacific Flyway harvest regulations using AHM.

Management Objective

The management objective for western mallard AHM is to maximize long-term cumulative (i.e., sustainable) harvest while minimizing major changes in regulations with minor changes in population size.

Regulatory Alternatives

Maintain current regulatory options (liberal, moderate, restrictive, and closed) with associated season lengths and bag limits.

Frequency/Timing

Updating the process for setting Pacific Flyway duck harvest regulations is a one-time decision. This decision is subject to periodic evaluation (double looping) and adaptation. The actual regulatory decisions for general duck season frameworks in the Pacific Flyway are made annually for the following year.

Spatial Scope

Definition of the western mallard stock is part of the problem under consideration.

Decision Makers

The U.S. Fish and Wildlife Service and Pacific Flyway Council are the ultimate decision makers.

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Recommendation 10 – Wrangel Island Lesser Snow Goose Harvest Strategy

Recommendation

The Pacific Flyway Council (Council) endorses the revised harvest strategy for the Wrangel Island population of lesser snow geese.

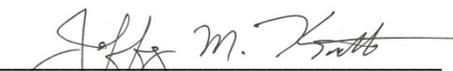
Justification

Council updated the harvest strategy for Wrangel Island snow geese in 2006 and 2011. The 2006 update was associated with revision of the Management Plan for Wrangel Island Lesser Snow Geese (Plan). The attached revision of the strategy involved all agencies throughout the range of the population and considered recent population demographic information. The Wrangel Island population and other Pacific Flyway white goose populations are currently above management objectives, and several states have recently liberalized white goose seasons. The new strategy is intended to replace the 2011–2015 version in the Plan, and will be updated in future revisions.

Adoption

Pacific Flyway Study Committee
White Goose Subcommittee
March 4, 2016

Contact: Don Kraege



Jeff Knetter, Chair

Pacific Flyway Council
March 15, 2016



Jeff Gould, Chair

HARVEST STRATEGY FOR THE WRANGEL ISLAND POPULATION OF LESSER SNOW GEESE

This harvest strategy is of interest to the U.S. Fish and Wildlife Service (USFWS), Canadian Wildlife Service (CWS), Russian Federation, Pacific Flyway states and provinces, first nations, and other constituents to jointly conserve and manage the Wrangel Island population of lesser snow geese (WISG). WISG are harvested in Alaska (AK), California (CA), Oregon (OR), British Columbia (BC), and Washington State (WA). It is impossible to estimate either abundance or harvest of the WISG wintering in CA and southern OR because these birds mix with much larger numbers of snow geese from northwest Canada. Accordingly, this strategy is focused primarily on managing harvest on the Fraser-Skagit segment. Based on population dynamics and marking information, the Fraser-Skagit segment currently has strong winter philopatry with very little documented immigration from or emigration to other wintering areas.

Population Trends. This harvest strategy stems, in part, from the increased abundance of this population since the early 1990s and from the need to maintain it within prescribed, manageable boundaries. The intent is to maintain WISG into the future, but not allow it to grow out of control as has happened with the mid-continent population of lesser snow geese. The latter population grew exponentially in the 1980s and 1990s, resulting in crop depredation problems on the winter range and severe habitat degradation on spring staging and breeding grounds (Batt 1997). However, the Wrangel Island ecosystem differs from mid-continent breeding areas; higher latitude nesting conditions, severe weather conditions, high predation pressure in some years, competition from other herbivores, and a limited carrying capacity on the molting area may limit growth rates compared to the mid-continent. Historically, estimates of WISG in the spring reached over 200,000 geese but declined to a low of 56,000 in 1975. The 2015 population was estimated to be 240,000 with a 3-year running average of 181,700, well above the Flyway plan objective of 120,000. There is evidence that immigration is occurring on this colony, similar to other areas in the western Arctic. The increase in the population from 155,000 to 240,000 from 2011 to 2015 cannot be explained from increased production alone, and many more blue geese have been observed on the colony recently.

Harvest Trends. Harvest estimates for the Fraser-Skagit segment have averaged 6,580 (n=68 years) since 1948 and 9,824 (n=5) for the period 2010-14. Except for most of the 1990s, fall harvest has historically been larger in WA than in BC. As noted above, a total estimate of WISG fall harvest is not available because Wrangel Island geese mix with snow geese from the western Arctic in southern OR and CA. Alaska subsistence harvest may average 6,000–8,000 WISG per year (includes geese from both wintering segments), mostly taken on the Yukon-Kuskokwim Delta, with additional harvest in the Bering Strait and Northwest Arctic regions. “Harvest rates” from the Fraser-Skagit segment, calculated by comparing harvest survey results (adults + juveniles) to fall/winter surveys, averaged 15% between 2010 and 2014 (range = 5–25%).

Harvest Strategy for Entire Population. The parties to this plan recognize the need to support and maintain a long-term harvest strategy that ensures maintenance of the population and equitable harvests among users. The primary method of managing the Wrangel Island population will be through regulatory changes. The response effects of changes in regulations and management programs should be evaluated every five years. In recognition WISG are a shared resource throughout the Flyway, the following harvest guidelines will apply to this population:

1. Hunting seasons will be designed to meet the management plan objective level of 120,000 (3-year average).
2. If the population index is below 120,000 (3-year average):
 - a. Hunting seasons in areas used by Wrangel Island snow geese will be reduced, with higher priority given to reductions in areas that liberalized harvest regulations most recently.
 - b. Efforts to control overabundant white goose populations in western North America should be designed to minimize harvest of WISG.
3. If the population index is below 60,000 geese (3-year average), restrictive hunting seasons will be implemented to minimize harvest of WISG.

Harvest Strategy for Fraser-Skagit Segment. In recognition of the greater ability to manage WISG harvest in the Fraser-Skagit wintering area compared to other areas of the flyway, the following guidelines will apply to the Fraser-Skagit segment:

1. Hunting seasons will be designed to maintain this segment between 50,000–70,000 geese. This range is based on current distribution, recognition of concerns associated with higher abundance levels, and the contribution of the Fraser-Skagit segment to the total population objective. Recent evidence indicates that a harvest rate of approximately 15% is appropriate to maintain this segment within the 50,000–70,000 range. However, higher or lower harvest rates may be required depending on the degree to which abundance differs from the range objective.
2. Hunting seasons will be closed if the population declines below 30,000 or if the Wrangel Island index declines below 60,000 (3-year average). After a period of closure, the season may be reopened if the Fraser-Skagit segment increases above 35,000 and the Wrangel Island index is above 60,000 (three-year average).

Informational Notes

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Informational Note 1 – Canadian Wildlife Service Briefing to the Pacific Flyway Study Committee

The Canadian election held in November 2015 resulted in a change in government. The new government changed Environment Canada’s name to “*Environment and Climate Change Canada*” to elevate the profile of Climate Change in Canada.

Two staff changes within the Canadian Wildlife Service (CWS) were discussed because of their relevance to the Pacific Flyway. Eric Reed (formerly located at the CWS headquarters in Ottawa) is now in Yellowknife and one of his projects is to oversee the CWS snow goose banding program on Banks Island, Northwest Territories (NWT). Eric updated the Pacific Flyway Study Committee (PFSC) of the Banks Island banding activities undertaken in 2015 and on what is proposed for 2016–2020. Eric is also conducting Common and king eider surveys, and he is scoping new surveys of black brant and scoters in NWT and Nunavut. His former position in Ottawa is now held by Christian Roy. Christian is already engaged with development and assessment of survey and banding programs, analyses of waterfowl trend data, and black duck Adaptive Harvest Management. He will also provide statistical support to CWS staff for all bird groups.

A total of 187,526 Migratory Bird Permits were sold during 2014–2015 in Canada. Waterfowl harvest was estimated at 2.3 million birds (1.1 million ducks and 1.2 million geese). The December 2015 report entitled “*Proposals to Amend the Canadian Migratory Bird Regulations (including Regulation Proposals for Overabundant Species)*,” distributed electronically to PFSC members, lists all the regulatory changes to the Canadian Migratory Bird Hunting Regulations proposed for the 2016–2017 and 2017–2018 seasons. Three (minor) new regulations are proposed to manage overabundant geese: 1) the introduction of a spring conservation season in the Yukon (to be held from 1 to 28 May), 2) an increase of the daily bag limit to 50 and removal of the possession limit for snow and Ross’s goose (combined) in the Yukon, and 3) an increase in the lesser snow goose daily bag limit in one management unit in Northern Ontario. No regulatory changes are proposed for British Columbia, Alberta, Northwest Territories, and Nunavut.

The overhaul of the Canadian Federal Hunting Regulations continues. Final edits are being made to the wording associated with the purpose of the Migratory Bird Hunting Permit, definition of possession, prohibition of abandonment, proof of legal ownership, the approval process for non-toxic shot alternatives, and a few other items. Once completed, the wording will undergo legal review.

In Canada, the inter-agency Wild Bird Influenza Survey primarily involved dead bird surveillance in 2015 and, in British Columbia, some live bird sampling and hunter kill sampling. No national plan has been released for 2016–2017.

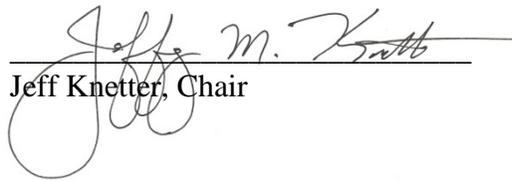
Precipitation is above average for the southern part of British Columbia and below average for Central and Northern British Columbia.

Canada will undertake various activities to celebrate the 100th anniversary of the Migratory Bird Treaty, including the release of \$20.00 bird coins by the Royal Canadian Mint.

Adoption

Pacific Flyway Study Committee
March 4, 2016

Contact: André Breault



Jeff Knetter, Chair

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Informational Note 2 – Canvasback Harvest Management Considerations

Beginning with the 2016–2017 regulatory cycle, the U.S. Fish and Wildlife Service (Service) adopted a new regulatory cycle for migratory game birds. Currently, harvest regulations are set nearly a year in advance, and regulatory decisions must be informed by monitoring data from the prior year, rather than the current year. The canvasback harvest strategy compared a predicted population size (i.e., predicted population size during the following breeding season) to pre-defined thresholds to inform regulations. Therefore, the revised regulatory cycle would have forced canvasback regulations to be based on data from two years prior to the time of the decision. This delay caused concern among the Division of Migratory Bird Management (DMBM) and the flyways about using the canvasback harvest strategy to inform regulations with the new regulatory cycle.

In August 2015, DMBM recommended a Liberal-1 bird regulatory alternative for the 2016–2017 season, based on a risk assessment and simulations that predicted the 2017 Breeding Population using a demographic model with canvasback data from 1994–2014. In October 2015, three flyways recommended a Liberal-2 bird regulatory alternative for the 2016–2017 season, citing the relatively low predictive power of the 1994–2014 model, and that no additional biological data were available between the setting of the 2015–2016 season (Liberal-2) and the decision for the 2016–2017 season. The Service Regulations Committee (SRC) approved the Liberal-2 bird regulatory alternative for the 2016–2017 season. Furthermore, the SRC asked the flyways to work with DMBM staff to develop a process to inform decisions prior to the Flyway meetings in March 2016; the goal was to have an interim harvest strategy that could be used to set canvasback harvest regulations until a formal strategy could be developed after double-looping for mallard Adaptive Harvest Management (AHM) was completed.

A committee consisting of at least one representative from each Flyway and DMBM staff was formed to develop priorities and objectives for canvasback harvest management. In December 2015, the Harvest Management Working Group discussed these objectives and possible options to assess canvasback status and regulatory options.

The committee expressed a desire for simple and stable canvasback regulations. They also identified a preference for an interim strategy that could be implemented until completion of the mid-continent mallard AHM double-looping process and the exploration of multiple-stock management. The committee did not want to develop a long-term strategy for canvasback harvest when overall duck objectives were being re-evaluated. Consequently, they desired a biologically sound, but simple method that could be employed in a timely manner in the interim.

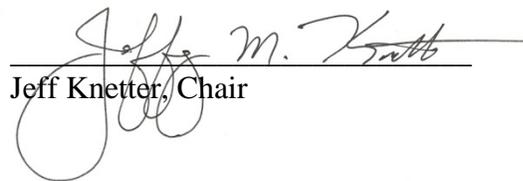
Staff from DMBM offered to compose a draft report that summarized committee discussions and preliminary canvasback harvest management analyses. Unfortunately, a final report was not delivered until the last week of February. This did not leave enough time for flyways to consider the preliminary analyses and reach agreement on how to move forward.

The Pacific Flyway Study Committee believes preliminary canvasback harvest management analyses could be used as a decision support tool to inform a biologically-based decision on canvasback regulations. They intend to engage with other flyways in an effort to reach consensus on a biologically based decision support tool to inform canvasback harvest management by the fall regulatory meeting.

Adoption

Pacific Flyway Study Committee
March 4, 2016

Contact: Jeff Knetter



Jeff Knetter, Chair

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Informational Note 3 – Development and Submission of the 'Migratory Pathways' National Conservation Need to the Association of Fish and Wildlife Agencies

The Pacific Flyway Nongame Technical Committee (NTC) developed and submitted the attached National Conservation Need (NCN) proposal formally titled "*Migration, stopover, and site use assessment to determine important migratory bird use areas for informing proposed renewable energy projects site selection.*" The Migratory Pathways NCN was the first among five top priority initiatives from the NTC approved by the Pacific Flyway Council (Council) in September 2015 (Recommendation 17).

The proposed NCN provides a statement of need to inform and develop strategies to meet energy development needs, while ensuring development is compatible with conservation of migratory birds. Identification of key migratory pathways and stopover sites for migratory birds is vital to the successful optimization of both conservation and energy production goals. Data will identify risks to specific wildlife resources, guide site selection, and allow proponents to focus on compatible sites for both wildlife conservation and renewable energy production.

After incorporating feedback from Council and Association of Fish and Wildlife Agencies' Bird Conservation Committee, the Migratory Pathways NCN was submitted to the National Grants Committee by the North American Bird Conservation Initiative Coordinator, on behalf of the Bird Conservation Committee in early February 2016.

Adoption

Pacific Flyway Nongame Technical Committee
March 3, 2016

Contact: Cris Tomlinson

Colleen Moulton, Chair

Multistate Conservation Grant program
2016 MSCGP Cycle National Conservation Need (NCN)
Prepared by the Pacific Flyway Council's Nongame Technical Committee
(Colleen Moulton, Chair, colleen.moulton@idfg.idaho.gov)

Subject: Migration, stopover, and site use assessments to determine important migratory bird use areas for informing proposed renewable energy projects site selection.

Statement of Need: As the United States develops strategies for meeting national energy needs, federal and state wildlife agencies must ensure these strategies remain compatible with the conservation of wildlife populations. The identification of migratory pathways and key stopover sites for migratory bird species is needed to address gaps in knowledge not captured by other conservation planning tools, such as the Crucial Habitat Assessment Tool (CHAT) and the Important Bird Area program. This information is vital for maximizing both conservation and energy production goals, as it will: 1) inform risk assessments on wildlife resources, 2) guide project proponents prior to the investment of significant time and resources, and 3) allow project proponents to focus on compatible sites for both wildlife conservation and renewable energy production.

Desired Proposals: Proposals should describe: 1) the migratory species of interest, 2) the proposed methods to identify migration pathways and stopover sites, 3) the length of the study and an outline of the implementation schedule, 4) how the study will help achieve the statement of need, 5) deliverables and timelines, including plans for long-term data storage and distribution, 6) the coordination and/or support for the project from state(s) in which the project will occur, and 7) the outreach efforts that will be employed to promote the results.

Desired Outcomes/Expected Benefits: Benefits of these studies include: 1) local and landscape-scale identification of migratory pathways and stopover sites for bird species that could be affected by renewable energy development projects and other forms of development, 2) dissemination of results to state and federal agencies and renewable energy companies to inform project site selection, 3) reduction in impacts of renewable energy production and other forms of development on migratory species, 4) reduced need for negative publicity, mitigation, and potential legal challenges related to operation of renewable energy facilities, and 5) improving existing geospatial planning tools (e.g., CHAT).

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Informational Note 4 – Pacific Flyway Study Committee Management Plan Meeting Summaries

The Study Committee has begun revision of eight management plans. Revision coordinators provided summaries of the following plan revision meetings: Cackling Canada Goose (Washington), Emperor Goose (Alaska), Lower Colorado River Valley Greater Sandhill Cranes (U.S. Fish and Wildlife Service, Region 2), Pacific Brant (California), Pacific Flyway Population of Lesser Sandhill Cranes (U.S. Fish and Wildlife Service, Region 1), Rocky Mountain Population of Trumpeter Swans (Montana), Western Canada Goose (Oregon), and Western Tundra Swan (Utah).

Cackling Canada Goose Management Plan

The cackler subcommittee heard a presentation from Erin Harrington from Oregon State University (OSU), who is working on a M.S. project under Dr. Bruce Dugger. Erin's project is looking at why cacklers are spending more time in urban environments in the Willamette Valley. Preliminary indications are that urban environments are more energetically profitable than agricultural fields, and disturbance levels are lower. Most of the meeting was spent reviewing edits made to the management plan at the January 2016 meeting. The subcommittee reviewed the population goal, objectives, and management issues, and no further edits were suggested. The three-year average population graph prepared by Todd Sanders will replace the version currently in the plan. All participants ranked management strategies at the meeting, and these rankings will be used to assign high, medium, and low priorities in the plan. Ongoing or programmatic activities will be identified but will not be assigned priorities in the plan. The group also discussed the harvest strategy and opted to keep the +/- 10% action levels, but will consider a two year term to keep any regulation changes in place before changing seasons. The subcommittee reviewed and revised an Informational Note for the Pacific Flyway Council (Council) that explained the schedule and highlights of the plan revision, which will be completed by May 31, 2016 for adoption at the late September Council meeting. The Informational Note also briefly summarized the 2015 stakeholder workshops funded by Council, and provided notice the contract report by OSU will be distributed to Council and others following review by all stakeholders.

The Pacific Flyway Study Committee requests Council review the draft revised Pacific Flyway Management Plan for Cackling Canada Geese (Plan), with the intent to seek adoption at the fall 2016 meeting. The 1999 Plan was past due for review and revision, and Council identified revision of this Plan as a priority activity in 2011. The cackling Canada goose subcommittee and cooperators identified current issues and necessary updates over the past year.

Plan development benefitted from four days of stakeholder workshops conducted by OSU as part of the Council-funded project "*Developing a Structured Framework for Managing Cackling*

Canada Geese.” The final project report will be distributed following review by all stakeholders involved. A total of \$2,132 remains in the Council budget from the 2013 cackling Canada goose special assessments contributed by Alaska, Oregon and Washington. Based on the July 2014 (Recommendation 8) Council decision, funds are dedicated for completion of the revised Plan and any associated tasks. The subcommittee intends to use the remaining balance to combine with Service – Region 7 funds to implement a cooperative landowner survey designed to document the amount and distribution of cackling Canada goose depredation occurring in western Oregon and southwest Washington. In addition, the subcommittee will work to support or implement the following tasks identified in the workshops:

- Evaluate and recommend revisions (if appropriate) of current restrictions on subsistence harvest methods (e.g. egging, molt drives)
- Establish a subcommittee to pursue funding to reduce the burden of costs for farmers
- Alter existing hunter access programs to increase hunting pressure on farms with goose damage

These tasks, and others agreed upon at the workshops, will be included in an updated version of 1998 Northwest Oregon/Southwest Washington Canada Goose Agricultural Depredation Control Plan.

The goal of the revised Plan is to manage the cackling Canada goose population to ensure efficient, sustainable subsistence harvest and key ecological functions on breeding grounds; and manage habitat and distribution to minimize adverse effects to agricultural activities in wintering areas; while optimizing recreational uses in all areas. After consideration of input from all stakeholders at the workshops, the population objective of 250,000 was maintained in the Plan to meet this goal, although there was not consensus on this objective.

Contact: Don Kraege

Emperor Goose Management Plan

The Pacific Flyway Management Plan for Emperor Geese, adopted in 2006 (2006 Plan), is currently being revised by the Pacific Flyway Study Committee (PFSC) and the Alaska Migratory Bird Co-management Council (AMBCC). The PFSC intends to submit a revised Management Plan (2016 Plan) to Council for review prior to the fall 2016 Council meeting for consideration to adopt at that meeting. The AMBCC is developing a separate agreement (AMBCC Agreement) that will complement the 2016 Plan. The agreement will be completed for consideration at the fall AMBCC meeting.

Both documents will be based on current population status and trends; and share population goals and objectives; population monitoring protocols; and population thresholds for opening, restricting, and closing seasons.

Emperor geese have been closed to fall/winter harvest since 1986 and spring/summer subsistence harvest since 1987. Emperor goose management is guided by the 2006 Plan and the 2005–2006 Yukon-Kuskokwim Delta Goose Management Plan (YKDGMP). Over 95% of emperor geese nest on the Yukon-Kuskokwim Delta of Alaska, and emperor geese primarily winter in remote coastal areas of western Alaska with some wintering in Russia.

The AMBCC Agreement will model elements of the YKDGMP and be consistent with the intent of the Protocol Amending the 1916 Convention for the Protection of Migratory Birds in Canada and the United States. The Protocol established the legal basis for the AMBCC and tasked it with developing recommendations for harvest regulations; population and harvest monitoring; and law enforcement policies to ensure an effective and meaningful role for indigenous inhabitants in the conservation of migratory birds.

Since 2012, the AMBCC has received regulatory proposals to open the subsistence harvest of emperor geese. The 2006 Plan and the YKDGMP use an index of the 3-year average abundance derived from a spring staging survey on the Alaska Peninsula to regulate harvest. Under these plans, an open season can be considered when the 3-year average index is $\geq 80,000$ birds. In 2015, this threshold was exceeded for the first time since surveys began in the early 1980s.

At the July 2015 regulatory meeting, Council endorsed an AMBCC recommendation to open the emperor goose season to allow for a limited harvest in 2016 with commensurate harvest regulations and monitoring protocols, and revise the Emperor Goose Management Plan in conjunction with the AMBCC.

The Service Regulations Committee (SRC) supported the AMBCC's proposed limited harvest for the 2016 Alaska spring and summer subsistence season contingent upon the following:

1. Harvest not to exceed 3,500 geese,
2. Harvest allocation protocol (e.g., quota system or permit hunt) to ensure harvest does not exceed 3,500, and before the 2017 season,
3. Agreement on a monitoring program to index population abundance,
4. A revised management plan addressing harvest allocation among all parties (including spring/summer and fall/winter), population objective, population monitoring protocols, and thresholds for season restriction or closure.

In August and September, 2015, the AMBCC Native Caucus met separately and with all AMBCC parties to seek consensus on harvest allocation among regions and harvest reporting methods. Consensus was not reached in the limited time, and all parties agreed to continue discussions but postpone opening a season until 2017. The Emperor Goose Subcommittee of the AMBCC and Council were tasked with revising and updating the 2006 Plan based on shared objectives.

Two studies, integral to this process, are being conducted concurrently and are in review: 1) a Service study designed to provide a comprehensive evaluation of all available emperor goose survey data and assess harvest potential of the population; and 2) an Alaska Department of Fish and Game study designed to develop a Bayesian state space model to improve estimates of population size by integrating current population assessment methods using all available data sets from the past 30 years. The model will provide a framework from which inferences can be made about survival rates, age structure, and population size.

The revised 2016 Plan will be submitted to Council for review prior to the fall 2016 meeting. The date of the fall AMBCC meeting has not been set, but efforts will be made to submit an

adopted AMBCC Agreement to Council for review and recommendation prior to Council's fall meeting.

Contact: Dan Rosenberg

Lower Colorado River Valley Sandhill Crane Management Plan

The Management Plan for Lower Colorado River Valley Population (LCRVP) of Greater Sandhill Cranes (Plan) is currently under revision. The Plan has not been updated since 1989. The subcommittee met to discuss current issues with the Plan revision. The subcommittee included Study Committee members from interior states (Arizona, Idaho, Nevada, and Utah) as well as representatives from the Service (Region 2, Division of Migratory Bird Management), Canadian representatives (Canadian Wildlife Service) and a non-agency representative (International Crane Foundation).

The discussion focused on goals and objectives and overall structure of the Plan. It has been 27 years since the last revision. The Plan structure is out of date and will need an extensive overhaul. It was determined the Plan will follow the Pacific Flyway guidelines and mirror the recently finished Management Plan for Rocky Mountain Population of Greater Sandhill Cranes (RMP). In addition, there was discussion about the current designation of this population truly being separate from the RMP. Recent monitoring and research has demonstrated that the LCRVP and RMP intermingle on the breeding grounds and fall staging areas. The subcommittee is considering both the positive and negative outcomes of the potential combination of the three western greater sandhill populations (LCRVP, RMP, and Central Valley Population). At this time, this is purely discussion and would need concurrence from both the Pacific and Central flyways. Therefore, the discussion will be ongoing and deliberately methodical in order to make the best informed decision based on past and current biological data available.

The revision coordinator (U.S. Fish and Wildlife Service, Region 2) will continue to overhaul the Plan for eventual subcommittee comments prior to the fall 2016 meeting. Progress on the Plan should allow completion by March 2018, or earlier.

Contact: Dan Collins

Pacific Brant Management Plan

The Pacific brant subcommittee met on March 2 to make progress towards finalizing the Management Plan for Pacific Brant for the Fall business meeting. Jim Sedinger (University of Nevada Reno) presented an analysis on brant survival and age ratio data from both the Yukon-Kuskokwim Delta and Artic Coastal Plain; both indicated survival and recruitment going down over the long term. The group went through the management strategies and identified priorities for each item. Additional research items were identified for inclusion: age ratio data collection on wintering grounds for validation of apparent recruitment decline and focused harvest data collection from Humboldt Bay, to inform a possible alternative to estimate the Pacific Brant population. Management strategies will be forwarded to the group for further ranking and comments.

Contact: Melanie Weaver

Pacific Flyway Lesser Sandhill Crane Management Plan

The Management Plan for the Pacific Flyway Population (PFP) of Lesser Sandhill Cranes (Plan) is currently under revision. The Plan has not been updated since 1983. The subcommittee met to discuss current issues with the Plan revision. The subcommittee included Study Committee and Nongame Technical Committee members from coastal states (Alaska, California, Oregon, and Washington) as well as representatives from the Service (Regions 1 and 7, Division of Migratory Bird Management), Canadian representatives (British Columbia and Canadian Wildlife Service) and a non-agency representative (International Crane Foundation)

Discussion focused on the need to develop an adequate and operational monitoring program for wintering cranes to inform the development of a population objective. The 1983 population objective was to maintain a population of 20,000–25,000 birds. Current estimates of PFP crane populations range from 29,000–33,000 birds, based on a variety of estimates from the literature. The previous population objective may no longer be applicable given the current lack of population monitoring data. The subcommittee determined a thorough literature review of published and gray literature, and past PFSC products will inform the Plan with respect to population estimates.

Additionally, it was suggested a winter aerial survey in California is needed, combined with a ground component to adjust for the presence of greater and Canadian subspecies intermixed with PFP cranes. Areas that should be surveyed include the Sacramento River Delta, San Joaquin Valley, Merced Grasslands, and Pixley National Wildlife Refuge region. Other discussion involved refining the objectives of the Plan, and the role of non-consumptive use (e.g., viewing), management related to non-consumptive use, and general editing.

The Plan committee lead (Service – Region 1) will continue to incorporate comments and edits from the subcommittee during 2016. Edits and comments have been provided by AK, CA, and U.S. Fish and Wildlife Service, Region 7. Progress on the Plan to this point should allow completion by March 2017.

Contact: Joseph Sands

Rocky Mountain Population Trumpeter Swan Management Plan

The Pacific Flyway Study Committee has been working to revise the 2012 Management Plan for Pacific Flyway Rocky Mountain Population (RMP) Trumpeter Swans (Plan). Objectives, strategies, and monitoring for the total population and the U.S. breeding segment have been revised by the RMP Trumpeter Swan Subcommittee and the Greater Yellowstone Trumpeter Swan Working Group. Objectives and strategies related to the Canadian breeding segment have been discussed with Canadian partners.

Council approved an amendment to the 2012 plan, in July 2015, with the inclusion of a new allocation protocol. An amendment to the current Council protocol and best management practices for release or transport of trumpeter swans (Appendix 3) will be presented to Council for their consideration in March 2016. These amendments will update Council protocols in the current Plan immediately, rather than wait for Plan revision.

Upcoming tasks include adding information necessary to manage this population and ensure the Plan fits the Pacific Flyway Style Guide. Additional discussions will explore the role of Oregon and Washington in the Plan. The Trumpeter Swan Society and the Intermountain West Joint Venture will be consulted before the Plan is finalized. The Study Committee expects to submit the Plan to Council in March 2017.

Contact: Claire Gower

Western Canada Goose Management Plan

The Pacific Flyway Study Committee has begun to revise plans which guide management of Pacific Population Canada geese and Rocky Mountain Population Canada geese. The Study Committee has long discussed the validity of two separate populations of western Canada geese in the Flyway and decided to move forward with a new plan which combines these two populations into a single “Pacific Flyway Western Canada Goose Population.” Western Canada geese, like many types of Canada geese, have greatly increased in population size over the last three decades, and there is no longer an obvious population boundary for large Canada geese from Alberta south to Arizona, and from California east to Central Flyway boundary. Additionally, harvest regulations for both of the current populations are very similar, with long, liberal seasons.

The Study Committee is currently in the process of determining a population objective for this potential newly defined population. The objective will be a minimum population threshold, based on average populations in the 1990s. This objective would be determined from aerial surveys conducted in portions of Alberta, British Columbia, California, Montana, Oregon, and Washington. The Study Committee expects to submit the plan to Council in March 2017.

Contact: Brandon Reishus

Western Tundra Swan Management Plan Update

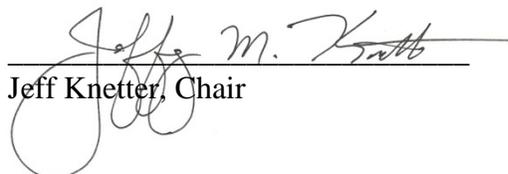
The Western Tundra Swan Subcommittee is making significant progress on revising the Management Plan for Western Population Tundra Swans (Plan). The subcommittee met at the January and March 2016 Study Committee meetings to discuss a population objective, monitoring strategy, harvest strategy, and other issues pertaining to the Plan. It is anticipated that revision to the plan will be completed during summer 2016, and distributed to Council prior to the fall 2016 meeting.

Contact: Blair Stringham

Adoption

Pacific Flyway Study Committee
March 4, 2016

Contact: Jeff Knetter



Jeff Knetter, Chair

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Informational Note 5 – Pacific Flyway Habitat Committee

The Habitat Committee convened to facilitate information exchange and provide updates on an array of habitat issues relevant to Pacific Flyway migratory bird populations. Below is an executive summary of primary discussion topics and presentations provided by Habitat Committee members and partners.

National Conservation Need - Association of Fish and Wildlife Agencies (AFWA) Multi-State Conservation Grant Program

- Update provided on Nongame Technical Committee (NTC) work developing National Conservation Need (NCN) for Pacific Flyway Council (July & September 2015).
- The Migratory Pathways NCN submitted through the AFWA Bird Conservation Committee February 2016.
- Future NCN development will be through the Habitat Committee.

Wetland Connectivity

- Assessment of wetland connectivity in the Pacific Flyway was identified by the NTC as an important information resource concern during the Conservation Partners meeting in 2014 and NTC prioritization process in 2015.
- Better information on spatial and temporal trends in wetland and aquatic resources, and the associated migratory bird response is needed to inform both habitat and population management and conservation actions across geopolitical boundaries.

Pacific Americas Shorebird Conservation Strategy Update

- Audubon is developing this strategy, which mirrors development of the business plan for Atlantic Flyway shorebird conservation.
- An open standards approach is being used to evaluate stakeholder inputs and prioritize areas for conservation focus, and is expected to be completed within one year.

Water Scarcity, Wetland Birds, and Connectivity in the Pacific Flyway: Current Assessments

- Preliminary results from research at Oregon State University indicate an important and strong positive association between habitat conditions (indexed by snow accumulation) in Southern Oregon/Northeast California (SONEC) during spring migration and northern pintail age ratios during the subsequent fall (i.e., recruitment). Research provides an important empirical assessment of the importance of winter and spring migration habitat in the Pacific Flyway.
- Assessment of impacts to waterfowl from recent drought and reduced water availability in the Central Valley of California indicate available foraging habitat reduced by >50%; foraging resources are essentially depleted by waterfowl by early January. Recent drought conditions may trigger water and land use practices and policies that can have longer term impacts on habitat availability at this continentally important wintering area.

- Point Blue and partners engaged in a project to map and quantify spatial and temporal trends of surface water availability in the Central Valley. Initial analyses highlighted significant declines in water availability between 2000–2011, particularly during late summer when shorebird populations typically begin to migrate into the Central Valley. Assessments and decision support tools are being developed to assist wetland managers with responding to annual and seasonal challenges of water use and wetland management in a more coordinated and strategic way than previously possible.
- Water supplies to the Lower Klamath National Wildlife Refuge complex have been dramatically reduced as a result of drought and re-prioritization of water allocations. Wetland habitat availability in 2013–2014 was reduced by over 60% compared to average water supply conditions. The Klamath complex is currently unable to support the >500,000 ducks that historically used the area during migration.
- In SONEC, 70% of dabbling duck use during spring migration occurs on working wetlands, which are flood-irrigated, hayed, and grazed annually. However, surface irrigated acres have declined by >43% over the past two decades and are projected to decline further due to changing socioeconomic, land-use, and environmental patterns. The growing demand for water in the West inadvertently threatens historic land and water use practices that are mutually beneficial to agriculture, migratory birds, and other wildlife.
- The Intermountain West Joint Venture (IWJV) partnership has developed a Working Wet Meadows initiative in the SONEC region to sustain flood-irrigated habitats consistent with recent conservation planning and habitat objectives. This partnership has recently secured \$3.7 million in state and federal funding to address challenges to sustain working wetlands in the SONEC region.
- The IWJV partnership is evaluating spatial and temporal patterns of wetland availability and productivity, using 30 years of LandSat data, and to evaluate relationships between historic and current land-use patterns. These evaluations will provide critical insights to informing strategic conservation strategies for migratory bird habitat conservation in the region.
- Great Salt Lake (GSL): An additional 275,000 acre-feet of water have been identified for diversion from the Bear River, the primary source of freshwater into the GSL system. Climate models predict that total water volume in the primary GSL river systems may decline by 30% over the next 50 years. Evaluations of impacts to waterfowl from these water scenarios indicate waterfowl carrying capacity of the GSL system may be reduced 27–40% from future Bear River development and 43–51% from climate impacts. Overall waterfowl carrying capacity may be reduced 58–63%. Impacts to shorebirds will also be assessed in the near future.
- The IWJV partnership is evaluating trends in wetland and other foraging habitat dynamics throughout the breeding and staging range of the Rocky Mountain Population (RMP) of sandhill cranes. This research will evaluate relationships between landscape condition and demographic patterns of RMP cranes. Information will be used to develop and implement landscape conservation strategies in the Intermountain West.

Networking between Pacific Flyway Joint Ventures, Nongame Technical Committee/Study Committee, and Council

- Brad Bales, Pacific Birds Habitat Joint Venture (PBHJV) Coordinator, has been identified as the liaison between Pacific Flyway and western Joint Ventures to improve coordination.
- The PBHJV Management Board recently evaluated their conservation niche and approaches to facilitate conservation to provide greater impact and influence on bird habitat conservation. Revised Conservation Priorities for PBHJV include:
 - Sustaining Coastal Wetlands
 - Oaks and Prairies
 - Conserving Hawaii's Wetlands and Waterbirds

Adoption

Pacific Flyway Nongame Technical Committee
March 3, 2016

Contact: Cris Tomlison

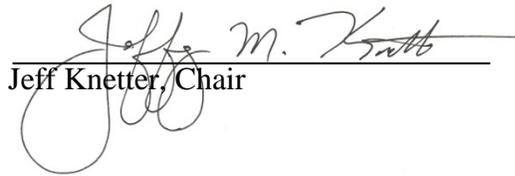


Colleen Moulton, Chair

Adoption

Pacific Flyway Study Committee
March 3, 2016

Contact: Melanie Weaver



Jeff Knetter, Chair

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Informational Note 6 – Pacific Flyway Nongame Technical Committee Recent Activities and 2016 Work Plan Update

Summary of Recent Activities since July 2015

- Assisted U.S. Fish and Wildlife Service (Service) and U.S. Army Corps of Engineers with monitoring the western population of double-crested cormorants (see Work Plan item #9).
- Participation on Eagle Technical Assessment Team, Human Dimensions Workgroup, the Bald and Golden Eagle National Trust Fund panel, Habitat Committee, the Avian Knowledge Network Steering Committee, the Western Working Group of Partners In Flight, and the Southern Wings Technical Committee (see Work Plan items #15-21).
- Met jointly with the Pacific Americas Shorebird Conservation Strategy group in January 2016 to discuss wetland connectivity (a Nongame Technical Committee [NTC] priority topic) and to engage in their planning process (see Work Plan items #20, #24, and #27).
- Developed and distributed questionnaire to Pacific Flyway state agencies regarding data sharing assessments; NTC is currently assembling that information and will consider next steps.
- Led development or participated in the development of Multi-state Competitive State Wildlife Grant proposals for yellow-billed cuckoo and short-eared owls; proposals were submitted to Service February 2016 (see Work Plan items #11-12).
- Developed National Conservation Need proposal for assessing migratory pathways, which was submitted to the National Grants Committee in February 2016 by the Bird Conservation Committee (see Work Plan item #26).
- Updated NTC Work Plan (see Work Plan item #25).

Upcoming Activities

Attached is the 2016 NTC Work Plan.

Adoption

Pacific Flyway Nongame Technical Committee
March 3, 2016

Contact: Carie Battistone

Colleen Moulton, Chair

Pacific Flyway Nongame Technical Committee Work Plan

Updated March 2016

Item #	Task	Status	2016				2017				2018				2019				2020			
			Q1	Q2	Q3	Q4																
	Regulatory Needs																					
1	MBTA Incidental Take Input	In progress		■	■																	
2	Bald and Golden Eagle Rule Revision Input	In progress		■	■																	
3	Peregrine Falcon Take Allocation	Annual	■				■				■				■				■			
4	Other Regulatory Input	Annual	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Data Management																					
5	Data Sharing Assessment	In progress	■	■	■																	
6	Data Sharing Strategy Development	Potential				■	■	■	■													
	Monitoring Plan Development																					
7	Flyway Short-eared Owl Survey Development	In progress	■		■	■																
8	Western YBCU Survey Development	In progress	■		■	■																
	Monitoring and Reporting																					
9	DCCO, USFWS/USACE Monitoring Coordination	In progress	■	■	■						■	■	■	■	■	■	■	■	■	■	■	■
10	DCCO, AWPE Survey Implementation/Reporting	In progress				■	■	■	■	■	■	■	■	■					■	■	■	■
11	Flyway Short-eared Owl Survey Implementation	Potential				■	■	■	■	■	■	■	■	■	■	■	■	■				
12	Western YBCU Survey Implementation	Potential				■	■	■	■	■	■	■	■	■	■	■	■	■				
13	Golden Eagle monitoring strategy development	In progress	■	■	■	■	■	■	■	■												
14	Participation in Avian Influenza surveillance	Potential	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Representation																					
15	Southern Wings Technical Committee	Annual	■		■		■		■		■		■		■		■		■		■	
16	Human Dimensions Working Group	In progress	■	■					■	■					■	■			■	■		
17	International Trumpeter Swan Survey	In progress	■	■	■	■																
18	Eagle Technical Assessment Team	In progress	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
19	BAEA and GOEA trust fund panels	In progress	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
20	Habitat Committee	Annual	■		■		■		■		■		■		■		■		■		■	
21	AKN Steering Committee	Annual	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Coordination/Other																					
22	NCN Process Implementation	Annual	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
23	Coordination and Communication with AMBCC	Annual	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
24	Convene Conservation Partners Meeting	Potential				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
25	Revise Work Plan and Refine Priorities	Annual				■													■	■	■	■
	Potential New Priorities (in Ranked Order)																					
26	Develop NCN for migratory pathways/stopovers	Complete	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
27	Implement wetland connectivity assessment	In progress	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
28	Reduce raptors exposure to pesticides and rodenticides	In progress	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

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Informational Note 7 – Take Allocation of Peregrine Falcons for Falconry Purposes in the United States West of 100° Longitude

In March 2009, the Pacific Flyway Council recommended following authorizations of the U.S. Fish and Wildlife Service (Service) “*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,*” allowing the take up to 116 wild first-year peregrine falcons (41 in Alaska, 75 apportioned among states west of 100° west longitude; Recommendation 20).

In the six years since approval of this recommendation (excluding Alaska which has a separate authorization under the federal regulations), nine of the eleven Pacific Flyway (Flyway) states have authorized take, averaging 66 (range 56 to 83) peregrines per year; an average of 19 (range 18 to 29) have been removed from the wild per year. Two states (Nevada and California) within the Flyway, and the Central Flyway states west of 100° west longitude, currently do not authorize peregrine falcon take. Alaska has authorized the take of 41 peregrine falcons per year and averages take of two individuals per year.

Flyway states (excluding Alaska) have not approached the overall limit of 75 peregrines in permitting or in actual take, although take in some states was equal to allocation in some years. Thus, reallocation of take permits across the 11 states in the Pacific Flyway, and states within the Central Flyway, has not been necessary. The NTC, through coordination with the Central Flyway NTC, will develop an allocation process when peregrine falcon take begins to approach the authorized limit.

Adoption

Pacific Flyway Nongame Technical Committee
March 3, 2016

Contact: James Driscoll

Colleen Moulton, Chair

PACIFIC FLYWAY COUNCIL

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Informational Note 8 – Southern Wings Projects

In July 2015, the Pacific Flyway Council (Council) adopted a process to evaluate, endorse, and collaboratively fund (if they choose to participate) Southern Wings Program (SWP) projects that reflect the priorities of Pacific Flyway states (Recommendation 10). Through that process, the Council liaison will submit to Council up to three projects from the SWP Technical Committee that the Nongame Technical Committee (NTC) and Study Committee (SC) deem appropriate for support from Pacific Flyway states. The SWP projects described below are pre-existing projects that reflect Council interests. The NTC and SC will work with the SWP to develop new projects, based upon Flyway priorities, in the coming year.

POTENTIAL PROJECTS IDENTIFIED FOR THE PACIFIC FLYWAY

Protecting Stopover and Wintering Habitat for Key Priority Species at Laguna Madre, Mexico

The project goal is to protect breeding, stop-over and over-wintering habitat for priority species of shorebirds, waterbirds, and waterfowl. Species affected include redhead, long-billed curlew, snowy plover, and piping plover. Conservation actions at Laguna Madre have been identified as a priority in the Rio Grande Joint Venture Implementation Plan. Actions include trapping and removing predators and invasive species from 20 barrier islands; installing fence to protect against predators; protecting 5,000 hectares of habitat through conservation easements; restoring 20 hectares of freshwater ponds; reforesting with mangroves; and surveying the wintering and breeding populations of shorebirds, ducks and other birds to monitor success and adopt actions as needed.

Budget need is approximately \$80,000. However, individual actions can be supported for \$5,000 to \$30,000 each. Additional details can be provided upon request.

Southern Wings Partners: Pronatura Noreste, American Bird Conservancy

Monitoring and Conservation of Yellow-billed Cuckoos in Sonora, Mexico

Yellow-billed cuckoos (YBCU) have declined in the western U.S. within the last 100 years due to widespread riparian habitat loss. However, an integral assessment of the conservation status of YBCUs must consider the totality of the species' range, including northern Mexico. There is a particular need to better understand YBCU populations in the state of Sonora, whose conservation and management could contribute to the recovery of YBCU populations in the U.S. Project objectives include surveying known and suspected locations of YBCU to document

changes in distribution and abundance, and characterize YBCU habitat through photographic documentation and rapid vegetation assessments.

Budget need is \$10,000–\$20,000. Funds will help expand the inventory and monitoring effort across more areas in Sonora.

Southern Wings Partners: Universidad Estatal de Sonora, Arizona Game and Fish Department

Project 3: Restoration of Migratory Grassland Bird Habitat in the Chihuahuan Desert

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 migratory grassland bird species breeding in western North America. To reduce the threat of habitat degradation and conversion, Bird Conservancy of the Rockies engages private and communal landowners in range improvement and habitat restoration projects on their lands by promoting environmentally and economically sustainable grazing. The goal is to have 500,000 acres in range and habitat management and monitoring programs by 2020. In 2016, they will maintain engagement on 10 private properties, totaling 178,000 acres. Over the next three years, they will add an additional 28,000 acres to the network of ranches implementing bird-friendly range and habitat management. With local partners, they provide technical assistance to help ranchers transition from continuous grazing to rest-rotation. They secure 15 year collaborative agreements with these landowners to protect conservation investments. 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, prairie dogs).

Budget need is \$5,000–\$30,000. Funds will help ranchers defray costs of modernizing their management and support development of integrated management plans, grassland restoration, erosion control and improvements in fencing and water distribution/storage needed for rotating herds.

Southern Wings Partner: Bird Conservancy of the Rockies

Adoption

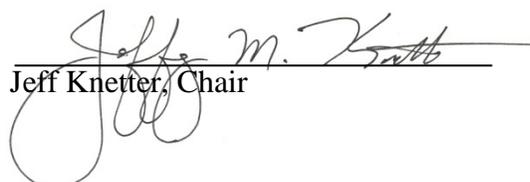
Pacific Flyway Nongame Technical Committee
March 3, 2016

Contact: James Driscoll



Colleen Moulton, Chair

Pacific Flyway Study Committee
March 4, 2016



Jeff Knetter, Chair

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Informational Note 9 – Submission of Competitive State Wildlife Grant Proposals in Support of Pacific Flyway Nongame Technical Committee Priorities

The Pacific Flyway Nongame Technical Committee (NTC) has developed and submitted for consideration two Competitive State Wildlife Grant proposals in support of two of the NTC’s top five priorities approved by the Pacific Flyway Council (Council) in September 2015 (Rec. #17).

The first, entitled “*Western Yellow-billed Cuckoo Range-wide Occupancy Assessment and Habitat Restoration*,” was developed in collaboration with the State of Arizona as lead applicant, the Western Working Group of Partners in Flight, seven additional western states, and several non-governmental organizations. The proposal is a direct response to the NTC’s priority initiative, to “*conduct monitoring/research for riparian-obligate species, primarily for western yellow-billed cuckoos.*” It seeks to conduct the first ever range-wide baseline habitat availability and occupancy assessment for the western yellow-billed cuckoo across the western Distinct Population Segment (DPS). If funded, this two year effort will focus on modeling potential habitat and logistical preparations for range-wide standardized surveys to be conducted during summer 2017. The effort will yield detailed occupancy estimates that would enable future comparisons and trend estimation. This work will also clarify western yellow-billed cuckoo DPS population status, help land managers identify critical habitat important to cuckoos, and guide range-wide cuckoo habitat conservation and restoration planning.

The second proposal, entitled “*Estimating Short-eared Owl Population Size and Habitat Needs Across the Pacific Flyway to Identify Areas for Land Conservation*,” was developed in collaboration with the Western Association of Fish and Wildlife Agencies as lead applicant, nine western states, and several non-governmental organizations. The proposal is a direct response to the NTC’s priority initiative, “*implement coordinated monitoring for short-eared owls.*” It seeks to estimate owl abundance, distribution, and habitat associations in each participating State, across all states annually, and across a three year period (2017–2019). If funded, this effort will yield the first rigorous, state-specific and regional population estimates, as well as identify specific areas and habitats of high importance in which to focus future management efforts.

Adoption

Pacific Flyway Nongame Technical Committee
March 3, 2016

Contacts: Russ Norvell and Travis Booms

Colleen Moulton, Chair

PACIFIC FLYWAY COUNCIL

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Informational Note 10 – Waterfowl Hunter Recruitment, Retention, and Reactivation Workshop

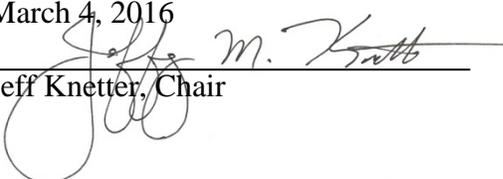
The Pacific Flyway Study Committee (SC) requests input from the Pacific Flyway Council (Council) regarding their interest in a waterfowl hunter recruitment, retention, and reactivation (R3) workshop at the fall 2016 SC and Council meetings. A half-day facilitated workshop could be held on the final day of the SC meeting, followed by a shorter session during the Council meeting. This workshop would provide Council an opportunity to continue to address the third goal of the North American Waterfowl Management Plan (NAWMP): increase numbers of waterfowl hunters, other conservationists and citizens who enjoy and actively support waterfowl and wetlands conservation. Inviting agency personnel involved with hunter recruitment and retention, in addition to SC members, will ensure waterfowl hunter recruitment and retention efforts align with more general hunting recruitment and retention efforts. Conducting the workshop the afternoon before Council meets will allow interested Council members the option to attend the workshop. Objectives of the workshop include:

- Coordinate implementation of the 2008 Waterfowl Hunter Recruitment and Retention Plan in concert with Council to Advance Hunting and Shooting Sports/Wildlife Management Institute National Hunting and Shooting Sports Action Plan.
- Provide workshop participants with tools necessary to initiate waterfowl recruitment and retention implementation from the bottom up, beginning with state workshops during the spring/summer of 2017. State workshops will provide the first step for agencies, Non-Governmental Organizations, and industry partners to begin to conduct an assessment of state participation trends (e.g., use results of national survey), set objectives based on outcomes of the assessment, identify limiting factors, and better coordinate ongoing recruitment and retention activities.

A waterfowl R3 workshop was completed in the Central Flyway earlier this month. The Mississippi Flyway will employ a trained facilitator (Dave Case) for \$2,500, to conduct a waterfowl R3 workshop in August. Following the workshops, the Human Dimensions Working Group and the NAWMP Public Engagement Team will lead efforts to use workshop results to enhance coordination and facilitate learning within and among states. The fall 2017 Waterfowl Summit will be used to launch the implementation phase of the Waterfowl Hunter Recruitment and Retention Plan.

Adoption

Pacific Flyway Study Committee
March 4, 2016



Jeff Knetter, Chair

Contact: Don Kraege

PACIFIC FLYWAY COUNCIL

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Informational Note 11 – White Goose Subcommittee Research Presentations

On March 1, 2016, the White Goose Subcommittee was presented recent status updates from white goose breeding colonies important to the Pacific Flyway across the northern Arctic. For updates about specific colonies, see the White Goose Subcommittee Report. Overall, a trend was apparent across most colonies; white goose populations are thriving. Many of these colonies are growing at rates that double in population size every 3–4 years. The following describes some potential reasons for population growth:

Immigration

There is evidence that immigration is occurring in many colonies. Models of population growth indicate recent increases cannot be explained by increased productivity alone; the only logical explanation for population growth is that immigration is occurring from other stocks of geese. There is some evidence populations have shifted westward based on band returns. There is also band return data that shows birds from the Western Arctic Population are being harvested more frequently in the Central and Mississippi flyways.

Earlier Spring Thawing

Many geese are arriving on breeding grounds earlier than they have historically. This is likely due to snow cover melting earlier each year, making earlier nesting possible. Earlier thaws are also providing snow geese with earlier foraging opportunities. Permafrost deterioration is causing sediment to settle, which is allowing more growth of halophytic vegetation, which is more nutritious. There is also evidence that snow geese can rely on body reserves or local foods (tundra plants) for egg production, meaning that many birds are arriving in adequate body condition to lay eggs regardless of whether spring thawing has completely occurred.

Nest Success and Survival

Nest success appears to be very high for most colonies in recent years. Brood rearing habitat remains in excellent condition which has led to high brood survival. Additionally, annual survival of both juvenile and adult birds is high.

Given these updates, the subcommittee had a discussion about how to interpret these findings and what it means for white goose management in the Pacific Flyway. There is evidence that intertidal wintering habitat damage has occurred in the Fraser-Skagit area. Most other arctic habitats still have resources to support population growth, but there is concern for the capability to sustain current goose populations given the drought conditions occurring on the winter grounds and the Flyway's ability to sustain other waterfowl populations. Additionally, tools to address increasing white goose populations are nearly exhausted. Modifying season dates or

increasing bag limits to maximize goose harvest is only an option in a few states, as most states are currently doing everything allowed to maximize their white goose harvest.

Given the history surrounding the midcontinent population of white geese, now may be the best time to begin exploring strategies to halt growing white goose populations. The Study Committee will continue to explore ways to address this issue and discuss this topic at future meetings.

Adoption

Pacific Flyway Study Committee

White Goose Subcommittee

March 4, 2016

Contact: Blair Stringham



Jeff M. Knetter

Jeff Knetter, Chair

Subcommittee Reports

Pelican Subcommittee

Colleen Moulton, Idaho
Russell Norvell, Utah

Implementation of the American White Pelican Management Framework

Background:

The Pacific Flyway Pelican management plan, “*A Framework for the Management of American White Pelican Depredation on Fish Resources in the Pacific Flyway*,” (Pacific Flyway Council 2012), identified two *Population Assessment* strategies:

1. Identify, develop, and implement monitoring protocols necessary to determine American White Pelican (AWPE) population demographics and distribution at the flyway scale to guide and assess management actions.
2. Develop and implement demographic, genetic, and movement studies aimed at specific gaps in our knowledge of population dynamics and habitat use.

The management plan’s first strategy has been addressed by the 2013 development, adoption, and implementation of the flyway-wide monitoring plan (“*A Monitoring Strategy for the Western Population of American White Pelicans within the Pacific Flyway*,” Pacific Flyway Council 2013). A once-every-three-year monitoring effort, the monitoring plan was implemented in 2014. The next survey will be conducted in 2017. This coordinated population monitoring effort provides the regional context needed to develop a more comprehensive and detailed understanding of population demographics, distribution, and movements.

New Efforts:

In conjunction with the on-going coordinated monitoring effort, the subcommittee has begun to implement the second strategy of the pelican management plan. Idaho (since 2007) and Utah (since 2011) have been banding and patagial-marking flightless juveniles at three colonies (Gunnison Island, Minidoka NWR, and Blackfoot Reservoir) for an assessment of movement patterns (Figure 1) and a mark-resight analysis of age-specific survival. A draft survival analysis (Figure 2) was completed in February 2016 by a collaboration of managers and researchers from Idaho Department of Fish and Game, Utah Division of Wildlife Resources (DWR), and the Utah Cooperative Fish and Wildlife Research Unit staff (M. Conner, pers. com.).

These preliminary data suggest fledgling and second-year bird survival ranges between roughly 10-42% and 38-80% respectively. These survival rates are notably lower than those reported in historical literature (60% and 84%, respectively; Strait and Sloan 1974). Adult survival appears to be similar to historical values. This analysis has also flagged the need for improved re-sight efforts to improve estimate precision.

Utah DWR has also been mounting GPS solar-satellite transmitters on adult pelicans using the Great Salt Lake system as a means of identifying daily and migration movements, and to better describe stopover and winter habitat use. These data are now available as a live webmap (http://wildlife.utah.gov/pelican_webmap/; Figure 3), and are described and promoted on social media and blog posts (e.g., <http://wildlife.utah.gov/blog/>).

Both data sets are important components for implementing the management plan. In addition, the subcommittee has compiled all regional historical and current nest count and productivity data, and is working with statisticians to analyze these datasets. Combined with new survival rate information, these data may provide the foundation to develop population models, as recommended in the pelican management plan (pp. 23 and 25).

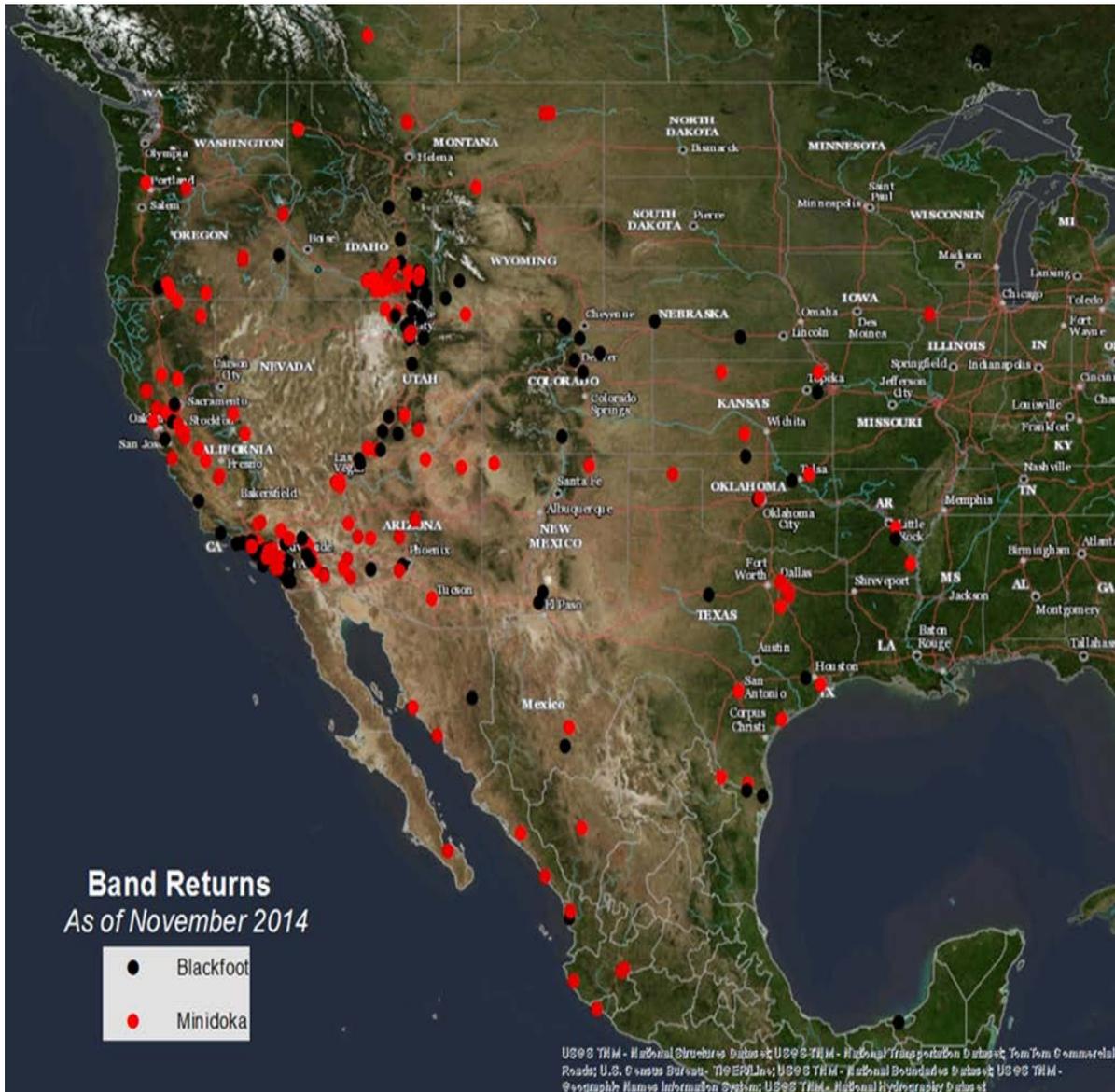


Figure 1. Resightings of pelicans tagged as juveniles at two Idaho nesting colonies.

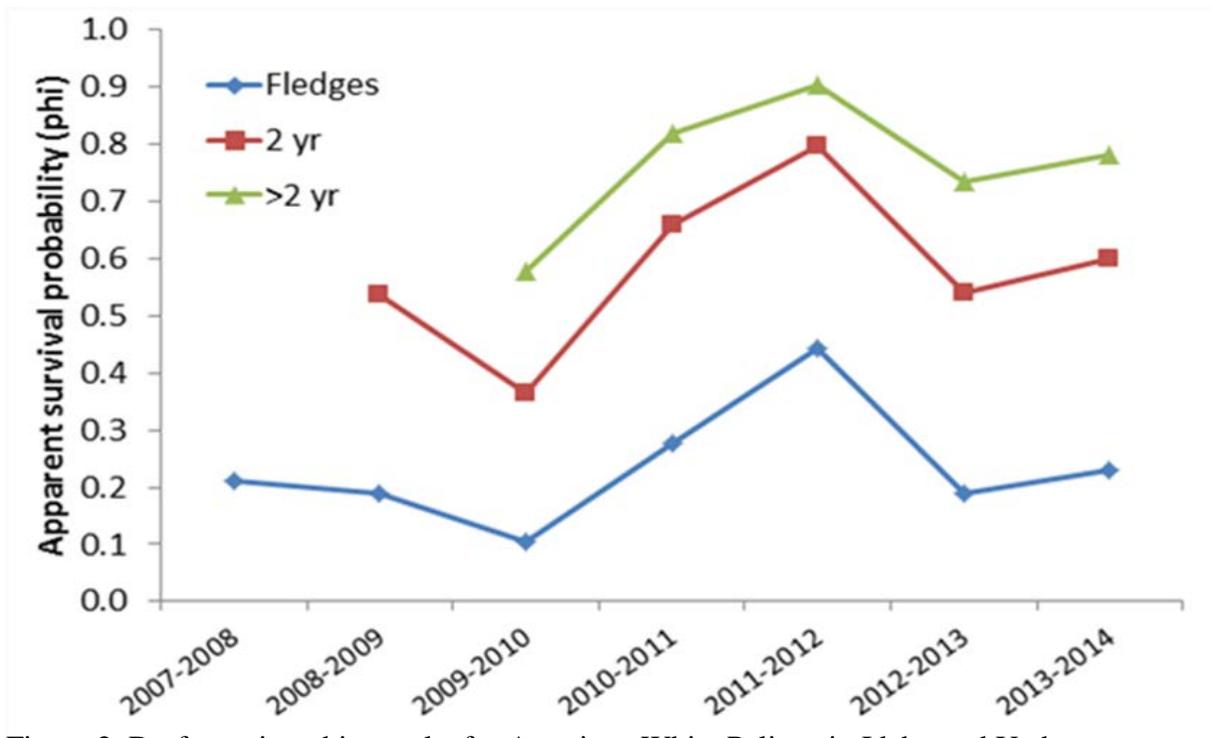


Figure 2. Draft survivorship results for American White Pelican in Idaho and Utah.

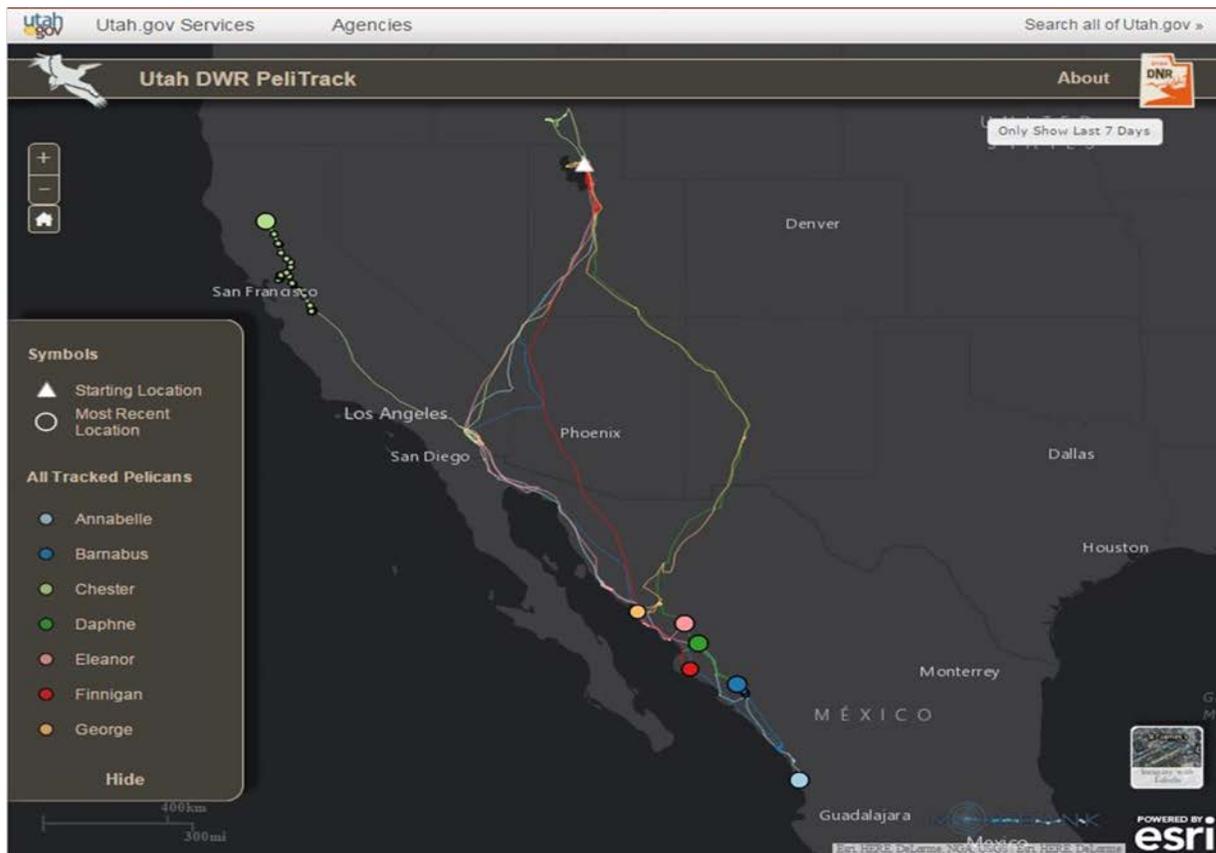


Figure 3. Screen capture from the DWR live web-map

Cormorant Subcommittee

Michael Green, U.S. Fish and Wildlife Service
Andrea Hanson, Oregon

2015 Double-crested Cormorant Monitoring Effort by the U.S. Army Corps of Engineers

Background

As part of the U.S. Army Corps of Engineers' (USACE) *Double-crested Cormorant Management Plan to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary* Final Environmental Impact Statement (USACE 2015), the USACE conducted a regional monitoring effort in 2015 to assess the impacts of lethal and nonlethal actions implemented on the East Sand Island colony to the western population of double-crested cormorants.

Survey Goal

Estimate the size and trend of the western population of double-crested cormorants using methods described in the Pacific Flyway Council's *A Monitoring Strategy for the Western Population of Double-crested Cormorants within the Pacific Flyway* (Pacific Flyway Council, 2013; PF Strategy). Information gained through this monitoring effort will be used to adjust future actions to the East Sand Island colony through an adaptive management strategy.

Survey Implementation

The USACE worked through the U.S. Fish and Wildlife Service (Service), who then worked with refuges, states, the Province of British Columbia, and contractors, to survey select double-crested cormorants colonies, using methods described in the PF Strategy. The 2015 survey effort was funded in part by the USACE, passed through the Service to flyway states, and by individual states.

The Pacific Flyway Nongame Technical Committee coordinated collection of colony data by state, and submitted data to the Service. The Service compiled these data to derive a breeding population estimate.

Survey Data Results

In 2015, 45 of the 46 selected sites were monitored (a colony in British Columbia was not monitored). An additional 51 sites were surveyed opportunistically for a total of 96 sites (Table 1). In 2014, 113 sites were monitored (Table 1) as part of the Pacific Flyway monitoring effort (Pacific Flyway 2013).

The 2015 breeding population estimate is 38,794 pairs (95% CI 31,875 - 45,714 pairs); this is 2.9% lower than the 2014 estimate of 39,950 pairs (95% CI 33,260-46,641; Table 2). The estimates are not statistically different ($p = 0.81$). The USACE implemented management actions on East Sand Island after the 2015 survey.

Survey Cost

The estimated total cost of this 2015 effort was approximately \$123,000. The USACE funded approximately \$57,000 of the effort, the Service provided approximately \$42,000, and States provided approximately \$24,000 of direct and in-kind services.

Future Monitoring Plans

2016 Monitoring Plan: The USACE will continue to fund monitoring of the western population of double-crested cormorants in 2016, for sites that are not already funded by partners. Forty-six sites have been selected for monitoring in 2016. As in previous years, additional sites may be monitored opportunistically. The total budget for the 2016 survey is \$122,000, with the USACE providing \$80,000, the Service providing \$27,000, and States and British Columbia providing \$15,000 of in-kind services.

2017 Monitoring Plan: Implementation of the PF Strategy by flyway states was initiated in 2014, with monitoring scheduled for every 3 years thereafter for at least 10 years (i.e., 2017, 2020, and 2023). Therefore, the USACE is not currently planning on funding the monitoring effort in 2017. Further discussions between the NTC, USACE, and the Service regarding funding are under way.

2018 & 2019 Monitoring Plan: The USACE plans to continue funding the monitoring effort in 2018 and 2019.

Citations

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. 37pg.

U.S. Army Corps of Engineers. February 2015. Double-crested Cormorant Management Plan to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary-Final Environmental Impact Statement. Available at:

<http://www.nwp.usace.army.mil/Missions/Current/CormorantEIS.aspx>

Table 1. Number of Sites Monitored

	2014			2015		
	Selected (monitored)	Additional	Total (monitored)	Selected (monitored)	Additional	Total (monitored)
AZ	0	8	8	0	6	6
BC	2	0	2	2	7	9 (8)
CA	16	4	20	14	4	18
ID	4	3	7	4	2	6
MT	1	0	1	1	0	1
NV	2	0	2	1	0	1
OR	14	41	55	15	19	34
UT	1	5	6 ^b	1	1	8 ^a
WA	4	13	17	7	6	13
WY	0	1	1	1	0	1
Sum	44 (38)	74	119 (113)	46 (45)	45	97(96) ^b

a The Great Salt Lake was analyzed as seven sites.

b Separation of Utah sites for analysis accounts for sum discrepancies.

Table 2. Double-crested Cormorant Western Breeding Population Estimates, 2014 and 2015

Colony Size (Pairs)	2014				2015			
	Colonies Sampled	Estimate Of Colonies per size class	Mean Colony Size	Breeding Population Estimate	Colonies Sampled	Estimate Of Colonies per size class	Mean Colony Size	Breeding Population Estimate
>10,000	1	1	13,626	13,626	1	1	12,228	12,228
10,000-500	5	6	667	4,003	7	8	584	4,506
499-100	19	45	238	10,705	17	40	237	9,410
99-5	37	145	27	3,939	39	152	38	5,828
Area Frame	51	224	34	7,677	33	224	30	6,822
Pair Estimate				39,950				38,794

		Estimated Breeding Population	Standard Error	CV %	Estimated LCL ¹	Estimated UCL ¹
2014	Pairs	39,950	3,413	8.5%	33,260	46,641
	Individuals	79,901	6,827	8.5%	66,520	93,282
2015	Pairs	38,794	3,530	9.1%	31,875	45,714
	Individuals	77,588	7,061	9.1%	63,749	91,427

1 – LCL = Lower Confidence Limit; UCL = Upper Confidence Limit

Eagle Subcommittee

James Driscoll, Arizona

National and Desert Fish and Wildlife Foundation Eagle Trust Fund Panels

The Pacific Flyway Nongame Technical Committee's (NTC) Eagle Subcommittee has two members serving on the National Fish and Wildlife Foundation Desert Eagle Trust Fund Panel, and one member serving on the National Eagle Trust Fund Panel. The Trust Fund Panels were established to dispense funds from fines and settlements for violations of the Bald and Golden Eagle Protection Act, in addition to direct funding and donations from other sources for golden eagle research. One conference call has occurred since March 2015 to determine the process for distributing funds. However, only minor progress has been made since the lack of funds has made this a lower priority action.

U.S. Fish and Wildlife Service Eagle Technical Assessment Team (ETAT)

Since March 2015, NTC Representatives participated in seven ETAT conference calls. The ETAT continues to concentrate on national level golden eagle issues related to:

1. Bald and Golden Eagle Act Take Permit Duration – American Bird Conservancy lawsuit was upheld (based on inadequate environmental review) which led to the reversal by the Service to extend the permit duration from 5 to 30 years. The rule was vacated in the Federal Register in February 2016.
2. Revision to the Bald and Golden Eagle Protection Act Programmatic Environmental Impact Statement. This document is anticipated to be released for public comment in spring 2016 and will contain assessments of numerous issues, including the following:
 - a. Biological components related to nest take regulations.
 - b. Definition of “Area Nesting Population.”
 - c. Compensatory Mitigation.
 - i. Modeling power pole density using landscape characteristics with the intent of identifying possible areas to target for retrofitting efforts as a mitigation option.
 - ii. Reviewing proposals for quantifying compensatory mitigation from carcass removal.
 - d. Defining Eagle Management Units and take levels for both species of eagles under five differing alternatives.
 - i. Modeling Population Estimates and Sustainable Take.
 1. Established baseline is to maintain the population at the level identified in 2009.
 - e. Conducting an Expert Elicitation for Developing Nest Buffer Zones.
 - f. Data Standards Requirements – Developing Minimum Standards.
3. Coordinating Research Priorities with the Association of Fish and Wildlife Agencies and the National Fish and Wildlife Trust Fund Panels.
4. Assessing adjustments to the Eagle Conservation Plan Fatality Prediction Model using Active Observer Curtailment.

Rocky Mountain Population Trumpeter Swan Subcommittee

Claire Gower, Montana

Population status

Winter: Dave Olson (U.S. Fish and Wildlife Service, Region 6) provided a report on the 2015 winter (February) Trumpeter Swan Survey results. A total of 6,933 (white birds and cygnets) were counted which is a 29% increase from 2014 (5,368 birds counted) and an 8% increase from 2013. The 2014

survey was an unusually low count. Number from the 2015 survey includes Flathead Valley swans for the first time. No winter survey was conducted February 2016.

From the 2015 September survey and supplemental information from the Greater Yellowstone Trumpeter Swan Working Group, the number of fledged trumpeter swans was: 47 in Idaho (up from 23 in 2014), 68 in Wyoming (up from 55 in 2014), 60 in Montana Greater Yellowstone Flocks (up from 57 in 2014), and three in Oregon (up from two in 2014). Seventy-five additional cygnets fledged from two restoration flocks in Montana (Blackfoot and Flathead valleys), (up from 47 in 2014). The overall total fledglings for the Tri-state area is 175 (up from 137 in 2014), and the overall RMP/US breeding segment was 250 (up from 182 in 2014).

The number of white birds counted in the 2015 September survey was; 104 Idaho (up from 74 in 2014), 232 in Wyoming (up from 180 in 2014), 212 in Montana Greater Yellowstone (up from 198 in 2014), and 24 in Oregon (up from 20 in 2014). One hundred and seventy white birds were counted in the 2 restoration flocks in Montana, this increased from 128 in 2014. The overall number of white birds counted in the fall for the Tri-state was 548 (up from 452 in 2014) and the overall US breeding flock 718 (up from 580 in 2014).

Harvest Information

Utah reported a harvest of 853 tundra swans and four trumpeter swans (726 tundra swans and two trumpeters last year). Nevada harvested eight tundra swans and no trumpeter swans (compared to 25 tundra swans last year). For the last three years, Nevada has harvested no trumpeter swans. Montana's preliminary harvest estimate indicates that approximately 14 trumpeter swans were harvested this year. This is similar to the 12 harvested in 2014 and 17 harvested in 2013. No harvest estimates for tundra swans, or compliance rates based on bill cards, are available for Montana at this time.

Management Activities

2015 Reintroduction Programs: Restoration projects are ongoing in MT, WY, OR and ID. In Montana the Confederated Salish Kootenai Tribes Flathead Indian Reservation released 9 yearlings from the Montana Waterfowl Federation; the Blackfoot Valley released 2 yearlings and 8 cygnets from the Wyoming Wetlands Society (WWS); and the Middle Madison released 5 cygnets from the WWS. Two cygnets from WWS and one from another area in the Yellowstone National Park (YNP) were released within the park on the Yellowstone River. In Oregon, a total of 11 cygnets were translocated to Summer Lake Wildlife Area (SLWA), from the WWS (5), Alaska Zoo (3), Whatcom HS Wildlife Center WA (1) and Malheur (2). The Teton Basin did not release cygnets in 2015; instead, WWS retained their allocation of 5 birds for release as yearlings this spring.

Claire Gower (MT) has been working on the revision of the management plan. Objectives and strategies have been discussed with the subcommittee and input has been solicited from the Greater Yellowstone Trumpeter Swan Working Group. Scheduled completion date is March 2017.

Todd Sanders (U.S. Fish and Wildlife Service) has been working extensively with Bill Long, (WWS), State and Federal wildlife veterinarians and biologists, and state project leads to update Pacific Flyway Council protocol and best management practices for release or transport of trumpeter swans. The protocol in the current PF RMP of Trumpeter Swan management plan is outdated and limited in scope. This plan amendment will be sent to Council for their consideration in March 2016.

The 2015 North American Trumpeter Swan Survey was conducted in the summer and fall 2015, led by Debbie Groves (U.S. Fish and Wildlife Service, Region 1).

Research

Greg Neudecker, Kevin Barnes, and Sean Fields (USFWS) are continuing to develop the habitat suitability model. This spatially explicit decision support tool will hopefully be used to determine suitable sites and guide future trumpeter swan restoration in the greater Tri State areas.

Jocelyn Aycrigg, Ruth Shea and Oz Garton are continuing work on the RMP/US segment Population Viability Analysis. This research is trying to identify which population parameters are important for long-term viability.

Bill Long, Program Director for the Wyoming Wetlands Society (WWS) sent an annual update for 2015. As of this year, the WWS has been in operation for 30 years. Current research includes: a TIDBIT (thermo monitor) incorporated in fake eggs to study incubation patterns of trumpeter swans, research to determine habitat suitability by monitoring hatch success, nest attendance in a collaborative project with Jeff Snyder (UID), blood DNA sex testing to determine captive and wild swan brood sex ratios, banding 50 swans to evaluate survival and distribution. Other activities include a cooperative project with Yellowstone National Park to evaluate swan re-colonization by captive reared swans and using trail cameras on loafing areas to read plastic color marked tarsal leg-bands. The WWS developed 0.5 acres of managed ephemeral wetland habitat during 2015 that will enable swans and other waterfowl to have shallow water foraging habitat during the pre- nesting season. Currently 6 pairs of trumpeter swans (F1 stock) will be used for cygnet production in 2016 and 30 cygnets are predicted to be available for allocation for 2016 releases.

The Greater Yellowstone Trumpeter Swan Working Group met in West Yellowstone, MT, February 16th-18th. Thirty five people representing State, Federal, and private organizations attended.

Recommendations. There are two recommendations from the subcommittee:

- 1) The allocation of Trumpeter Swans cygnets from the Wyoming Wetlands Society (WWS) facility for release at approved restoration sites in 2016. This allocation depends on hatching success during spring 2016 and is predicted to be 30 cygnets. The allocation should be as follows: Blackfoot River Valley, MT – 9; Summer Lake Wildlife Area, OR – 6; Middle Madison River, MT – 5; Yellowstone National Park – 5 and Teton Basin, ID – 5
- 2) An amendment to the current 2012 Rocky Mountain Population (RMP) Trumpeter Swan Management Plan, APPENDIX 3: protocol and best management practices for release or transport of trumpeter swans, to reflect current best management practices for release of captive reared birds and clarifies some issues that were not addressed in the previous health protocol document.

White Goose Subcommittee

Blair Stringham, Utah

Population Status

The Sagavanirktuk, Colville, Fish Creek, and Ikpikpuk colonies on Alaska's North Slope have increased dramatically since the mid-2000s. These populations are showing intrinsic rates of growth between 1.2–1.3, and colony sizes have been doubling about every three years. Geese from these colonies have also shown high survival and fidelity rates. Goose arrival dates appear to be getting earlier each year. Immigration of geese from colonies to the east is suspected, because population growth rates are too high to be explained by recruitment.

Surveys on Wrangel Island in 2015 estimated a total population of 240,000 birds, compared to a total population estimate of 155,000 in 2011. Nest success was 89.1%, resulting in 350,000 goslings leaving the colony in 2015.

The Fraser/Skagit area has also seen an overall increase in the snow goose population over the past 20 years due to good recruitment. Prior to 2006, harvest rate ranged between 6-8%. Since that time harvest rates have increased to 16% with removal of some season restrictions. The population was estimated at 81,125 in 2015–2016. Bulrush stem densities have been decreasing on the Fraser Delta since the early 1990s, which has been attributed to the increasing goose population.

Harvest Information. No harvest information was reported.

Management Activities

Ross's Goose Management Plan.

Melanie Weaver has completed the suggested edits on the Ross's goose management plan that she received at the January meeting. No further work has been done on the plan.

Banks Island

Banding on Banks Island resumed in 2015 and will continue through 2020, led by Eric Reed (CWS). A total of 1,477 geese were banded in 2015. The banding goal for 2016 is 2,500.

Wrangel Island

Banding on Wrangel Island also resumed in 2015, with 1,000 birds marked. Additional activities in 2015 included refinement of nest surveys and the use of satellite imagery to count birds and document changes in colony size. Immigration to this colony is also suspected because of the large number of blue geese observed this year.

Wrangel Island Harvest Strategy

Don Kraege (WA) worked with multiple partners to revise the harvest strategy for Wrangel Island snow geese. The subcommittee discussed the strategy and had concerns that it has a population objective that is currently half of the current population, yet few additional options are available to liberalize hunting restrictions. This led to a discussion about additional ways to reduce goose populations throughout the flyway, including an overabundant designation.

Research Activities

There is interest in collecting wing feathers at banding stations this summer that can be used for genetic analysis. Banders are willing to collect feathers, but no funding source was identified at the meeting to pay for analysis.

Recommendations

A motion was made by Idaho to accept the harvest strategy with a minor edit to the first point regarding the population objective, and include additional information about potential immigration. This motion passed unanimously.