CAFF
Conservation of Arctic Flora and Fauna

AMBI
Arctic Migratory Birds Initiative

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The Arctic Migratory Birds Initiative

Workplan 2019-2023

ARCTIC COUNCIL

The Conservation of Arctic Flora and Fauna (CAFF) is a Working Group of the Arctic Council.

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- Environment and Climate Change Canada, Ottawa, Canada
- Faroese Museum of Natural History, Tórshavn, Faroe Islands (Kingdom of Denmark)
- Ministry of the Environment, Helsinki, Finland
- Icelandic Institute of Natural History, Reykjavik, Iceland
- Ministry of Nature and Environment, Government of Greenland
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CAFF Designated Area

Conservation of Arctic Flora and Fauna

The Arctic Migratory Birds Initiative

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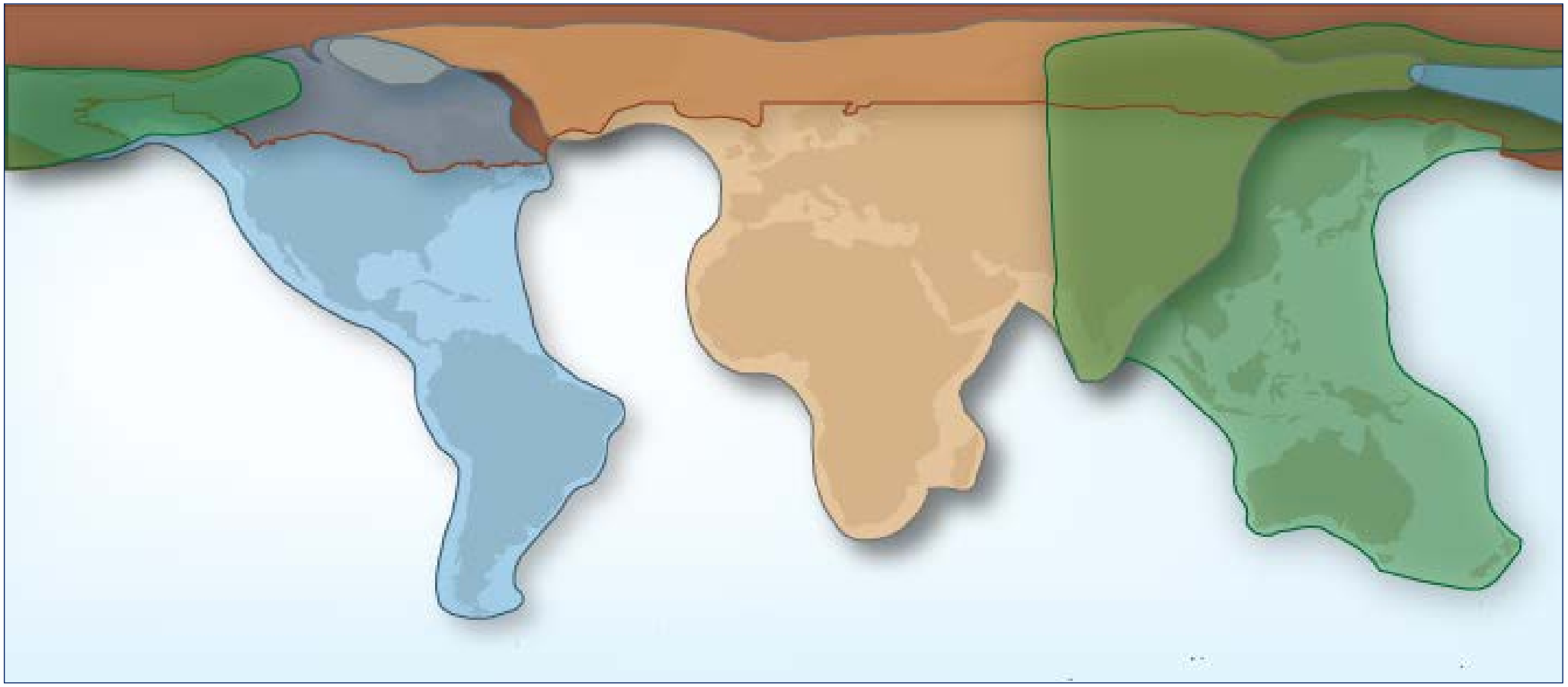


AMBI Flyways

Arctic Migratory Birds Initiative (AMBI)

Introduction and context

The Arctic Migratory Birds Initiative (AMBI), is a project of the Conservation of Arctic Flora and Fauna (CAFF), the biodiversity working group of the Arctic Council. AMBI is designed to improve the conservation status and secure the long-term sustainability of declining Arctic breeding migratory bird populations. Through conservation of a shared natural and cultural resource, AMBI will have a positive impact on societies for whom migratory birds are a source of livelihood and spiritual inspiration.

The 2013 Arctic Biodiversity Assessment found that many Arctic migratory species are threatened by overharvest and habitat alteration outside the Arctic, especially birds along the East Asian-Australasian flyway. AMBI provides implementation of Recommendation #8 of the Arctic Biodiversity Assessment to 'reduce stressors on migratory species range-wide, including habitat degradation and overharvesting on wintering and staging areas and along flyways and other migration routes'.

AMBI organizes activities across four flyways:

- African-Eurasian;
- Americas;
- Circumpolar.;
- East Asian-Australasian.

AMBI has brought together experts from across the globe to develop workplans for each of the above flyways that address priority conservation needs of AMBI priority species in each respective geography. Actions proposed by AMBI are designed to bring added value to ongoing conservation programs, or to address issues that are currently underrepresented. While each of these flyway workplans are intended to stand alone, there are several crosscutting themes that are relevant for all flyways. At an implementation meeting in Rovaniemi, Finland, AMBI representatives and experts identified four cross-cutting actions that need to be implemented in all flyways, and which are reflected in this workplan:

1. Increase **data sharing and standardization** along and across flyways,
2. Assess **cumulative effects** on Arctic-breeding migratory bird populations including climate change, pollution, shipping, fishing, infrastructure development, habitat loss, and harvest,
3. Support conservation actions for Arctic-breeding migratory birds in non-Arctic countries through **coordinated cooperative efforts** with embassies and other diplomatic efforts, including supporting on-going actions and initiatives, and
4. Support the **sharing of experiences and expertise** between wetlands that support Arctic-breeding migratory bird populations.

It is important to note that while the plans address certain issues and focal species, AMBI is interested in conservation of all Arctic breeding migratory bird species, and, in future, the species and issues of focus may change as needed to address new or worsening conservation concerns. Indeed, AMBI may take advantage of unexpected opportunities to advance Arctic breeding bird conservation, should they arise.

This document builds on the AMBI Workplan 2015-2019 (referred to in this document as AMBI Phase 1), its mid-term evaluation, and subsequent expert consultation.

AMBI structure, implementation, monitoring and evaluation

As a CAFF project, AMBI takes guidance and direction from the CAFF Management Board and feeds into Arctic Council structures, processes and reporting procedures.

AMBI is guided by a Steering Group comprised of interested Arctic states and key project partner organizations. The Steering Group is responsible for overall AMBI direction and implementation.

Each flyway is represented by a Flyway Committee containing Arctic and non-Arctic country representatives, project partners and others. Flyway Committee members were consulted in the development of their respective workplans.

AMBI implementation is navigated by a series of Flyway Coordinators and an overall AMBI Global Coordinator. This structure is the basis for the implementation, fundraising and continued follow up of this workplan. Flyway coordinators provide regular reporting, feedback and coordination amongst multiple project partners, the CAFF Board and Arctic Council on AMBI implementation.

AMBI continues to expand its membership amongst interested partners and welcomes continued cooperation amongst all parties, in particular with Permanent Participants of the Arctic Council.

Workplan action items anticipate that the following types of activities will be required by some or all CAFF countries, the CAFF Management Board, Observer countries and/or the CAFF Secretariat in order to achieve objectives;

- Profile raising through diplomatic and other state-level interventions by the Arctic Councils' Senior Arctic Officials. As a multi-nation body with Observer countries along the flyways, the Council is in a position to advance AMBI's objectives within countries' foreign affairs departments as well as their environment departments and in some cases development aid departments.
- Fundraising to enable on-the-ground conservation organizations to undertake actions in cooperation with relevant countries. The workplans will be used as fund-raising tools to enable on-the-ground conservation and education work to occur.
- Capacity-building through exchanges of experience and knowledge. There are nations within and outside of the Arctic Council that have experience in bird conservation that can be shared with others along the flyways.
- Conservation action within Arctic Council member countries, Permanent Participants, Observers and others.

Implementation will be phased over the next four years (2019-2023), depending on the action. A midpoint review of implementation of each workplan will be undertaken at the end of 2021, which coincides with the end of Sweden's chairmanship of CAFF, and the end of Iceland's chairmanship of the Arctic Council. A final evaluation of both individual flyway plans and the overall AMBI project will be undertaken in 2023.

At the mid-point (2021) and end (2023) of this AMBI workplan, implementation reports will be submitted to Arctic Council Ministerial meetings, as part of CAFF's reporting on Arctic Biodiversity Assessment implementation.

Links to other initiatives

In 2013 the Arctic Environment Ministers emphasized that Arctic biodiversity and ecosystems are irreplaceable assets of local regional and global importance and that decisive actions should be taken to help protect biodiversity and sustain valuable ecosystem services. Some migratory bird populations are rapidly diminishing, and Ministers underlined the need for improved cooperation to identify the driving forces for this development and to identify possible joint action.

Implementation of the AMBI workplan will help governments meet these and other commitments under Multilateral Environmental Agreements (MEAs) at global and hemispheric levels. AMBI is designed to build on, complement and support existing international, regional and local bird conservation initiatives. Relevant global agreements are listed below; hemispheric and regional agreements are identified within individual flyway workplans. CAFF has Resolutions of Cooperation with several MEAs and works with the NGOs below, which will make it easier to work collaboratively on AMBI.

BirdLife International

BirdLife is widely recognised as a world leader in bird conservation. BirdLife International is a global partnership of conservation organisations (NGOs) that strives to conserve birds, their habitats and global biodiversity, working with people towards sustainability in the use of natural resources. Together there are 121 BirdLife Partners worldwide – one per country or territory – and growing.

The BirdLife partnership has six Regional BirdLife Coordination Offices throughout the world and a Global Office in Cambridge, UK. – together known as "The BirdLife International Secretariat". The Secretariat co-ordinates and facilitates BirdLife International strategies, programmes and policies.

BirdLife's Migratory Birds and Flyways Program is especially relevant for AMBI. The program has five key aims:

1. To save threatened migratory species from extinction by addressing their main threats and conserving key sites and habitats,
2. To address the illegal and unsustainable killing of birds,
3. To address the proliferation of poorly-planned energy and power transmission infrastructure,
4. Conserve networks of critical stop-over sites (Important Bird & Biodiversity Areas, IBAs) through action on the ground by our Local Conservation Groups, and
5. To understand and address the wider land-use issues facing migratory birds through targeted research and policy work,

BirdLife is an active participant in AMBI, particularly in the Circumpolar Flyway, the East Asian-Australasian Flyway and the African-Eurasian Flyway.

Convention on Biological Diversity

The Convention on Biological Diversity (CBD) is an international treaty with three main goals: conservation of biological diversity (or biodiversity); sustainable use of its components; and fair and equitable sharing of benefits arising from genetic resources. Its objective is to develop national strategies for the conservation and sustainable use of biological diversity.

Of particular relevance are **Aichi Biodiversity Targets** 11 and 12 of the **CBD Strategic Plan 2011-2020**, which commit countries to prevent extinction of threatened species and increase the overall area and improve the quality of terrestrial, coastal and marine habitats in protected areas, as well other effective area-based conservation measures, integrated into the wider landscapes and seascapes. The CBD's lead partner regarding the conservation and sustainable use of migratory species is the Convention on Migratory Species (CMS).

Convention on Migratory Species

The Convention on the Conservation of Migratory Species of Wild Animals (CMS) aims to conserve terrestrial, aquatic and avian migratory species throughout their range. Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strict protection of listed species, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. Besides establishing obligations for each Party joining the Convention, CMS promotes conservation action among the Range States. Migratory species that need or would significantly benefit from international co-operation are listed in Appendix II of the Convention.

The CMS has developed a **Strategic Plan for Migratory Species for 2015-2023**, based on the Aichi Biodiversity Targets, which has five strategic goals that all closely align with AMBI:

- Goal 1: Address the underlying causes of decline of migratory species by mainstreaming relevant conservation and sustainable use priorities across government and society.
- Goal 2: Reduce the direct pressures on migratory species and their habitats.
- Goal 3: Improve the conservation status of migratory species and the ecological connectivity and resilience of their habitats.
- Goal 4: Enhance the benefits to all from the favourable conservation status of migratory species.
- Goal 5: Enhance implementation through participatory planning, knowledge management and capacity building.

To facilitate delivering major parts of this Strategic Plan, at the 11th Conference of the Parties to CMS (Quito, Ecuador, Nov 2014) Parties adopted a **Programme of Work (POW) on Migratory Birds and Flyways 2014-2023**. The POW brings together for the world's flyways all the major actions required to promote the conservation of migratory birds and their habitats. The POW focuses on the migratory birds rather than on CMS itself, in keeping with the aim of the Strategic Plan for Migratory Species, its goals and targets. The POW also aims to encourage cooperation and streamlining of actions as well to avoid unnecessary duplication with existing thematic work programmes and other ongoing/planned initiatives within and outside of the CMS family.

The **African-Eurasian Migratory Waterbird Agreement (AEWA)** is a regional agreement under CMS. The POW requests that the CMS Secretariat strengthen links with the CAFF Secretariat, in the framework of the existing Resolution of Cooperation, especially to ensure that CAFF's Arctic Migratory Bird Initiative has maximum synergies with the POW to capitalize on the flyway approach in gaining global support for the conservation of the Arctic environment.

Ramsar

The Convention on Wetlands of International Importance Especially as Waterfowl Habitat, known as the Ramsar Convention, is an intergovernmental treaty that provides a framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".

Under the "three pillars" of the Convention, the Contracting Parties commit to:

1. Work towards the wise use of all their wetlands,
2. Designate suitable wetlands for the list of Wetlands of International Importance (the "Ramsar List") and ensure their effective management, and
3. Cooperate internationally on transboundary wetlands, shared wetland systems and shared species.

By setting international standards for wetland conservation and providing a forum for discussing global wetland issues, the Convention enables Contracting Parties to share information on wetlands and address issues together. Groups of Contracting Parties with a common geographical focus or goal can also work together as "**Regional Initiatives operating within the**

framework of the Ramsar Convention". Ramsar's 15 Regional Initiatives are divided into 11 networks for cooperation and 4 training centres. Regional networks provide a platform for collaboration between governments, technical experts, international NGOs, local communities and private companies. Training centres promote scientific and technical cooperation and exchange of knowledge in the region. Regional Initiatives are driven by Ramsar Administrative Authorities responsible for implementing the Convention in their countries.

At the Ramsar Convention's 10th Conference of the Parties held in 2008, parties adopted Resolution X.22 "Promoting international cooperation for the conservation of waterbird flyways" that "Strongly encourages Contracting Parties and other governments actively to support and participate in relevant international plans and programmes for the conservation of shared migratory waterbirds and their habitats" and "Urges the governing bodies of flyway initiatives to take steps to share knowledge and expertise on best practices in the development and implementation of flyway-scale waterbird conservation policies and practices, including successful means of disseminating critical supporting data and information to stakeholders and others".

World Heritage Convention

The UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention; http://whc.unesco.org/en/convention) was adopted by the General Conference of UNESCO on 16 November 1972. The Convention recognizes the way in which people interact with nature, and the fundamental need to preserve the balance between the two. Its most significant feature is that it links together in a single document the concepts of nature conservation and the preservation of cultural properties.

The Convention sets out the duties of States Parties in identifying potential World Heritage sites and their role in protecting and preserving them. By signing the Convention, each country pledges to conserve not only the World Heritage sites situated on its territory, but also to protect its national heritage. The States Parties are encouraged to integrate the protection of the cultural and natural heritage into regional planning programmes, set up staff and services at their sites, undertake scientific and technical conservation research and adopt measures which give this heritage a function in the day-to-day life of the community.

East Asian-Australasian Flyway Partnership

The East Asian-Australasian Flyway Partnership is a network of partners within the East Asian-Australasian Flyway (EAAF). The Partnership, adopted in the list of the World Summit on Sustainable Development (WSSD) as a Type II initiative – an informal and voluntary initiative, was launched on 6 November 2006, and aims to protect migratory waterbirds, their habitat and the livelihoods of people dependent upon them. The Partnership provides a flyway wide framework to promote dialogue, cooperation and collaboration between a range of stakeholders to conserve migratory waterbirds and their habitats. Stakeholders include all levels of governments, site managers, multilateral environment agreements, technical institutions, UN agencies, development agencies, industrial and private sector, academia, non-government organisations, community groups and local people. There are currently 37 partners to the EAAFP. Partners include governments, inter-governmental agencies international non-government organisations and international business sector. CAFF is an inter-governmental agency partner.

The main functions of the EAAFP are to:

- Provide a platform for international cooperation for the conservation of migratory waterbirds and the sustainable use of their wetland habitats.
- Support the development of a Flyway Site Network, to ensure a chain of internationally important wetland sites are recognized and sustainably managed into the future.
- Support a range of activities to increase knowledge and raise awareness of migratory waterbirds, while building capacity for the sustainable management and conservation of migratory waterbird habitats along the flyway.

For more information https://www.eaaflyway.net/

CBird

The Circumpolar Seabird Expert Group (CBird) was approved within the organizational structure of CAFF in 1993. CBird is comprised of members from national representatives, Permanent Participants, observer countries and organizations. CBird members, their expertise, actions and implementation is instrumental in AMBI's Circumpolar Flyway. The objectives of CBird are to promote, facilitate, and coordinate conservation, management and research activities among circumpolar countries and improve communication between seabird scientists and managers inside and outside the Arctic. In addition, its members seek to coordinate CBird initiatives with those of other seabird groups, develop cooperative activities and initiatives for the CAFF annual work plan, and coordinates the CAFF Circumpolar Seabird Monitoring Plan with input into the Circumpolar Biodiversity Monitoring Program. For more information see https://www.caff.is/seabirds-cbird

Priority species for AMBI conservation efforts

Priority species for AMBI conservation efforts, as informed by AMBI Workplan 2015-2019 and subsequent consultation and agreement at an AMBI expert workshop, held in the auspices of the Arctic Biodiversity Congress, Rovaniemi 2018.

Flyway	Species	IUCN[1]	CMS[2]	AEWA Action Plan[3]
African-Eurasian (East Atlantic, Black Sea-Mediterranean, Central Asia, West Asia-East Africa flyways)	Bar-tailed Godwit*(*Limosa lapponica taymyrensis*)	NT	App II	B 2a 2c
	Dunlin* (*Calidris alpina arctica* and *schinzii*)	LC	App II	A 1c, 3a, B1, C1
	Red Knot* (*Calidris canutus canutus* and *islandica*)	NT	App II	B 2a 2c
	Lesser White-fronted Goose* (*Anser erythropus*)	VU	App I, II	A1a 1b 1c, 2
	Long-tailed Duck (*Clangula hyemalis*)	VU	App II	A 1b
	Velvet Scoter (*Melanitta fusca*)	VU	App II	A 1b, 1c
	Curlew Sandpiper (*Calidris ferruginea*)	NT	App II	B 2c
Americas (Pacific, Mid-continental and Atlantic Flyways)	Red Knot* (*Calidris canutus rufa* and *roselaari*)	NT	App I, II	
	Semipalmated Sandpiper* (*Calidris pusilla*)	NT	App I	
	Buff-breasted Sandpiper (*Calidris subruficollis*)	NT	App I, II	
	Red Phalarope (*Phalaropus fulicarius*)	LC	App II	
	Red-necked Phalarope (*Phalaropus lobatus*)	LC	App II	
Circumpolar (East-west migration within circumpolar Arctic)	Ivory Gull * (*Pagophila eburnea*)	NT		n/a
	Thick-billed Murre* (*Uria lomvia*)	LC		B 2c
	Common Eider * (*Somateria mollissima*)	LC	App II	B 1 2d
	Snowy Owl * (*Bubo scandiacus*)	VU		
East Asian Australasian Flyway	Spoon-billed Sandpiper* (*Eurynorhynchus pygmeus*)	CR	App I, II	
	Great Knot *(*Calidris tenuirostris*)	EN	App I, II	
	Red Knot* (*Calidris canutus rogersi* and *piersmai*)	LC	App I	
	Bar-tailed godwit* (*Limosa lapponica baueri, anadyrensis* and *menzbieri*)	LC	App II	
	Dunlin *(*Calidris alpina arctica*)	LC	App II	
	Curlew Sandpiper (*Calidris ferruginea*)	NT	App II	B 2c
	Lesser White-fronted Goose* (*Anser erythropus*)	VU	App I, II	A 1a 1b 1c, 2
	Emperor Goose (*Anser canagica*)	NT		
	Brant Goose (*Branta bernicla nigricans*)	LC	App II	

**indicates species was included in AMBI work plan 2015-2019 (Phase 1)*

[1] *IUCN Red List Category: CR Critically Endangered, EN Endangered, VU Vulnerable, NT Near Threatened, LC Least Concern*

[2] *Convention on Migratory Species Appendices: Appendix 1 lists species for which Parties should endeavour to provide immediate protection; Appendix II lists species for which Parties should endeavour to conclude Agreements covering the conservation and management.*

[3] *Listing from the Agreement on the Conservation of African-Eurasian Migratory Waterbirds, Table 1. Status of the population of migratory waterbirds in the Action Plan*

***Column A, Category 1**:*

a: Species, which are included in Appendix I to the Convention on the Conservation of Migratory species of Wild Animals;
b: Species, which are listed as threatened on the IUCN Red list of Threatened Species, as reported in the most recent summary by BirdLife International; or
c: Populations, which number less than around 10,000 individuals.

***Category 2**: Populations numbering between around 10,000 and around 25,000 individuals.*

***Category 3**: Populations numbering between around 25,000 and around 100,000 individuals and considered to be at risk as a result of:*

a: Concentration onto a small number of sites at any stage of their annual cycle;
b: Dependence on a habitat type, which is under severe threat;
c: Showing significant long-term decline; or
d: Showing large fluctuations in population size or trend.

***Column B, Category 1**: Populations numbering between around 25,000 and around 100,000 individuals and which do not fulfil the conditions in respect of A, as described above.*

***Category 2**: Populations numbering more than 100,000 individuals and considered to be in need of special attention as a result of:*

a: Concentration onto a small number of sites at any stage of their annual cycle;
b: Dependence on a habitat type, which is under severe threat;
c: Showing significant long-term decline; or
d: Showing large fluctuations in population size or trend.

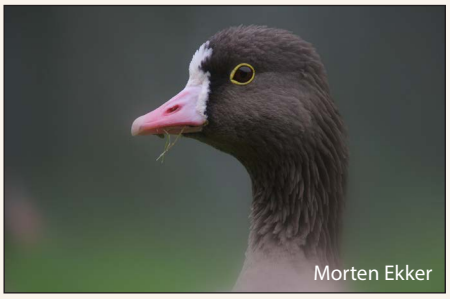
***Column C**: Populations numbering more than around 100 000 individuals which could significantly benefit from international cooperation and which do not fulfil the conditions in respect of either column A or column B.*

African Eurasian Flyway priority species in this workplan

Bar-tailed Godwit (ssp. *lapponica* and *taymyrensis*)

Dunlin (ssp. *arctica* and *schinzii*)

Red Knot (ssp. *canutus* and *islandica*)



Lesser White-fronted Goose

Long-tailed Duck

Velvet Scoter

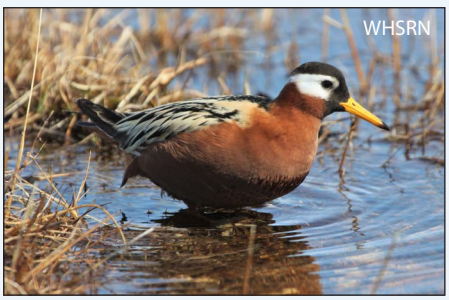
Curlew Sandpiper

Americas Flyway priority species in this workplan

Red Knot (ssp. *rufa* and *roselaari*)

Semipalmated Sandpiper

Buff-breasted Sandpiper



Red Phalarope

Red-necked Phalarope

East Asian Australasian Flyway priority species in this workplan

Spoon-billed Sandpiper

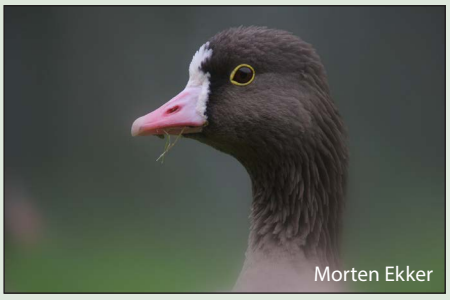
Great Knot

Red Knot (ssp. *rogersi* and *piersmai*)

Bar-tailed Godwit (ssp. *baueri, anadyrensis* and *menzbieri*)

Dunlin (ssp. *arctica*)

Curlew Sandpiper



Lesser White-fronted Goose

Emperor Goose

Brant Goose (ssp. *nigricans*)

Circumpolar Flyway priority species in this workplan

Ivory Gull

Thick-billed Murre

Common Eider

Snowy Owl

Arctic Migratory Birds Initiative (AMBI): African-Eurasian Flyway Workplan

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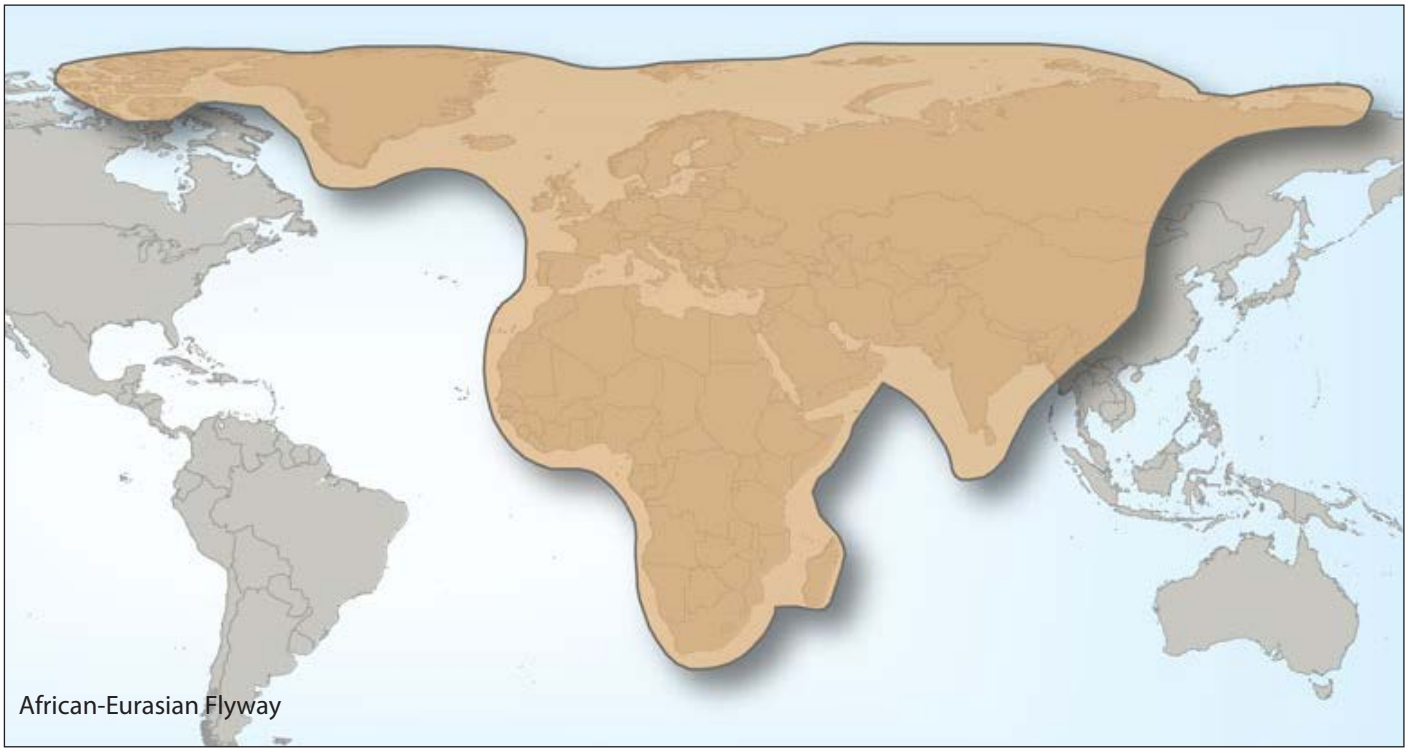


African-Eurasian Flyway

Introduction

This flyway is defined by the African-Eurasian Migratory Waterbird Agreement (AEWA). This flyway hosts Arctic-breeding birds that winter in western and central Europe and western Africa. It includes the East Atlantic, Black Sea-Mediterranean, Central Asia, and West Asia-East Africa Flyways.

Priority activities have been selected where AMBI can potentially add significant value to existing initiatives through engagement of Arctic Council States and Observer countries. Value can be added through diplomatic interventions, channelling funds (e.g. from development aid or Arctic budgets that might not otherwise be available for flyway conservation), and through capacity building and exchange of information and experience within and between flyways.

Geographical scope

Under AMBI, the Africa-Eurasian Flyway is defined to a great extent by the geographical scope of the African-Eurasian Migratory Waterbird Agreement (AEWA), which is a legally-binding multilateral environment treaty encompassing the East Atlantic, Black Sea-Mediterranean, Central Asia, and West Asia-East Africa Flyways. It should be noted, however, that the African-Eurasian Flyway as defined under AMBI extends further east than AEWA, partially covering the Central Asian Flyway as well.

Priority species and conservation issues

Species

The selected priority species for the African-Eurasian Flyway are:

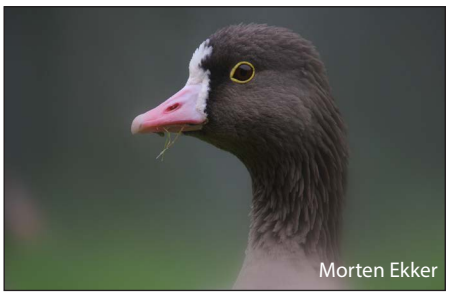
1. **Bar-tailed Godwit (***Limosa lapponica lapponica* and *L.l. taimyrensis***)**
2. **Red Knot (***Calidris canutus canutus* and *C.c. islandica***)**
3. **Dunlin (***Calidris alpina arctica* and *C.a. schinzii***)**
4. **Lesser White-fronted Goose (***Anser erythropus***)**
5. **Long-tailed Duck (***Clangula hyemalis***)**
6. **Velvet Scoter (***Melanitta fusca***)**
7. **Curlew Sandpiper (***Calidris ferruginea***)**

These birds have been chosen as flagship species as all but Dunlin are listed as globally threatened or near-threatened on the IUCN Red List. Species 1-4 were included in AMBI Work Plan 2015-2019 (Phase 1) along with the Black-tailed Godwit (which has now been removed together with the action concerning Icelandic afforestation). Species 5-7 have been added to reflect their IUCN Red List uplisting and new AEWA action plans. The Curlew Sandpiper was added to reflect both its priority for the Central Asian Flyway and the Bijagós Archipelago, and because it represents key challenges facing Arctic-breeding migratory birds in the African-Eurasian Flyway.

Bar-tailed Godwit (spp. *taymyrensis*)

Dunlin (spp. *arctica* and *schinzii*)

Red Knot (spp. *canutus* and *islandica*)



Lesser White-fronted Goose

Long-tailed Duck

Velvet Scoter

Curlew Sandpiper

Conservation issues

AMBI addresses two main global threats, which are equally relevant in this flyway:

1. **Loss, disturbance, and degradation of habitat**: This threat affects important wetlands across the flyway including each different sub-flyway. The focus of AMBI delivery is the Bijagós Archipelago of Guinea-Bissau in West Africa because it is the only one of the top three sites for AMBI priority shorebird species in the flyway not yet to have World Heritage (WH) status. The other two are the Wadden Sea and the Banc d'Arguin, Mauritania who work together in the framework of the Wadden Sea Flyway Initiative (WSFI) under a Memorandum of Understanding. AMBI extends the capacity of the WSFI to support Guinea-Bissau with the World Heritage re-nomination and thus to help address threats from illegal fishing, potential oil and gas developments, habitat disturbance, cutting of mangroves, shipping, and sea level rise[1] . It is paramount to prevent further loss of habitat, as well as promoting restoration actions.

2. **Unsustainable harvest/take (including accidental and illegal killing) of migratory birds along the flyway**: Arctic-breeding migratory birds are harvested along their migratory routes at rates often above sustainable levels, and despite often being legally protected. Other species which are still open for harvest but are in decline, such as the Long-tailed Duck and Velvet Scoter, face additional accidental human-induced adult mortality through fisheries bycatch.

Other initiatives

AMBI aims to support existing efforts, address gaps and needs as identified by flyway partners, create synergies and work in close partnership with other actors and stakeholders. These include, but are not limited to, the African-Eurasian Waterbird Agreement (AEWA, to which most Range States are party), European Commission, African-Eurasian Waterbird Monitoring Partnership, the Wadden Sea Flyway Initiative (WSFI, of Germany, The Netherlands and Denmark), the International Wader Study Group, the World Heritage and Ramsar Conventions, BirdLife International, Wetlands International, and Wetland Link International.

The identified actions also create links and synergies with activities in the East Asian-Australasian and Circumpolar Flyways, helping the exchange of expertise and knowledge and contributing to joint efforts across flyways.

Objectives and actions

Objective 1: Improve conservation and management of shorebird sites throughout the African-Eurasian flyway.

Action 1: Secure intertidal habitat of Arctic-breeding shorebirds in Bijagós Archipelago, Guinea-Bissau:

- **a. Advance and potentially coordinate international engagement to support the Bijagós World Heritage nomination process, as appropriate.**
- **b. Provide technical support to and enhance the capacity of IBAP and other national partners for strengthening the conservation management of the Bijagós Archipelago, including through its nomination and designation as a UNESCO World Heritage site.**

The Bijagós Archipelago in Guinea-Bissau is the second most important African site for migratory shorebirds that breed in the Arctic. Each year an estimated one million waders winter in the Bijagós. Of the 10,000 km^2 land area of the archipelago, 1,600 km^2 are intertidal habitats (sand banks and mudflats) and 350 km^2 are mangrove habitats on which these birds depend. The recent (2012-2013) assessment of the site in relation to its deferred nomination as a natural World Heritage Site, offers a timely opportunity for AMBI to support Guinea-Bissau, and specifically its Institute for Biodiversity and Protected Areas (IBAP), in addressing the recommendations of the World Heritage Committee (WHC) with a view to resubmission of the nomination. This process is regarded as an important driver for ensuring the conservation status of the site is maintained and enhanced.

1. Campredon, P. & Catry, P. 2016 "Bijagos Archipelago (Guinea Bissau)", The wetland book, DOI 10.1007/978-94-007-6173-5_158-1

Action 2: Ensure identification and documentation of key sites for shorebirds in available format as a tool for national/international sustainable site management.

Although adequate platforms and formats exist within the flyway for accomplishing this objective (such as the CSN tool[2]), these are often lacking information or outdated due to either unavailability of reliable data, or lack of capacity and/or means of Range States to collect and contribute their data to them. AMBI can help to address this issue by facilitating technical support as well as through the mobilization of resources to support the collection and submission of information to these platforms. Specifically, the flyway coordinator could approach partners in the flyway such as Wetlands International to assess where such gaps exist and then facilitate the in-country assessment of sites, for example by engaging the embassies of Arctic Council States and Observer countries in these range states. This action would contribute to Target 3.1 of the AEWA Strategic Plan to document nationally and internationally important sites for populations listed on Table 1 in Annex 3 to AEWA by MOP8 (2021) and to conduct gap-filling surveys by MOP10 (2027).

Objective 2: Increase quality and quantity of population status assessment data of Arctic breeding waterbirds in the African-Eurasian Flyway.

Action 1: Support the implementation of the Circumpolar Biodiversity Monitoring Programme (CBMP) and the revised AEWA Guidelines on Waterbird Monitoring with respect to those Arctic-breeding waterbirds for which optimal data are still lacking, through cooperation with the African-Eurasian Waterbird Monitoring Partnership and the Wadden Sea Flyway Initiative by providing financial and/or technical support.

The wintering ranges of some Arctic bird populations overlap, reducing the reliability of population estimates based on winter counts (e.g. Dunlin; the wintering ranges of some other populations are not precisely known and may widely overlap). Sampling-based surveys in the breeding grounds have potential to provide more statistically robust estimates than the wintering counts for some species. For Greenland, many of the population estimates are still based on Meltofte (2001)[3].

It is therefore necessary to support the production of statistically robust breeding population estimates for Arctic waders in Eastern Canada, Greenland, Iceland, Fennoscandia, and Russia, and demographic data in non-breeding areas[4]. Ideally all Arctic countries would set up a sampling protocol, drawing experience from successful frameworks such as PRISM in North America. AMBI is strategically placed to support this, since it is the only forum that brings all these countries together. Besides, breeding monitoring can provide valuable insight on other threats and cumulative impacts specific to breeding areas, including harvest, pollution, climate change, or habitat degradation.

Action 2: Support improved population delineation of Arctic-breeding waders by collating Arctic breeding wader migration data (tracking, colour-marking, geolocator, ringing data, etc.) and presenting it on the CSN tool to improve flyway delineation data.

Flyway delineations of many biogeographic populations of Arctic migratory birds are still insufficiently known. Population estimates are mainly based on counts in the wintering grounds. However, these are likely to be inaccurate where there is insufficient data to support flyway delineations. For example, the Sanderling in Namibia are traditionally assigned to the South-west Asia, Eastern and Southern African wintering population. However, colour-marking and geolocator data indicates that a significant proportion of those birds may actually belong to the East Atlantic Europe, West and Southern African wintering population. However, in the absence of similar studies being carried out also in Russia, the degree of overlap between the two populations cannot be estimated. CAFF/AMBI can play a major role in pulling together the available data that can be presented on the CSN tool - based on the experience of the SEATRACK project[5].

2. Critical Site Network Tool: http://criticalsites.wetlands.org
3. Meltofte,H. 2001. Wader Population censuses in the Arctic: getting the timing right. Arctic 54: 367-376
4. Robinson, RA, NA Clark, R. Lanctot, S. Nebel, B. Harrington, JA Clark, JA Gill, H. Meltofte, DI Rogers, KG Rogers, BJ Ens, CM Reynolds, RM Ward, T. Piersma & PW Atkinson 2005: Long term demographic monitoring of wader populations in non-breeding areas - Wader Study Group Bull. 106: 17-29.
5. SEATRACK: http://www.seapop.no/en/seatrack/

Objective 3: Development and dissemination of information and awareness materials addressing priority target

Action 1: Support the development of communication products (in collaboration with flyway partners) showcasing migratory connectivity, knowledge gaps, and threats in the African-Eurasian flyway area.

CAFF has experience in producing high-quality communication materials, which could transport key messages to a wider audience and could be used by various partners to showcase migratory connectivity, knowledge gaps, and threats facing Arctic-breeding migratory birds across their range. Sharing that experience and know-how with the flyway would bring much added value to ongoing conservation efforts.

Objective 4: Reduce bycatch of seaducks in the Baltic Sea

Action 1: Support the implementation of the AEWA Long-tailed Duck and Velvet Scoter International Single Species Action Plans with respect to the identified activities regarding bycatch under the auspices of the AEWA European Seaduck International Working Group.

The two AEWA International Single Species Action Plans already identify the agreed priority actions in relation to bycatch in the Baltic Sea for the Long-tailed Duck and the Velvet Scoter. These actions were agreed by all Range States during the action-planning processes, taking into consideration the various national and international actors already engaged in activities for seaducks in the area (EU, HELCOM etc.). All Range States to the species are members of the inter-governmental AEWA European Seaduck International Working Group – regardless of whether they are Parties to AEWA or not (including Russia). Providing the Working Group and relevant Baltic Range States with support in implementing their activities related to bycatch (complementing AMBI's success in the Circumpolar Flyway) will thus bring added value by further speeding up delivery of this priority result, for example in relation to Poland which is not an AEWA Party but is an observer to the Arctic Council.

Objective 5: Support measures under the AEWA Lesser White-fronted Goose (LWfG) International Working Group (IWG) to prevent illegal killing.

Action 1: Assist the AEWA LWfG IWG with the translation and dissemination of awareness-raising and education materials in key areas for the species within the Russian Arctic amongst indigenous and local communities.

The Lesser White-fronted Goose has been chosen as a model/flagship species in the flyway, highlighting the comprehensive conservation efforts needed to tackle the threat of illegal killing. Awareness-raising and education materials have already been developed under the ongoing international cooperation. Support is still needed, however, with the translation and appropriate dissemination of such materials in the vicinity of sites used by the species throughout the Russian Arctic and sub-Arctic. CAFF is uniquely placed to support the Working Group with this task, as it can provide in particular contacts with the local indigenous communities.

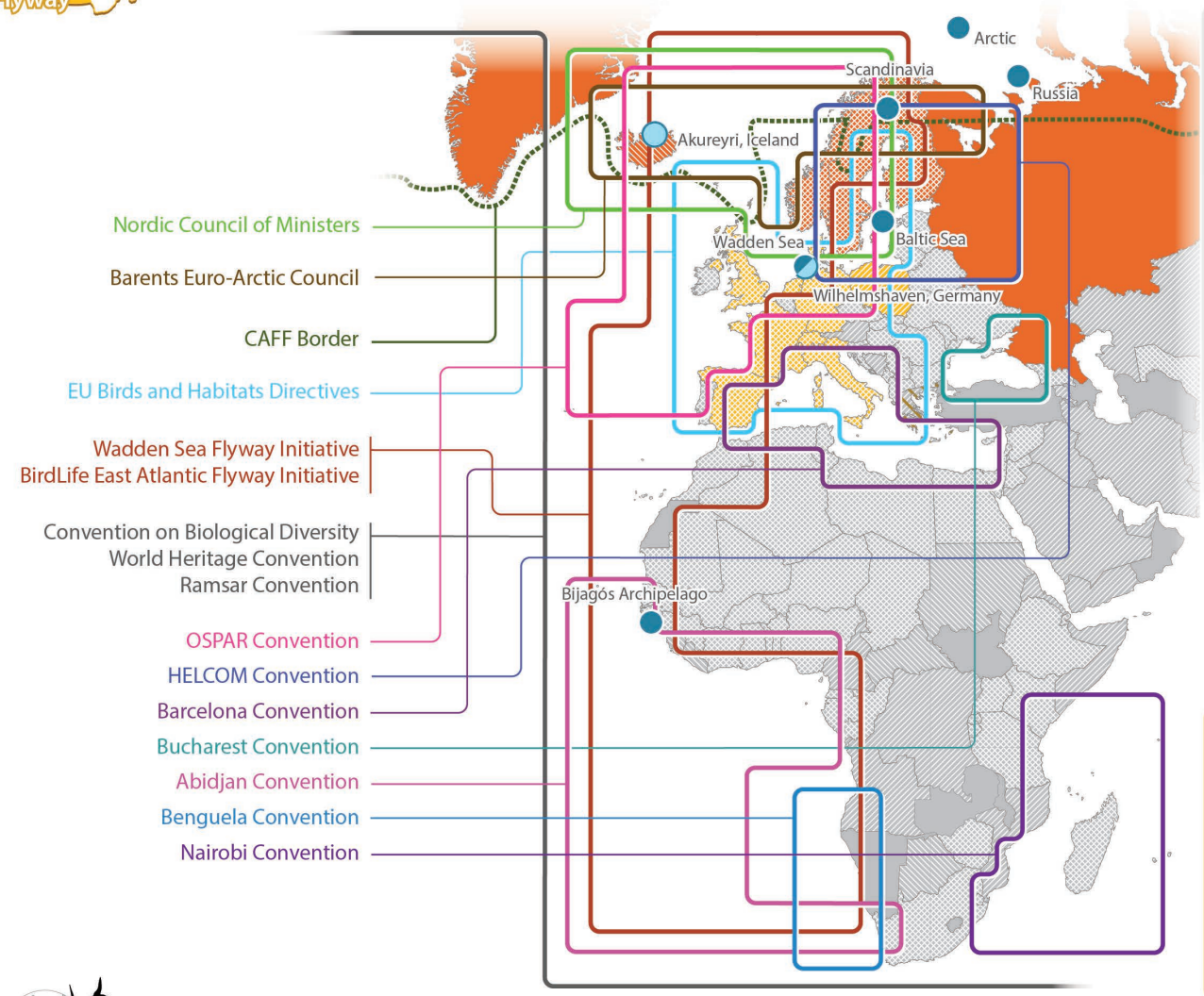
Action 2: Support the UNEP/AEWA Secretariat in engaging key Range States on a diplomatic level through Arctic Council member and observer country embassies.

Further support is needed to engage key range state governments in the conservation work for the species—particularly in relation to illegal killing along the West Asian part of the flyway. For example, Arctic Council member and Observer country embassies situated in key range states could support ongoing efforts to increase government engagement in the region by approaching in-country Foreign Office and Environment Ministry counterparts.

The legal remit and subsequent mandate of the AEWA International Single Species Action Plan for the Conservation of the Lesser White-fronted Goose and the intergovernmental AEWA Lesser White-fronted Goose International Working Group is limited to the Western Palearctic populations of the species occurring in the African-Eurasian Flyway. In relation to conservation efforts for the Eastern main population of the Lesser White-fronted Goose within the East-Asian Australasian Flyway, the AEWA International Working Group continues to offer support in terms of sharing best practice on conservation interventions, the establishment of a discreet Species Action Plan under the EAAFP as well as providing templates for awareness-raising and environmental education materials. China and Japan have been invited to the International Working Group as permanent observers and currently participate on expert level.

Arctic Migratory Birds Initiative (AMBI) African-Eurasian Flyway Crosswalk Map

This graphic depicts selected international mechanisms in the African-Eurasian Flyway that are relevant for migratory bird conservation. Borders are approximate, non-exclusive, abstract depictions. AMBI works with existing partners, networks and frameworks to secure the long-term sustainability of Arctic-breeding migratory birds. Information current as of March 2019.



AMBI Coordination

AMBI Priority Area

African Eurasian Waterbird Agreement Parties

Contracting Party

Signed But Not Ratified

Convention on Migratory Species Parties

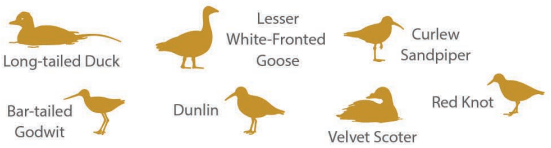
CMS Party

Arctic Council States and Observer States

Arctic Council States

Observer States

AMBI Priority Species



Arctic Council Project Support Instrument (PSI) investment,
managed by Nordic Environment Finance Corporation

35% *of direct funding for AMBI in this flyway provided by PSI/NEFCO*

NEFCO

- Helped secure full-time coordinator
- Developed strategic crosswalk and implementation plans
- Allowed for consultation and development of Work Plan
- Leveraged additional support
- Facilitated infographics and communications

AMBI Arctic Migratory Birds Initiative

CAFF Conservation of Arctic Flora and Fauna

ARCTIC COUNCIL

The Arctic Migratory Birds Initiative (AMBI) is a project under the Conservation of Arctic Flora and Fauna (CAFF) Working Group of the Arctic Council, designed to improve the status and secure the long-term sustainability of declining Arctic breeding migratory bird populations. www.caff.is/ambi.

Arctic Migratory Birds Initiative (AMBI): Americas Flyway Workplan

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Americas Flyway

Introduction

The AMBI Americas Flyway hosts Arctic-breeding birds that migrate through and winter within the Americas outside of the Arctic. It stretches from Russia and Canada to the tip of South America, and it includes the Pacific, Mid-continental[1], and Atlantic Flyways. While AMBI is interested in ensuring the conservation of all the Arctic's migratory birds that move through this flyway, AMBI efforts are focused on priorities concerning specific birds and places that are not addressed by other efforts. The first phase of AMBI focused on priority species and issues that were identified at a global AMBI experts' workshop in Montreal (Canada) in February 2014 (http://www.caff.is/strategiesseries/274-the-arctic-migratory-birds-initiative-expert-workshop-report-montreal-canada-feb) and were later refined at an expert's workshop hosted by UNEP's Regional Office for North America in Washington D.C. (USA) in October 2014 and in Trondheim (Norway) in December 2014.

The second phase of AMBI, as represented in this workplan, will focus on priority species and issues that were identified at a global AMBI experts' workshop in Rovaniemi (Finland) in October 2018, and later refined by consultation with the Americas Flyway Committee and thematic experts in the region. While the second phase of AMBI continues to focus on some of the same issues as in the first phase, several additional issues have been added that have recently come to light as being important factors constraining shorebird populations, and which are not being addressed by others.

AMBI is designed to complement and help deliver objectives within existing international and regional migratory bird conservation initiatives. For the Americas Flyway, these include the Western Hemisphere Shorebird Reserve Network (WHSRN), the Atlantic Flyway Shorebird Initiative (AFSI), the North American Bird Conservation Initiative (NABCI), and the Pacific Americas Shorebird Conservation Strategy (PASCS). Efforts will be coordinated with actions under these initiatives, to ensure synergies and avoid duplication. A short description of these initiatives is presented in Annex 1: Multilateral agreements and initiatives in the Americas.

Priority species and conservation issues

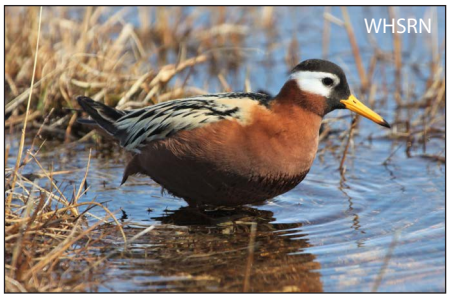
Species

AMBI will focus on five priority species on the Americas Flyway; however, numerous co-occurring Arctic breeding shorebirds species (see Annex 2) will also benefit from the conservation actions proposed for these five species.

Red Knot (spp. *rufa* and *roselaari*)

Semipalmated Sandpiper

Buff-breasted Sandpiper



Red Phalarope

Red-necked Phalarope

1. Mid-continental Flyway in North America combines the Central and Mississippi Flyways

Red Knot (*Calidris canutus rufa* and *roselaari*) continues to be a priority species for AMBI in this second phase. This is a circumpolar species that is exhibiting troubling declines in a number of its subspecies, and which is considered Near Threatened by the IUCN Red List. The population of the subspecies *rufa* has undergone a significant decline in the last decade. The number of birds in Tierra del Fuego declined strongly (75% decrease) between 1985-2000 (52,244 individuals) and 2011-2013 (11,385 individuals). Between 2017 and 2018 the population at Tierra del Fuego has varied in the range of 13,127-9,840 individuals. Similarly, counts in Delaware Bay showed similarly large declines: 70% decrease between 1981-1983 (59,946 individuals) and 2005-2014 (18,387). The *rufa* subspecies is hunted legally in French Guiana. The *rufa* population is listed as Critically Endangered in Brazil, Endangered in Argentina, Chile and Canada, and has been listed as Threatened under the Endangered Species Act in the United States. This population is also listed on Appendix I of the Convention on the Conservation of Migratory Species of Wild Animals (UNEP/CMS)[2]. The population trend of the subspecies *roselaari* is uncertain, but is possibly declining. Recent genetic analyses suggest that *roselaari* may actually constitute two subspecies (J. Conklin, unpubl. data), which would subdivide the already small world population estimated at just 21,770. The subspecies is listed as Threatened in Canada and Mexico. The species is vulnerable to extensive land reclamation projects that encroach upon important habitat across its range. It also suffers from disturbance in the non-breeding season as a result of tourism, residential development and recreational activities.

Semipalmated Sandpiper (*Calidris pusilla*) was a priority species in the first phase of AMBI and continues to be a focus in this workplan. The species is a common breeder in the Arctic and sub-Arctic, and was once one of the most common of the small sandpipers in the Americas. Trends are hard to quantify, but aerial surveys conducted along the coasts of Suriname, French Guiana and northern Brazil suggest that the population in the region could have declined by c. 80% between the early 1980s and 2008, from c. 2 million to c. 400,000 individuals. Hunting and the use of pesticides in rice fields in northern South America are potential threats for the species. Harvesting of horseshoe crabs in Delaware Bay is also a threat. Delaware Bay is an area which reportedly sees the passage of 60% of the total population of the species during the spring migration. The species is not considered as threatened under any national lists, but it is considered Near Threatened on the IUCN Red List. It is protected under national legislation in Canada (*Migratory Birds Convention Act*), the US (Migratory Bird Treaty Act) and is listed under Appendix I and II[3] of the Convention on the Conservation of Migratory Species of Wild Animals (UNEP/CMS).

Buff-breasted Sandpiper (*Calidris subruficollis*) was first proposed for consideration by AMBI at the Montreal experts meeting in February 2014 but did not make the final list for the first AMBI workplan. It is included as a priority species for the second phase of AMBI. The species is of high conservation concern because of a large decline from historical numbers, small population size (c. 56,000), restricted wintering range, and threats throughout their range. On the breeding grounds, habitat is being lost or degraded due to energy production and climate change. During migration, the species may be negatively impacted from wind energy installations in the central United States and in coastal portions of the Gulf of Mexico, as well as inappropriate management of natural grasslands or conversion to agriculture and other human developments. On the wintering grounds, the species is threatened by conversion of historic grasslands into agriculture, wood plantations, mines, and tourism. Pastures are also being "improved" by ranchers planting exotic vegetation that appears to be less preferred. Finally, climate change may result in sea-level rise and greater precipitation, which will inundate low-lying areas used by the species. The Buff-breasted Sandpiper is listed under Appendix I and II of the Convention on the Conservation of Migratory Species of Wild Animals, is categorized as Near Threatened by IUCN/BirdLife International, as a Bird of Conservation Concern by the U.S. Fish and Wildlife Service, and as a species of Special Concern under the Species at Risk Act in Canada. The species is also a high-priority bird in Argentina, Brazil, Paraguay, and Uruguay.

Red (*Phalaropus fulicarius*) and **Red-necked Phalarope** (*Phalaropus lobatus*) are of moderate concern within the U.S. by the U.S. Fish and Wildlife Service due to suspected population declines. Both species breed in the Arctic tundra regions of North America, and migrate and winter in pelagic (Red) or coastal (Red-necked) areas in or along the Atlantic and Pacific Oceans. Potential threats on the breeding grounds include climate-driven landscape changes, anthropogenic disturbance, and changes in predator abundance. During migration and wintering, phalaropes may be vulnerable to oil spills, changes in sea-surface temperature and consequent changes in food availability, and being caught as bycatch in gillnet fisheries. Plastic ingestion may be an increasing problem for this surface-feeding species, as plastic debris has been found in both species, and may impede their ability to feed, have adverse effects on endocrine disruption and other unknown effects.

2. Appendix I: A species listed under the Appendix I of the Convention on the Conservation of Migratory Species of Wild Animals (UNEP/CMS) means that range states that are CMS Parties should undertake actions to protect and restore the species and its habitats. Range states in the Americas that are CMS parties include Argentina, Bolivia, Brazil, Chile, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, France [French Guiana], Honduras, Paraguay, Peru and Uruguay. Non-Party Countries that are range states to these migratory birds are also invited to work together to support the conservation of these birds through various other non-binding sub-agreements such as the Americas Flyways Framework, adopted as part of Resolution 11.14 at CMS COP11
3. Appendix II: Appendix II covers migratory species that have an unfavourable conservation status and that require international agreements for their conservation and management, as well as those that have a conservation status which would significantly benefit from the international cooperation that could be achieved by an international agreement. The Convention encourages the Range States to species listed on Appendix II to conclude global or regional Agreements for the conservation and management of individual species or groups of related species

Conservation issues

1. **The loss or degradation of terrestrial and pelagic habitats** along the flyway is a key conservation issue for this workplan. The underlying threats are numerous and include climate change effects; expansion of white geese on tundra habitats; anthropogenic impairment of interior and coastal habitats; direct take of shorebirds via legal and illegal harvest; and plastic pollution in pelagic areas.

2. **Climate change** is associated with loss of shorebird productivity in the Arctic, changes in habitat quality and quantity throughout the flyway, and effects on shorebird migration. Indirect consequences of human activity, including habitat destruction by overabundant populations of Snow (*Chen caerulescens*) and Ross's (*Chen rossii*) geese (collectively referred to as 'white geese'), are of concern for shorebird conservation on portions of the breeding grounds. Development of coastal infrastructure, such as farming that necessitates impoundment or draining of coastal wetlands and disturbance at shorebird roosting sites, are issues directly related to human activity in the southern parts of the flyway. Loss, degradation and change in land use due to energy production, mining and agriculture (annual non-timber crops, livestock farming and ranching) are also impacting inland habitats important for breeding, migration and wintering of Arctic birds. The effects of plastic pollution in the world´s oceans on Arctic shorebirds are only beginning to be understood. However, due to the scale of this issue both in geographic extent and amount of plastic in the ocean it is well anticipated that the impacts could be significant.

These threats were chosen to be a focus of this workplan because a) they have not been addressed with a shorebird-centric focus on a flyway level; and b) they are likely to have a significant negative impact on the five-priority species of this plan.

Geographic focus

The geographic focus of the first phase of AMBI was the eastern and central Canadian Arctic, and the northern coast of South America (from Caribbean Colombia to north-eastern Brazil). For the second phase, the focus has been expanded to include the remaining portions of the Americas flyway, including the tundra and oceans of the western Arctic and pelagic waters of the Pacific Ocean, and the Mid-continental regions of the Americas.

Other initiatives

During the first phase of AMBI, funding from the Commission for Environmental Cooperation (CEC, the environmental arm of the North American Free Trade Agreement) advanced the conservation of AMBI's priority species. Through CEC support, AMBI extended its conservation efforts to habitats in Mexico, and to the *roselaari* subspecies of Red Knot, which uses the Pacific Flyway. Future possibilities of support from CEC for AMBI activities should be evaluated as opportunities arise.

AMBI sees great value in supporting ongoing hemispheric-level processes. The first of these is the Atlantic Flyway Shorebird Initiative (AFSI) and its Business Strategy and Plan (https://atlanticflywayshorebirds.org/). The AFSI Business Plan is relevant to AMBI, as it addresses shorebird species and habitats that include AMBI's current focus. AMBI is currently an observer member of the AFSI Executive Committee. The AMBI Americas workplan has been developed in close coordination with AFSI, to link complementary goals, build synergies and ensure efficiencies of effort. The second of these is the Pacific Americas Shorebird Conservation Strategy (PASCS), which is also of relevance for AMBI as the *roselaari* population of Red Knot and Semipalmated Sandpiper are amongst its priority species. The Strategy covers 170 sites from Alaska to Patagonia along the Pacific flyway.

AMBI also coordinates activities with the Americas Flyways Task Force of the Convention on the Conservation of Migratory Species of Wild Animals (UNEP/CMS), which coordinates the engagement of partners in the development and implementation of the Americas Flyways Framework (AFF), including provisions for concerted conservation action for priority species. The goal of the AFF Task Force is to establish a shared and common practice for conservation of migratory birds in the countries of the Americas, strengthening the implementation of already existing initiatives for migratory bird conservation in the region and promoting cooperation among countries. AMBI is currently part of the Task Force of the Americas Flyways Framework.

For more information on other initiatives in this Flyway please see Annex 1.

Themes, Objectives and Actions

The Americas Flyway Workplan is organized under themes that reflect the implementation plans, approved by CAFF. These implementation plans recognize key threats driving the loss and degradation of wetland habitats, including climate change effects on breeding and wintering habitats and impairment of key sites through human-induced disturbance. To accomplish the objectives within the Americas Workplan the actions are organized around the threats into three thematic areas. A fourth thematic area is included to demonstrate the support of AMBI to other regional initiatives, and its leadership and support in the development of a new Mid-continental initiative.

Migratory bird issues transcend habitats, countries, and cultures, as do conservation solutions. AMBI recognizes that collaboration among countries, communities, and individual stakeholders is a key to the success of the initiative.

Therefore, AMBI stresses that the actions listed below are best achieved with deliberate inclusiveness and invites the perspectives and participation of stakeholders during implementation of this workplan. The actions will be implemented in coordination with other relevant migratory bird conservation initiatives where appropriate.

Theme 1: Evaluate impacts of overabundant geese populations on Arctic shorebird habitat and implement appropriate mitigation measures

Populations of white geese (Snow Goose *Chen caerulescens* and Ross's Goose *Chen rossii*) in the eastern and central North American Arctic have dramatically increased over the past 40 years. Large areas that were formerly sedge tundra have been reduced to a monoculture of moss or even bare ground. In less extreme cases, goose grazing reduces sedge height, and can decrease use by nesting shorebirds. So far the Western Canadian and Alaskan Arctic are less affected, but even there geese populations are increasing and significant habitat impacts are expected in the future.

In recent years scientists have investigated the implications of white geese overabundance on the population sizes and dynamics of co-occurring bird species in eastern Canadian Arctic, and mitigation measures were developed in collaboration with Inuit groups during phase 1 of AMBI. These measures need to be implemented now to help resolve issues in the eastern Arctic. Given an initial increase and the potential for a more dramatic increase in white goose populations on Alaska's North Slope, studies to assess population increases and potential impacts to habitats are also needed. Continued interaction with Indigenous inhabitants of this region are needed to fully understand and mitigate this conservation issue.

The primary facilitator of scientific research on this subject is the Arctic Goose Joint Venture, a multi-agency partnership established under the North American Waterfowl Management Plan (NAWMP) to further the scientific understanding and the management of North America's geese populations (http://www.agjv.ca/). AMBI's 'value added' to the existing scientific research agenda will continue to be to augment current projects or to initiate new ones, and to further the sharing of scientific findings with northern communities, Indigenous groups and land managers.

Objective 1: Understand the expansion of white geese populations in Arctic shorebird habitat

Stringent hunting regulations introduced in the 20th Century to protect what were then very small geese populations facing high hunting pressure, and the recent abundance of food from agricultural operations on the wintering grounds have led to the current population increase in white geese.

A cause-effect relationship between geese-caused habitat destruction and decline in shorebird populations was assessed for eastern Arctic Canada. White geese populations continue to rise in North America, and their zones of impact continue to expand on the breeding grounds.

Action 1: Understand impacts of populations of white geese on other bird species in western Canada

Action 2: Understand trends in the populations of white geese in Alaska and their impacts on shorebird breeding habitats

Preliminary assessments indicate white geese are increasing in Alaska. There is an urgent need to continue monitoring white geese numbers and distribution, and to determine the conservation impact this increase is having on Alaskan shorebirds.

Objective 2: Mitigate effects of over-abundant white geese populations on shorebird habitat

As part of AMBI Phase 1 (2015-2019), research into this issue was undertaken on Southampton and Coats Islands by Environment and Climate Change Canada with funding from the Arctic Goose Joint Venture (AGJV). Additionally, Traditional Knowledge work was carried out in communities in the western Hudson Bay region to better understand how communities are observing changes in white goose and shorebirds populations in the region, and to discuss potential mitigation measure communities could carry out to help reduce white goose populations. Outputs under AMBI Phase 1 included a) assessing the impacts of white goose populations on shorebird populations in western Hudson; b) co-produced knowledge on the potential management strategies that could be used by the community to reduce white geese in their regions to help mitigate the effects on Arctic-breeding shorebirds.

Action 1: Implement management actions resulting from study of white geese impacts in Canada (undertaken as part of AMBI Phase 1).

During this second phase of AMBI, management actions derived during AMBI Phase 1 will be promoted with Inuit organizations and goose/land management boards and agencies in Canada.

Objective 3: Ensure Traditional Knowledge is incorporated into white geese impacts research and mitigation measures

In the North American Arctic, white geese are harvested by Inuit and Iñupiaq for subsistence. Traditional Knowledge includes significant information regarding historical and current white geese populations and their impacts on shorebird habitats.

Action 1: Continue to include Traditional Knowledge in future work

Under the co-management systems established by land claims agreements in the Canadian Arctic, Traditional Knowledge and the perspectives of Inuit must be incorporated into management decisions, including those that relate to the goose-shorebird-habitat issue. The Alaska Migratory Bird Co-management Council seeks to conserve migratory birds through development of recommendations for subsistence harvest. AMBI will encourage work to a) articulate Inuit and Iñupiaq research questions regarding the impacts of goose habitat degradation on other birds; b) document observations and other forms of Traditional Knowledge from Arctic communities regarding shorebird responses to increased white goose numbers; and c) gather Inuit and Iñupiaq recommendations and advice regarding management of the issue.

Theme 2: Identification of climate resilient shorebird breeding and wintering habitat

The Arctic is warming faster than other regions of the world, resulting in changes in temperature and hydrology that are influencing the quantity, quality, and location of Arctic habitats. Suitable climatic breeding conditions are predicted to shift, contract and decline over the next century, with many species losing the majority of currently suitable area. Similarly, habitats along the migration and wintering areas are expected to experience sea level inundation, reducing areas to feed and rest. While it is unknown whether species will adapt to these changes or new areas may develop, it is essential that sites resilient to climate change be identified and protected.

A study under AMBI Phase 1 identified high-quality breeding habitat that is resilient to climate change for two selected shorebird species, the Red Knot and Semipalmated Sandpiper. These two species were chosen as they serve as proxies for a broader suite of Arctic-nesting shorebird species. Red Knots are associated with a suite of species that prefer upland or relatively barren sites, while Semipalmated Sandpipers are associated with "lowland" species found in coastal plain wetland complexes. Study results indicated Red Knot habitat will likely diminish in area and retreat northward progressively under the RCP 4.5[4] and 8.5[5] scenarios. In contrast, Semipalmated Sandpiper habitat is predicted to increase in area along the western and central North Slope, Central and Eastern Arctic, with the highest amounts of suitable habitat under RCP 8.5. A majority of the retained and new Semipalmated Sandpiper breeding habitat under both RCP scenarios are in unprotected lands.

4. The RCP 4.5 scenario represents a scenario where greenhouse gas emissions are stabilized shortly after 2100 and representing our moderate case scenario.
5. The RCP 8.5 scenario is characterized by increasing greenhouse gas emissions and representing our worst case scenario.

Objective 4: Determine climate change resilient areas of shorebird habitat and promote their protection

Identification of resilient areas along the migration routes and wintering areas of Arctic-breeding shorebirds has lagged behind studies in the Arctic. This is despite the fact that the migratory stopover sites are predicted to be inundated by sea level rise, reducing areas for birds to forage and rest. High-quality stopover sites are essential for successful migration—a portion of the annual cycle already thought to have high mortality rates —as are wintering areas that allow birds to survive to migrate north again to breed. Consequently, there is a paramount need to assess both migration and wintering areas to identify sites that will be resilient to climate change and seek to protect such sites.

In addition to using the resilient habitat analyses, other information easily accessible (e-Bird data, information from tracking and ecological studies) should be brought to bear and made available to decision makers to advocate for the protection of important areas for shorebirds along the flyway.

Action 1: Carry out an analysis of the resilience of shorebird wintering habitat to climate change

Using the expertise and experience from work carried out in AMBI Phase 1, a study to determine areas resilient to climate change should be done along the migration routes and wintering areas, especially for the priority species identified within this workplan.

Action 2: Promote protection of climate change resilient shorebird breeding, wintering and migration habitats

Results from the Red Knot and Semipalmated study conducted under AMBI Phase 1 and future results from similar studies conducted under this workplan will be shared with decision makers to raise awareness of the long-term importance of these sites. The results will be disseminated to key audiences (e.g. CAFF and Senior Arctic Officials; federal, territorial, and Indigenous land and wildlife managers and governmental officials). Efforts should be made to participate in rigorous consultative processes that involve government representatives, indigenous landowners and other stakeholders. The identification of critical habitat areas will also identify the most appropriate governance option for habitat protection. Options could include, but are not limited to a) legally protecting areas (Nationally or regionally or locally); b) setting aside zones within land-use plans; c) designating sites of International importance under frameworks such as Ramsar, UNESCO/World Heritage Sites, and WHSRN; and d) enacting protections by Aboriginal groups or other discrete landowners.

Theme 3: Reduce shorebird habitat impairment from human intrusions, disturbances, destruction and degradation

Arctic-breeding shorebirds face numerous threats across multiple geographies and political landscapes during their annual life cycle. Humans are responsible for a large number of these threats – many of which likely result in increased levels of mortality. The effects of human activity on shorebirds and their habitat are not high in the consciousness of people (or decision makers) within local communities or governments along the flyway. Thus, it is very difficult to engage in conservation discussion and action until all parties have a common base of understanding and appreciation of the issues.

Objective 5: Mitigate habitat impairment from human intrusions and disturbances

Shorebirds are harvested both legally and illegally in many parts of their range, but the relative impact of such harvest on particular populations is poorly known. A working group, developed under AFSI, has been addressing key questions regarding the potential impacts from shorebird hunting in the Caribbean and northern South America. These questions include determining the scope of hunting; composition and magnitude of the harvest; the level of awareness among hunters and enforcement personnel regarding existing legislation and species that are protected; and the need for effective regulation. Research, outreach and conservation actions have been undertaken in various jurisdictions, including Alaska, Barbados, Brazil, Canada, French Guiana, Guadeloupe, Guyana, Martinique, Suriname and Trinidad and Tobago.

In the Arctic, an emerging threat is the presence of plastics in the marine environment. These plastics, which can occur as tiny microbeads, are the most prevalent type of marine debris. Little is known about the effects of ingesting these items by shorebirds.

Action 1: Support efforts to develop policies and legislation to ensure the sustainability of legal hunting of shorebirds in North and South America

AMBI will support the activities of the shorebird hunting group within AFSI, using the MoU framework signed by Canada, France and the U.S. and other measures, to collaborate on harvest assessment and regulations; such activities will improve the management and conservation of shorebird populations and their and habitats.

AMBI will support efforts within Alaska to work with the Alaska Migratory Bird Co-management Council and subsistence hunters directly to reduce shorebird harvest on species showing declines or considered priority for other reasons.

Action 2: Promote studies that assess the prevalence and impacts of plastic contamination in shorebird populations in the Arctic

AMBI will promote the assessment of plastics in shorebirds, particularly for Red-necked and Red phalarope populations that are pelagic obligates during most of their lifecycle. AMBI will also promote studies that assess the effects of plastics on shorebird productivity and survival.

Action 3: Work with communities and governments to protect important sites for shorebirds

AMBI will encourage officials associated with currently designated Western Hemispheric Shorebird Reserve Network (WHSRN) sites and Important Bird and Biodiversity Areas (IBA) to conduct site assessments to identify critical threats to priority and other species. AMBI will further support efforts to develop strategies to mitigate these threats, and to prioritize actions to mitigate hunting, plastic ingestion, and habitat loss and degradation (see next objective). In addition, AMBI will encourage formal linkages be made among sites that share migrating shorebird populations to ensure range-wide conservation.

Objective 6: Mitigate habitat impairment from destruction and degradation of coastal habitats and productive landscapes

Rice farming and shrimp aquaculture have been identified as industries that have widespread effects on shorebird habitats, particularly so in northern South America. These activities can result in the loss of natural habitats, such as mangroves, but also provide alternative foraging and resting habitats when natural areas are absent or unavailable.

New developments are frequently recipients of funds from development banks; such banks frequently require stipulations be followed to acquire such funds, including environmental considerations. The requirements of shorebirds and their habitat needs should be considered in the planning stages, but accurate information is not always available or provided to developers and their financiers.

Action 1: Evaluate the impacts of habitat loss and degradation from agriculture, aquaculture, renewable energy production and tourism development on shorebirds and their habitats in Latin America

AMBI will promote studies to determine overlap of developments and important shorebird habitats, as well as studies that assess the direct impacts of developments to shorebirds at particular sites, with a focus on mangroves, aquaculture, renewable energy production and tourism sectors.

Action 2: Ensure mitigation measures are incorporated into development decisions

AMBI will promote efforts to acquire and transmit information related to the presence of shorebirds and their needs to groups proposing developments in shorebird habitat.

Action 3: Designate important sites under appropriate international conservation frameworks (e.g. Ramsar Convention, WHSRN, World Heritage)

AMBI will promote the designations of important shorebird sites into international conservation frameworks.

Action 4: Work with communities and governments to protect important sites

AMBI will promote activities that engage and build networks with key stakeholders, such as industries, landowners, and governments, to promote sustainable development in the agriculture, aquaculture, renewable energy and tourism industries. Mitigation activities may include the conservation of habitats, as well as the development of Best Management Practices (BMPs) for these industries on the Latin American coastline.

AMBI will also promote the incorporation of important shorebird sites into shorebird plans, national wetland plans where they exist and National Biodiversity Strategies and Action Plans (NBSAPs).

Theme 4: Flyway Planning and Implementation

AMBI supports ongoing hemispheric-level processes such as hemispheric conservation strategies, regional initiatives and frameworks to conserve shorebirds and their habitats on a flyway level. Conservation efforts across the Americas are currently well organized, prioritized and implemented through two coastal, flyway frameworks — the AFSI and PASCS. However, conservation efforts of interior areas are not yet under a common framework.

Objective 7: Contribute to the implementation and development of regional flyway initiatives

AMBI supports a) the promotion of the Atlantic Flyway Shorebird Initiative and Pacific Americas Shorebird Conservation Strategy, and regional initiatives and frameworks; b) the resourcing and direct implementation of actions and activities within the strategies, initiatives and frameworks; and c) sharing of information on the achievements and lessons learned from their implementation at different forums.

Action 1: Promote and support the implementation of regional strategies and flyway initiatives

AMBI will continue to support and promote both AFSI and PASCS, particularly by participating in the implementation and further planning of both initiatives.

Action 2: Encourage/coordinate the development of an American Mid-continental Flyway strategy

AMBI will help lead and promote a Mid-continental Flyway planning effort to develop a strategy comparable to the AFSI and PASCS. Such an effort will include meetings in multiple locations along the flyway, with an effort to assess priority issues, species, and action items to further shorebird conservation along this flyway. We anticipate a focus to be on upland grassland birds such as the Buff-breasted Sandpiper, although stakeholders will ultimately decide the highest priority areas and species.

Next steps

Each item in the workplan will be 'stepped down' with more detailed articulation of tasks, milestones, timelines, budgets and evaluation statements. Upon approval of the AMBI workplan by the Arctic Ministers (in March 2019), implementation will officially begin.

Annex 1. Multilateral agreements and initiatives in the Americas

Implementation of the AMBI Americas workplan will help governments meet their commitments under several regional Multilateral Environmental Agreements, in addition to contributing to the fulfilment of the goals of multiple voluntary initiatives. Some of the principal ones are listed below:

Migratory Birds Convention

Responding to a number of high-profile bird extinctions including the Passenger Pigeon and the Great Auk, governments from Canada and the United States came together to negotiate the Migratory Birds Convention, whose aim was to prevent the further loss of shared bird species. Signed in 1916, the convention has been actively conserving and protecting migratory birds ever since through parallel legislation on either side of the border (in Canada- the *Migratory Birds Convention Act* www.ec.gc.ca/nature/default.asp?lang=En&n=7CEBB77D-1, and in the United States, the Migratory Bird Treaty http://www.fws.gov/laws/lawsdigest/migtrea.html). In each country, it is unlawful to hunt migratory birds or destroy nests or eggs without a permit. Market hunting was the main threat to birds at the signing of the convention and to this day, the sale of migratory birds or parts thereof is generally not permitted. Harvesting of game birds is strictly controlled through a permitting process that is carefully monitored by binational committees along four waterfowl flyways. For over 100 years Canada and the United States have been successfully cooperating on joint conservation and management activities through the relationship established by this convention.

More recently, the North American Waterfowl Management Plan (NAWMP) and its joint ventures, and the North American Bird Conservation Initiative are examples of how successful collaboration continues. The Arctic Goose Joint Venture (AGJV; www.agjv.ca) is of particular relevance to the Americas flyway plan. It is a multi-agency partnership established under the NAWMP to further the scientific understanding and the management of North America's geese. It facilitates research and monitoring of Arctic goose populations and works cooperatively to provide a coordinated and cost-effective approach to meeting high priority information needs for the management of northern-nesting geese in North America. This partnership approach is especially valuable for conducting Arctic research where logistics are costlier and where maximum return from available funds is highly desirable. The AGJV cooperates on many surveys, banding and research projects with numerous organizations throughout the continent and other countries such as Russia.

Trilateral Committee and North American Bird Conservation Initiative (NABCI)

The Canada/Mexico/U.S. Trilateral Committee for Wildlife and Ecosystem Conservation and Management (http://www.trilat.org/about-the-trilateral) was established in 1995 to more effectively address priorities of continental significance and boost the concerted efforts of the three countries of the North America bioregion. The Trilateral Committee is headed by the directors of the Canadian Wildlife Service (CWS), the U.S. Fish and Wildlife Service (USFWS), and the Ministry of Environment and Natural Resources of Mexico (SEMARNAT).

The Trilateral Committee facilitates and enhances cooperation and coordination among the wildlife agencies of the three nations in projects and programs for the conservation and management of wildlife, plants, biological diversity, and ecosystems of mutual interest. The Trilateral also facilitates the development of partnerships with other associated and interested entities. Discussions take place under the auspices of working tables that report to an executive body comprising the heads of the three wildlife agencies. Delegations from each country come together annually for discussions on a wide range of topics, from joint, on-the-ground projects to issues of law enforcement to the development of information databases.

The NABCI vision is that populations and habitats of North America's birds are protected, restored and enhanced through coordinated efforts at international, national, regional and local levels, guided by sound science and effective management (http://www.nabci.net/Canada/English/about_nabci_canada.html). It is designed to increase the effectiveness of existing and new programs, enhance coordination between organizations and foster greater international cooperation. The initiative will promote conservation programs comprised of regional partnerships that pursue biologically based landscape conservation.

In Canada, NABCI members include federal, territorial and provincial governments, conservation NGOs, private sector organizations, representatives from Habitat Joint Ventures, and partners from Canada's four major bird initiatives: the North American Waterfowl Management Plan, Partners in Flight - Canada, the Canadian Shorebird Conservation Plan and the North American Waterbird Conservation Plan. Through cooperative planning and implementation, the partners will achieve their own goals, while helping make the vision of NABCI a reality.

Western Hemisphere Shorebird Reserve Network

The Western Hemisphere Shorebird Reserve Network (WHSRN; www.whsrn.org) was launched in 1985 aiming to conserve shorebirds and their habitats through a network of key sites across the Americas. The Network aligns with the simple strategy that we must protect key habitats throughout the Americas in order to sustain healthy populations of shorebirds. To date, WHSRN site partners are conserving more than 32.2 million acres (more than 13 million hectares) of shorebird habitat at 90 sites in 13 countries, from Alaska in the north to Tierra del Fuego in southern South America. WHSRN works to:

- Build a strong system of international sites used by shorebirds throughout their migratory ranges.
- Develop science and management tools that expand the scope and pace of habitat conservation at each site within the Network.
- Establish local, regional and international recognition for sites, raising new public awareness and generating conservation funding opportunities.
- Serve as an international resource, convener and strategist for issues related to shorebird and habitat conservation

Western Hemisphere Migratory Species Initiative

At the hemispheric level, one of the first calls for greater collaboration for the conservation of migratory species came from the environment ministers of the member countries of the Organization of American States, who agreed at the third Summit of the Americas in 2001 in Quebec City to develop a mechanism to come together to cooperate on shared species beginning with migratory birds. In response to this call, the Western Hemisphere Migratory Species Conference was held in Chile in 2003. This conference brought together wildlife agency directors, other senior government officials, and NGOs from throughout the hemisphere, and led to the development of the Western Hemisphere Migratory Species Initiative, a nonbinding cooperative mechanism to advance the conservation of shared migratory species (not just birds; http://www.fws.gov/international/wildlife-without-borders/western-hemisphere-migratory-species-initiative.html).

The plenary of the IV WHMSI Conference mandated a task force to advance "Integrating Migratory Bird Conservation Initiatives in the Americas". The task force has since produced an action plan for the Americas, which formed one of the foundational components of the Americas Flyways Framework (see below).

Americas Flyways Framework

The Americas Flyways Framework (AFF) is the result of collaboration between CMS and WHMSI to develop an overarching framework for migratory bird conservation in the Americas. The framework was adopted at the 11th Convention of the Parties to CMS, as part of the CMS Programme of Work (PoW) on Migratory Birds and Flyways (http://www.cms.int/sites/default/files/document/Res_11_14_PoW_on_Migratory_Birds__Flyways_En.pdf). The PoW urges CMS Parties and signatories to CMS instruments in the Americas, and invited non-Parties, organizations and stakeholders to implement the AFF in collaboration with WHMSI to protect migratory birds and their habitats throughout the Western Hemisphere.

The AFF builds upon the five goals of the CMS Strategic Plan for Migratory Species 2014-2023. The Strategic Goals of the AFF comprise both aspirations for conservation achievement at the hemispheric level, and a flexible framework for the establishment of national and regional targets. Governments and other stakeholders are invited to set their own targets within this flexible framework to advance the conservation of migratory birds in the Western Hemisphere, taking into account the interconnectedness of migratory bird life cycles and also bearing in mind national contributions to the achievement of hemispheric targets.

Ramsar Regional Initiative for the Integral Management and Wise Use of Mangroves and Coral Reefs

This Regional Initiative (http://archive.ramsar.org/cda/en/ramsar-activities-regional-initiatives-initiativesamericas/main/ramsar/1-63-478-543_4000_0__#3) of the Ramsar Convention aims to develop a Regional Strategy and Action Plan for the conservation, management and wise use of mangroves and coral reefs. Among the initiative's objectives are:

- To promote the generation and exchange of knowledge on the current status of conservation of mangroves and coral reefs in member countries, through inventories and ecosystem studies.
- To strengthen capacity and develop a regional approach for the conservation and wise use of mangroves and coral reefs.
- To promote the review, adaptation and harmonization of the legal framework, including national policies, to guarantee the protection and conservation of mangroves, coral reefs and associated wetlands.
- To manage mangroves, coral reefs and associated wetlands effectively by adopting an integrated watershed approach, including measures of adaptation and mitigation to climate change.
- To develop and strengthen communication, education, public awareness and participation (CEPA) in member countries to increase the visibility and awareness of mangroves, coral reefs and associated wetlands.
- To encourage, strengthen and disseminate basic and applied research, including traditional knowledge, socioeconomic studies on mangroves, coral reefs and associated wetlands.

Ramsar Caribbean Wetlands Regional Initiative

The Ramsar Convention's Caribbean Regional Initiative of Wetlands (http://archive.ramsar.org/cda/en/ramsar-activitiesregional-initiatives-initiativesamericas/main/ramsar/1-63-478-543_4000_0__#4) seeks to facilitate the implementation of the Convention in the Caribbean, through the development of a Regional Strategy. The initiative includes the Contracting Parties of the insular Caribbean plus Belize and Suriname.

The main strategic and initial operational goal of the initiative has been the formulation of a Regional Strategy to Implement the Ramsar Convention in the Caribbean Sub-region and its formal agreement by the Contracting Parties, non-Contracting Parties and other stakeholders. A secondary goal is the development of strategic interventions that can be implemented across the sub-region.

Atlantic Flyway Shorebird Initiative

In late 2011, shorebird conservationists began conceptualizing a strategy for shorebird conservation within the Atlantic Flyway. This resulted in the production of an Atlantic Flyway Shorebird Conservation Business Plan (http://www.fws.gov/northeast/migratorybirds/shorebirdconservation.html), a first phase business plan, representing a collection of priority activities needed to recover shorebird populations within the flyway. The second phase of development began with workshops in 2013 to engage shorebird conservationists in Latin American and the Caribbean. During 2014, and in coordination with the National Fish and Wildlife Foundation, the strategy steering committee has used an Open Standards for the Practice of Conservation process to build a conceptual model of change and develop results chains using Miradi Adaptive Management Software. The AMBI Americas workplan has been developed in close coordination with the Atlantic Flyway Shorebird Initiative, to link complimentary goals, build synergies and ensure efficiencies of effort.

Pacific Americas Shorebird Conservation Strategy

The Strategy focuses primarily on the Pacific coasts of North, Central and South America and spans 120 degrees of latitude from north-eastern Russia and north-western United States of America to southern Chile. The project area is subdivided into four focal geographic regions (e.g., Arctic/subarctic, North-temperate, Neotropical and South-temperate) that share broad habitat characteristics and similar conservation challenges and opportunities. Together, these regions encompass the suite of habitats used by 21 target shorebird species during their annual cycles along the Pacific coast of the Western Hemisphere. They were chosen as conservation targets because they are representative of specific habitats in the Flyway, populations of conservation concern or endemic to the Flyway (https://www.shorebirdplan.org/wp-content/uploads/2018/03/PASCSv2_english_final.pdf).

The Strategy frames threats, actions and priorities at a flyway scale. Although the focus is on action and is not an exhaustive list of research needs, robust information is clearly needed to design, implement and evaluate conservation actions. This Strategy places local action in a flyway context and facilitates collaboration at the scales necessary to be effective. The very process of developing the Strategy will better enable partners to work together throughout the Flyway to sustain shorebird populations for present and future generations.

Western Hemisphere Convention

The first environmental convention signed by multiple countries throughout the Americas was the "Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere", commonly known as the Western Hemisphere Convention. The Convention was adopted in Washington, D.C., in 1940 and entered into force on 5 May 1942. The Convention's stated objective is to preserve all species and genera of native American fauna and flora from extinction, and also to preserve areas of wild and human value. While some parties to the Convention (notably the USA) have enacted strong domestic measures to protect migratory birds, overall the Convention has barely been implemented. However, it does include a specific provision for the protection of migratory birds of economic or aesthetic value (Article VII), committing contracting parties to "adopt appropriate measures for the protection of migratory birds of economic or aesthetic value or to prevent the threatened extinction of any given species".

Annex 2. Co-occurring Arctic shorebird species that will be aided by the AMBI Americas Workplan

*not a complete list

Dunlin (*Calidris alpina*).

Pectoral Sandpiper (*Calidris melanotos*)

White-rumped Sandpiper (*Calidris fuscicollis*)

Baird's Sandpiper (*Calidris bairdii*)

Stilt Sandpiper (*Calidris himantopus*)

Semipalmated Plover (*Pluvialis semipalmatus*)

Black-bellied Plover (*Pluvialis squatarola*)

Whimbrel (*Numenius phaeopus*)

Ruddy Turnstone (*Arenaria interpres*)

Sanderling (*Calidris alba*)

Least Sandpiper (*Calidris minutilla*)

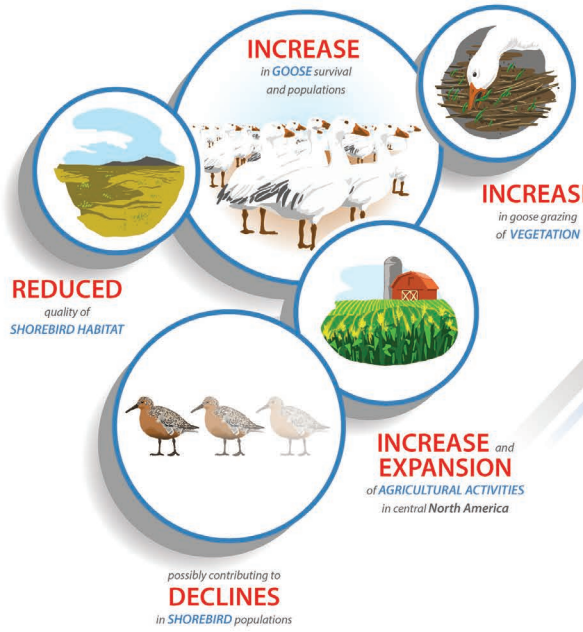
Western Sandpiper (*Calidris mauri*)

Dunlin with plastic on the Arctic tundra. Photo: Maria Gavrilo

Canning River bird camp, Alaska.
Photo: Shiloh Schulte/USFWS

The impacts of overabundant goose populations on Arctic shorebird habitat

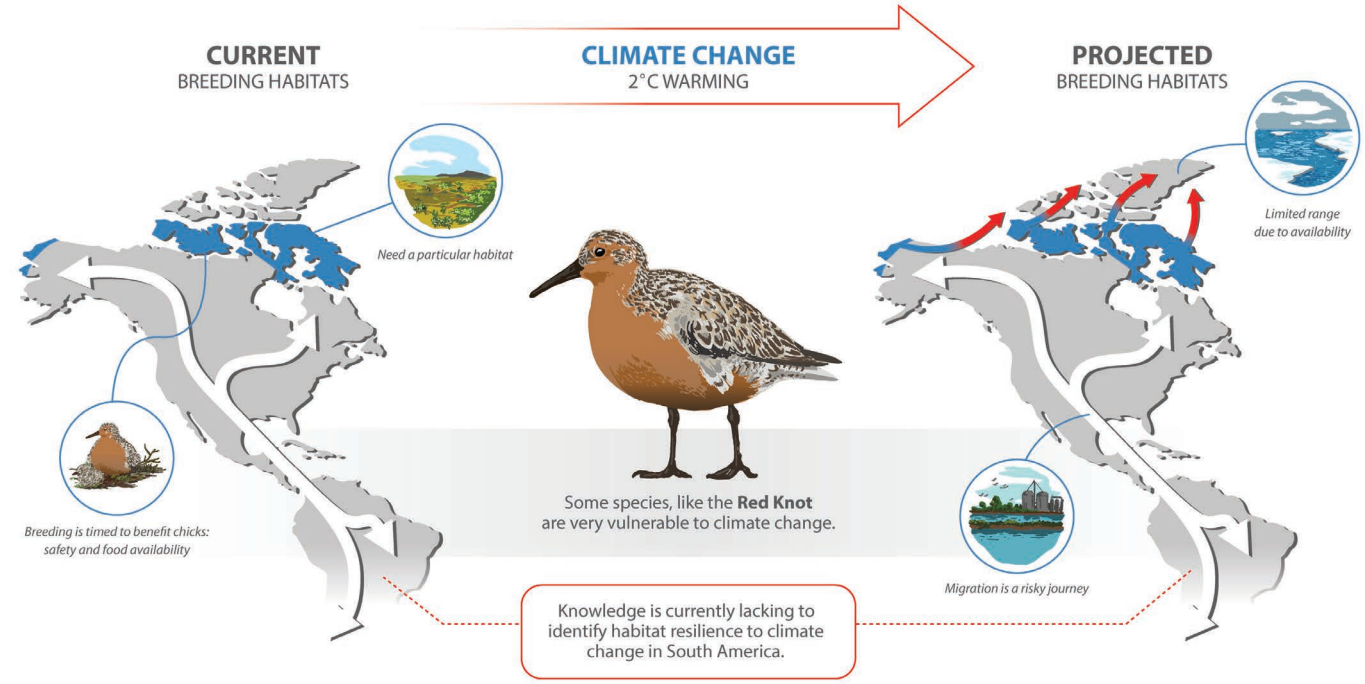
Populations of white geese in parts of the North American Arctic have dramatically increased over the past 30 years as a result of the abundance of food from expanding agricultural activities further south. In some areas sedge tundra has been reduced to moss or even bare ground, which decreases the ability of shorebirds to use this habitat to nest and hide from predators. This is a particular concern for the **Semipalmated Sandpiper** and **Red Knot** and is expected to spread to larger areas of the Arctic if no actions are taken. Luckily there are many things we can do.



*The Arctic Migratory Birds Initiative (AMBI) is a project under the **Conservation of Arctic Flora and Fauna (CAFF) Working Group of the Arctic Council**, designed to improve the status and secure the long-term sustainability of declining Arctic breeding migratory bird populations. www.caff.is/ambi*

Climate change, habitat needs and protected areas planning

Climate change is expected to cause major changes in the quantity, quality, and location of Arctic habitats. This is one of many factors that are expected to have a negative impact on Arctic-nesting shorebirds. The majority of Arctic shorebird species, including the **Red Knot** *(rufa and roselaari)*, nest in the tundra. Their habitat is expected to shift northward as shrub habitats spread. Resilient habitats are those that are less vulnerable to climate change. It is important to identify and protect these sites.



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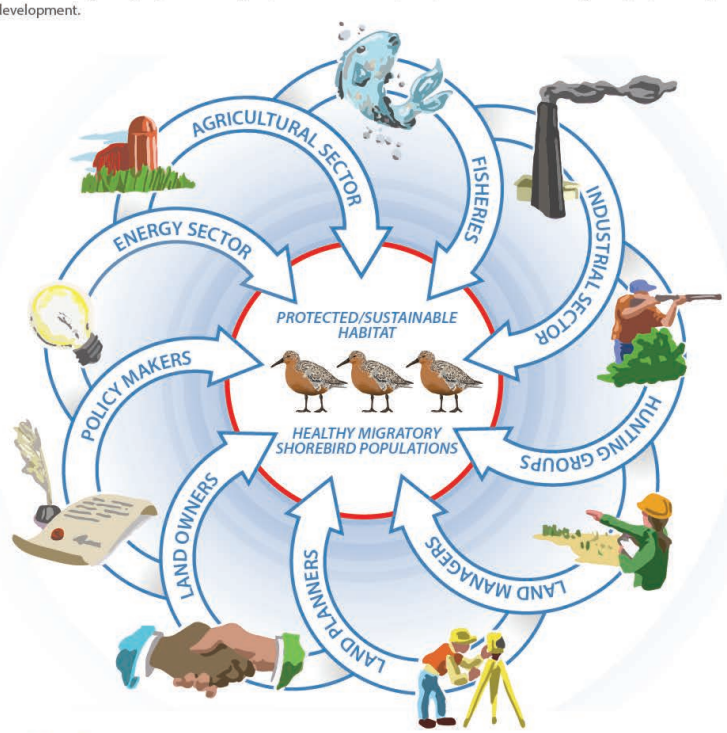
*Funding for this infographic provided by **UN ENVIRONMENT***

Mitigate habitat impairment from human intrusions and disturbance

The effects of human activity on shorebirds and their habitat are not high in the consciousness of many local communities or governments along the flyway. It is very difficult to engage in conservation discussion and action until all parties at the table have a common base of understanding and appreciation for the issues. AMBI has identified a clear and pressing need for key shorebird sites along the flyway to have a higher profile. This action is prerequisite to later actions regarding impact mitigation and best management practices for industry and development.



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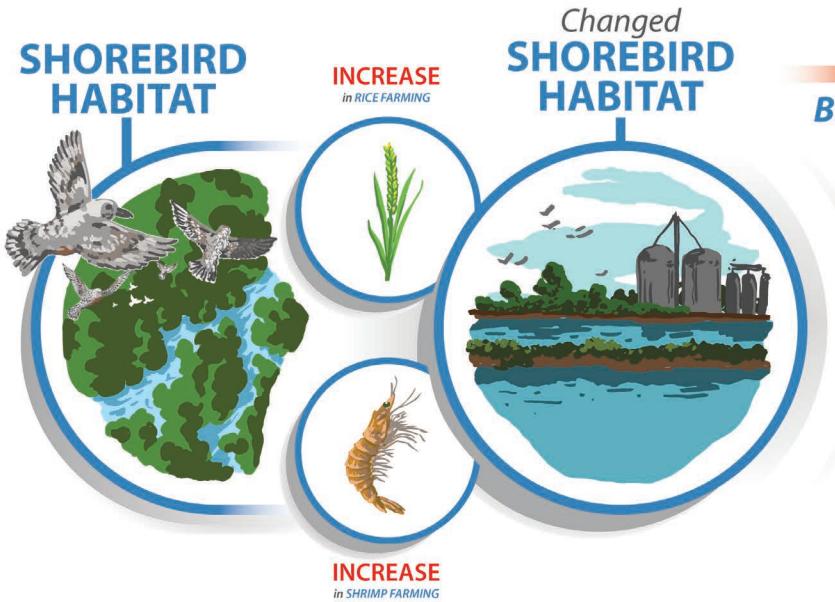
Mitigate habitat destruction and degradation from development

Both rice farming and shrimp aquaculture were identified as industries that have widespread effects on shorebird habitats in general, and increasingly so in northern South America. These farming activities can have both positive and negative effects on shorebirds, but magnitude of the effect depends on locations and farming practices. Currently, the extent of the impact is not clear because the locations of all farms have not been mapped and overlain with key shorebird habitat site locations. There is also a need to assess the exposure of shorebirds to contaminants used in shrimp aquaculture and rice cultivation.

The consequences of shrimp and rice farming on migratory shorebird populations have not yet been fully assessed.

UNTIL WE KNOW MORE, IMPLEMENT BEST MANAGEMENT PRACTICES




DOG CONTROL


NO-GO AREAS


REDUCTION of SYNTHETIC CHEMICALS in FERTILIZER, PESTICIDES and FUNGICIDES


WASTE and WATER MANAGEMENT

The Arctic Migratory Birds Initiative (AMBI) is a project under the Conservation of Arctic Flora and Fauna (CAFF) Working Group of the Arctic Council, designed to improve the status and secure the long-term sustainability of declining Arctic breeding migratory bird populations. www.caff.is/ambi

Arctic Migratory Birds Initiative (AMBI): Circumpolar Flyway Workplan

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Introduction

In addition to the traditional flyways identified as areas of concern, the AMBI Expert Group identified a "circumpolar" flyway that covers focal species (seabirds, seaducks, snowy owl) that spend most or all of their life cycle in Arctic regions, and migrate east-west rather than north-south. At a meeting of experts in Rovaniemi, Finland in October 2018, seabird by-catch, overharvest, and habitat identification and preservation were identified as the priority conservation issues for focal species (Ivory Gull, Thick-billed Murre, Common Eider, and Snowy Owl) on this flyway.

In addition to discussions during the Rovaniemi workshop, other experts also provided direction for the development of this work plan, including members of the Circumpolar Seabird Expert Group (CBird), members of the International Snowy Owl Working Group (ISOWG), and Birdlife International.

The Circumpolar Flyway is the area within the CAFF boundary.

Circumpolar Flyway

Ivory Gull

Thick-billed Murre

Common Eider

Snowy Owl

Priority species and conservation issues

Species

- Ivory Gull (*Pagophila eburnea*)
- Thick-billed Murre (*Uria lomvia*)
- Common Eider (*Somateria mollissima*)
- Snowy Owl (*Nyctea scandiaca*)

Conservation issues

The five issues identified by the AMBI as priorities for the circumpolar work plan include:

1. data collection and data input into habitat protection initiatives
2. unsustainable harvest
3. seabird bycatch in fisheries
4. environmental pollution
5. knowledge gaps, in particular to inform Snowy Owl conservation

Objectives and actions

The AMBI Circumpolar objectives for 2019-2023 build on the 2015-2019 workplan, as well as introduce one new objective related to addressing pollution issues. The objectives and associated actions leverage existing initiatives without duplication, and provide support for new initiatives where they are needed.

Traditional Knowledge is a fundamental element in successful wildlife co-management programs. Within the Circumpolar Flyway, Arctic countries will engage with Traditional Knowledge holders as appropriate to incorporate Indigenous perspectives in marine bird conservation and research initiatives.

Objective 1: Enhance data collection and data input into habitat protection initiatives

Birds at sea are often considered to be proxies for ecosystem health and indicators of environmental change (Frederiksen et al. 2007, Piatt and Sydeman 2007). Identifying Arctic marine areas that support large numbers of birds was an objective of the first AMBI workplan, and that work has helped to flag shifts in seabird and seaduck distribution relative to changes in habitat, and can now aid managers in prioritizing marine conservation areas.

Action 1: Raise awareness and facilitate protection of at-sea areas where key marine bird habitats intersect with human activities

Marine bird colonies are generally located in coastal areas which are the interface between marine and terrestrial ecosystems. This, in addition to their propensity to congregate in large numbers on both the breeding and wintering grounds, makes them vulnerable to disturbance related to human activities (e.g., shipping, resource extraction infrastructure, tourism, natural resource development). Scientists gather data and conduct analyses to understand how marine birds interact with these threats, but ensuring this knowledge is considered within habitat protection processes may be challenging for a variety of reasons such as when key habitats spans cross-jurisdictional regions, habitat protection processes are complicated or led by departments and agencies that are not responsible for marine bird populations, or marine bird data are not in a format conducible to integration into protection processes.

To begin to overcome this challenge, AMBI will facilitate the inclusion of marine bird habitat use data and analyses such as the one planned by CBird to provide a Shipping Assessment Risk for seabirds, to facilitate habitat protection processes and raise awareness of the need to consider marine birds within marine protected area planning processes. AMBI will cooperate with relevant Arctic Council Working Groups, including PAME and EPPR, to achieve this goal.

Measurable targets to evaluate action:

- Marine bird habitat use is considered in marine protection processes.
- A workshop is held with marine bird experts and managers to look at how to include marine bird data and analyses into habitat protection processes in key regions.

Action 2: Support country participation in circumpolar collaborations to enhance Ivory Gull surveys and collection and synthesis of marine bird tracking data (including Ivory Gulls).

The Ivory Gull is a high Arctic seabird associated with sea ice throughout the year. It breeds at high latitudes, mainly in the Atlantic sector of the Arctic. Scattered colonies occur in most remote areas of Arctic Canada, Greenland, Svalbard (Norway) and the northern islands of Russia in the Barents and Kara Seas. Russia is thought to hold the majority of the population (ca. 80 %). There is growing concern in the circumpolar Arctic that the Ivory Gull population may be in decline, and the species is listed as Near Threatened by the IUCN and Threatened and/or Declining by the OSPAR Commission. Global warming and pollution have been identified as the major threats to the species. Both the IUCN and OSPAR urge for new populations surveys for better assessments of species status and to clarify the true magnitude of decline. This is also in accordance with the international circumpolar "Conservation Strategy and Action Plan" developed by CBird that recommends regular population surveys to be conducted. The last surveys in each of the countries were conducted in the mid-2000s.

Through CBird, AMBI will support coordinated data collection throughout the Ivory Gull range, but particularly Russian Ivory Gull colony surveys and satellite tracking to understand key over-wintering habitat sites in Sea of Okhotsk where there are significant knowledge gaps.

AMBI will also support ongoing CBird efforts to compile circumpolar seabird tracking data into a common repository (SEATRACK) to facilitate large-scale analysis of habitat use and data integration into habitat protection processes such as Marine Protected Areas planning and shipping assessments (link to Action 1).

Measurable target to evaluate action:

- Significant data gaps in Ivory Gull colony surveys and at-sea tracking are reduced.
- Coordinated data collection, management, and synthesis are advanced throughout the circumpolar region.

Action 3: Knowledge gap analysis of circumpolar seabird tracking studies

Habitat protection initiatives focus, to a large extent, on protecting aquatic habitats in the marine Arctic. In order to identify key seasonal marine bird habitats, electronic tracking information is an essential aid, providing accurate knowledge of their at-sea distributions, which can be used to enhance existing distribution maps, and facilitate conservation schemes. Yet this information is currently only available for approximately one third of all seabird species,

and many species, especially small-bodied ones, are under-studied. In order to identify seabird species with critical spatial information deficit, we will perform a gap analysis, by crossing known Arctic seabird species and breeding sites, with published and unpublished information on which of those species/sites have already been tracked during and outside of the breeding season. This will yield a list of candidate species/sites for dedicated electronic tracking.

Measurable target to evaluate action:

- List of candidate species and breeding sites to target for dedicated electronic tracking

Objective 2: Harvest assessments and mitigation of unsustainable harvest

Action 1: Work with CBird to promote dialogue with authorities for management plans to combine the knowledge of status of hunted species between countries.

CBird has completed demographic modelling research to assess the impact of the Canadian and Greenland harvest on Thick-billed Murre breeding populations in the North Atlantic. The next step is to provide the scientific findings and recommendations to harvest managers through a fully-funded workshop that is scheduled for early 2020. This workshop will bring together scientists and managers from countries implicated in the North Atlantic murre harvest (Canada, Greenland/Denmark, Iceland, and Norway) to discuss the scientific findings and consider the development of an integrated North Atlantic Murre Harvest Management Plan.

Given the importance of murres to the culture and livelihood of Canadian and Greenlandic residents, if an integrated management plan is developed, AMBI will support the inclusion of a communication and outreach strategy within the plan.

Measurable target to evaluate action:

- Relevant scientists and murre harvest managers are engaged in the process
- If it is decided that a North Atlantic Murre Harvest Management Plan is the appropriate course of action, a communication and outreach strategy is included within the plan.

Action 2: Assess the population-level impact of seabird harvest in relation to other stressors

Managing migratory bird harvest requires an understanding of the impacts of harvest levels on seabird populations in relation to the impacts of multiple threats they face throughout their annual cycle, including climate change and other anthropogenic stressors such as oil and gas, fishing, and industrial shipping activities. AMBI will support work to assess the relative impacts of both anthropogenic and non-anthropogenic threats to harvested bird populations.

Measurable target to evaluate action:

- Harvest assessments include analysis of the relative impacts of multiple threats to seabird populations.

Action 3: Conduct/update a harvest inventory for circumpolar regions of interest

There is a need for the compilation of a holistic inventory of circumpolar bird harvest to act as baseline of information. This inventory will support several intergovernmental decisions, such as the Arctic Biodiversity Assessment Report for Policy Makers, the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) work plan, and draft resolutions under UNEP African Eurasian Waterbird Agreement (AEWA) and Convention on Biological Diversity (CBD).

The inventory work will consider efforts that have previously been conducted by CBird (2008), cover the circumpolar area as defined by the Arctic Biodiversity Assessment (ABA) map (including all of Iceland, James Bay, the Aleutians and Kamchatka), include bird species listed under the ABA, and report on all forms of harvest of birds, their eggs and other products such as down, both legal and illegal.

Measurable target to evaluate action:

- Permanent Participants are consulted on the development of the harvest inventory, and, if desired, are co-leads in the process.
- A full literature review covering all relevant languages, and published peer reviewed references as well as the grey literature.
- Completed questionnaire and associated analysis designed to fill information gaps in a consistent way across the eight Arctic Council countries.

Objective 3: Mitigate seabird and seaduck bycatch

Gillnet fisheries globally are estimated to kill 400,000 birds every year (Zydelis et al 2013), with a substantial proportion of this mortality coming from higher latitudes, particularly in the northern hemisphere (estimated annual bycatch mortalities from Iceland, the Baltic Sea and Northwest Pacific are 100,000, 76,000 and 140,000 respectively). An estimated 300,000 seabirds are killed globally in longline and trawl fisheries each year. While there is a suite of best practice mitigation measures to reduce this toll in longline and trawl fisheries (e.g. see Agreement for the Conservation of Albatrosses and Petrals Best Practice mitigation advice), the same does not exist for gillnet fisheries and, to date, there has been little research in this regard. In addition, the lack of directly observed bycatch data from fisheries is a barrier to achieving progress in bycatch reduction. Broadly speaking, observer effort in fisheries worldwide is far below minimum levels (20% of the fleet) that would give satisfactory estimates of seabird bycatch, and data collection protocols are frequently not well-designed for the purpose of estimating fishery-wide bird mortality. Further, observer coverage in gillnet fisheries is often even lower than in other fleets because they tend to be (though are not always) smaller-scale operations with lower quota shares, making them a lower priority for national monitoring programmes.

Action 1: Initiate an overlap analysis for seabird bycatch in circumpolar region

While there is some work being done to understand the impacts of bycatch in key regions and on key species in the circumpolar region, and beyond (e.g., work within the European Union, by ICES WGBYC and ICES/OSPAR/HELCOM JWGBIRD and the FAO International Plan of Action) there is need to ensure that limited financial and human resources directed towards bycatch research and management are maximized. Work to identify species that are most susceptible to being bycaught, and the regions where fishing activities may pose particular threat to seabirds due to the season or life-history stage of the birds, would assist in prioritizing efforts to make the most conservation gain. AMBI will support the development of a prioritization tool that will aid seabird researchers and managers to identify the critical data needs and guide future bycatch work, similar to work described in Action 4 (below). The focus will be on gillnet fisheries, but other fisheries (e.g. demersal longlines) that have known data gaps may also be examined.

Measurable target to evaluate action:

- Development of a hotspot map showing overlap of key fisheries and susceptible species.

Action 2: Continue discussions about mitigation measures with fisheries partners

Under the 2015-2019 AMBI Circumpolar Workplan, advances were made in key regions to assess the need for mitigation measures in gillnet fisheries. This work underscored to need to develop and sustain discussions about seabird bycatch mitigation strategies with fisheries managers and operators. The focus of these discussions varies according to the extent of the bycatch work that has been done in each region. For example, in Nunavut, Canada, the discussions are focussed on determining whether there is a current or predicted need for mitigation measures in the Greenland halibut gillnet fishery, but in most other regions the discussion is on developing partnerships to test and develop mitigation measures that are relevant to the polar context.

With partners, such as BirdLife International, academia, and governments, AMBI will continue to assist with developing collaborations with key stakeholders, as well as with building partnerships that support research to develop mitigation strategies.

Measurable target to evaluate action:

- A workshop to examine the state of mitigation knowledge by drawing on global expertise and to advance future work to develop mitigation measures relevant to the Arctic context.
- Collaboration by relevant partners (fishing industry, Indigenous communities, scientists, governments) to engage in seabird bycatch mitigation measure research.
- Adoption of mitigation measures by fishing industries where relevant.

Action 3: Support efforts to develop best practices for bycatch data collection

One of the barriers to assessing the level of bycatch and the resulting seabird population impacts is the lack of consistently collected, quality data by ship-based fisheries observers. For example, many fisheries observers are trained to identify fish or shark bycatch, but have little or no training in identifying seabirds that are caught in fishing gear, and they may or may not be instructed to include seabird bycatch data when reporting results. Other fisheries have only a small portion of time that the observers are directly observing the catch, making accurate assessments of seabird bycatch (which is notoriously episodic) challenging. Other fisheries do not address observer programs. Further challenges are encountered when data are not freely shared.

AMBI will build off existing programs, support the development of seabird bycatch data collection protocols where none exist, and support the implementation of protocols relevant to the regional seabird bycatch risk by government departments responsible for ship-based observer programs.

Measurable target to evaluate action:

- Production of a report or scientific paper which includes key elements of bycatch data collection and suggestions for addressing data collection and management issues.
- Implementation of seabird bycatch data collection protocols in fisheries in the circumpolar region.

Action 4: Finalize gill net bycatch assessment in key regions

CBird has worked with partners in five circumpolar countries to review all relevant information on seabird bycatch in lumpfish fisheries in the North Atlantic. The intent is to quantify the overall bycatch of seabirds in these fisheries and to assess this bycatch in relation to the status and trends of the most susceptible seabird species across countries and regions (link to Action 1, above). It will also serve to illustrate the value of collating data sets in a consistent manner over large spatial and temporal scales and across fisheries jurisdictions (links to Action 3, above). Results will identify priorities and mitigation measures for future management of lumpfish fisheries in the North Atlantic.

A workshop to initiate this analysis was held in 2017 and brought together seabird experts involved in bycatch research. AMBI will assist with supporting key participants and their working organisations to complete the remainder of the work.

Measurable target to evaluate action:

- Lumpfish fisheries bycatch analysis finalized, and results published in the scientific literature.

Objective 4: Address environmental pollution issues

The rise in concentrations of macro- and micro-plastics in the world's oceans extends also to the Arctic, where increasing concentrations of these particles have been found in both water and sea ice. However, their accumulation and impacts on the food chain, and particularly on birds, have been poorly studied in the region, due to the emergent nature of this issue.

Action 1: State of knowledge assessment for plastics in wildlife

Funding has been received through the Arctic Council Project Support Instrument (PSI) to begin to assess the state of knowledge on seabird exposure and vulnerability to plastic pollution in Arctic environments, including plastic ingestion and entanglement. The PSI grant will also provide an overview of the ongoing work at the national level within Arctic countries that is informing research and policy frameworks related to plastic pollution and seabirds.

Measurable Target to Evaluate Action:

- Workshop on AMBI and marine litter and plastics in Russia, including a synthesis and meeting report.
- Completed inventory and overview of published information on seabird exposure and vulnerability to plastic pollution in Arctic environments.
- Creation of an overview of the ongoing work at the national level within Arctic countries that is informing research and policy frameworks related to plastic pollution and seabirds.

Action 2: Work with Arctic Council countries and Permanent Participants, PAME, and AMAP to begin to address knowledge gaps

Addressing the large-scale issue of plastic litter in the marine environment falls within the interests of three of the Arctic Council working groups (CAFF, AMAP, and PAME), has been identified by Indigenous communities as an issue of interest, and is increasingly identified as a top environmental issue within several Arctic Council countries. Given the emerging nature of this issue, the extent of knowledge is limited (see Action 1). Baseline data is required to assess the extent of the issue, as well as to measure the effectiveness of future efforts to reduce the amount of plastics pollution in the environment. Through funding form the PSI, AMBI will work with partners to develop a framework for monitoring plastic pollution in seabirds in the Arctic that is feasible and in line with standardized monitoring programs outside of the Arctic (i.e., the North Sea).

Measurable target to evaluate action:

- Development of a pan-Arctic framework for monitoring plastic pollution in seabirds in the Arctic that is feasible and in line with standardized monitoring programs outside of the Arctic.

Objective 5: Support the activities and priorities of the International Snowy Owl Working Group (ISOWG)

Snowy Owls feed on small mammals during the breeding season, and are therefore strongly affected by annual changes in rodent abundance. Recent satellite tracking studies have shed new light on their ecology as birds respond to rodent population collapse or eruptions. Indeed, Snowy Owls have been found to range much further during their lifetimes than previously thought; some even moving between several circumpolar countries over the course of their lifetime. Satellite tracking and winter field studies also have found that some snowy owls spend substantial periods of time in marine regions during winter; presumably preying on marine birds and roosting on ice floes. These ideas are supported by the fact that Snowy Owls have been observed hunting seabirds that congregate in patches of open water in winter in the Arctic. Changes in winter sea ice extent and polynya formation that affect seabird, could also affect the food intake of Snowy Owls while living at-sea in winter. In Arctic Eurasia, recent telemetry studies indicate that ptarmigans are crucial as winter prey for Snowy Owls and significant decrease in ptarmigan populations has placed those species on National Red Lists in the wintering distribution are for Snowy Owls, raising additional concern about the future development of snowy owl populations. Given the variety of habitats owls use during the year, the vast circumpolar migrations some owls make, and the changes taking place in Arctic sea ice environments in winter due to climate change, Snowy Owls are a species priority of the AMBI Circumpolar Flyway.

Action 1: Publish a more precise global population estimate and assessment of population trends

ISOWG will systematically collect data on breeding Snowy Owl populations in all countries in the Snowy Owl breeding range. Contribution from ISOWG members in all breeding range states is crucial in this respect. ISOWG will allocate resources to analyse data in collaboration with scientific research institutions. Based on this work, a new, more correct and precise global population estimate will be published in a peer reviewed scientific journal.

Measurable target to evaluate action:

- Publication of global population estimate in peer reviewed scientific journal.

Action 2: Implement wider-scale tracking of Snowy Owls throughout their range

Given the nature of Snowy Owl movements across continents and national boundaries, the ISOWG highlights the need for wider-scale tracking of Snowy Owls throughout their range (satellite/GSM/GPS).

The breeding distribution is linked to cyclic fluctuations in rodent densities and international tracking efforts prove necessary to uncover cross boundary breeding distribution and may help in providing population estimates. Winter is a bottleneck for Snowy Owl survival, and tracking studies is the best way of uncovering the wintering strategies for Snowy Owls in different parts of the distribution range, including habitat and prey species preferences.

Measurable target to evaluate action:

- Improved circumpolar coverage of Snowy Owl tracking data.

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Common Eider. Photo: Micha Klootwijk/Shutterstock.com

Discarded fishing gear in Novaya Zemlya, Russia. Photo: Maria Gavrilo

Arctic Migratory Birds Initiative (AMBI): East Asian-Australasian Flyway Workplan

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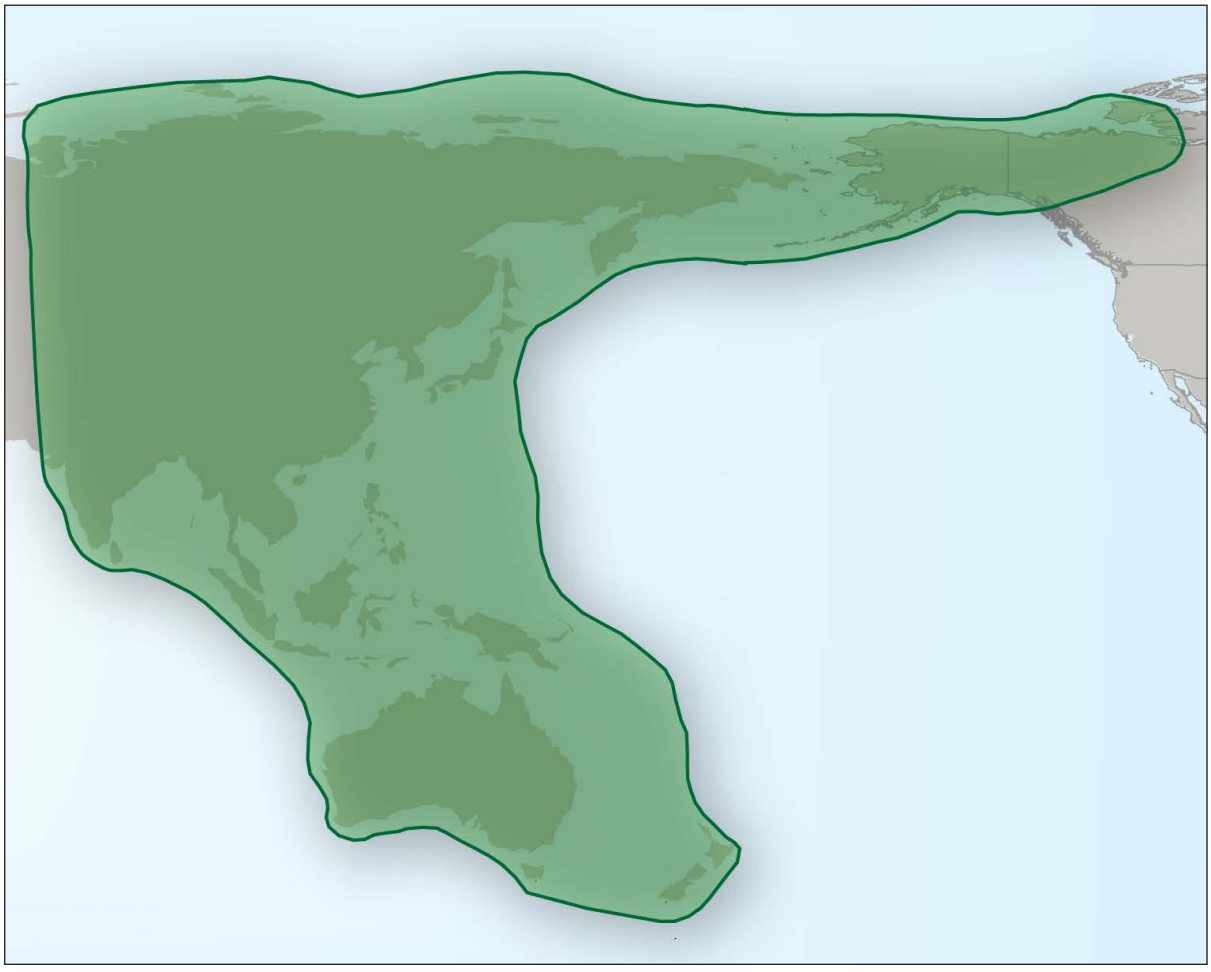
Introduction

The East Asian-Australasian Flyway is a migratory corridor that stretches from the Russian Far East and Alaska, southwards through East Asia and Southeast Asia, to Australia and New Zealand, encompassing 22 countries and supporting over 50 million migratory birds from over 250 populations, including 33 globally threatened and 30 near threatened species.

This work plan builds upon the AMBI 2015-2019 Workplan and has been informed by meetings in Rovaniemi, Finland and Hainan, P.R. China in 2018. Implementation is guided by the Flyway Committee, comprised of country and organization representatives.



East Asian-Australasian Flyway

Priority species and conservation issues

Priority species

AMBI East Asian-Australasian focal species are:

- Spoon-billed Sandpiper (*Calidris pygmaea*)
- Great Knot (*Calidris tenuirostris*)
- Red Knot (*Calidris canutus rogersi* and *piersmai*)
- Bar-tailed Godwit (*Limosa lapponica baueri, anadyrensis* and *menzbieri*)
- Dunlin (*Calidris alpina arctica*)
- Curlew Sandpiper (*Calidris ferruginea*)
- Lesser White-fronted Goose (*Anser erythropus*)
- Emperor Goose (*Anser canagica*)
- Brant Goose (*Branta bernicla nigricans*)

Spoon-billed Sandpiper

Great Knot

Red Knot (spp. *rogersi* and *piersmai*)

Bar-tailed Godwit (spp. *baueri, anadyrensis* and *menzbieri*)

Dunlin (spp. *arctica*)

Curlew Sandpiper

Lesser White-fronted Goose

Emperor Goose

Brant Goose (spp. *nigricans*)

Conservation issues

1. To identify and secure key breeding and staging areas within Arctic Russia and the United States.
2. Secure intertidal and associated coastal habitats and wetlands for AMBI priority species at key staging and wintering sites in the EAAF.
3. To prevent the illegal hunting and regulate the unsustainable legal harvest of migratory birds along the flyway.
4. Traditional and Local Knowledge is a fundamental element in successful cooperative management of wildlife. Engagement with co-management structures and communities will be pursued to ensure Traditional Knowledge is appropriately used.

Objectives and Actions

Migratory bird issues transcend habitats, countries, and cultures, as do conservation solutions. AMBI recognizes that coordinated action between countries, communities, and individual stakeholders is key to success of the initiative.

Objective 1: Identify and secure important breeding and staging habitats of key AMBI-EAAF migratory bird species in Arctic Russia and Alaska, with a focus on Spoon-billed Sandpiper, Bar-tailed Godwit, Red Knot, Dunlin, Emperor Goose and Brant Goose.

Action 1 (Russia): Improve conservation work on Spoon-billed Sandpiper (SBS) and other AMBI priority species in the breeding grounds.

a. Finalize creation of the "The Land of Spoon-billed Sandpiper" Nature Park to protect the majority of remaining SBS breeding habitats in Chukotka. This will ensure protection of SBS breeding grounds at Klinokvstrema Bay (Anadyr Estuary) and along the coasts Kresta Bay and Meechkyn Spit.
b. Survey potential breeding Spoon-billed Sandpiper sites in Chukotka and Penzhina Bay (Kamchatka) and revisit sites not surveyed for more than 10 years, to update the status of the species at these locations and develop local conservation plans.
c. Ensure continuation of support for the 'head-starting' program in Meinypilgyno as the most efficient tool to increase breeding productivity of the Spoon-billed Sandpiper.
d. Improve knowledge on breeding distribution, population productivity and local threats to Brant Goose, Bar-tailed Godwit and Dunlin, as well as Red and Great Knots in the Eastern Russian Arctic, and provide information necessary for improvement of conservation measures.

Action 2 (Russia): Identify important breeding and staging areas in coastal areas of Russia for AMBI priority species, and where possible encourage and assist their nomination as EAAF Partnership Network Sites with follow-up conservation actions.

Action 3 (United States): Undertake bird surveys and tracking studies to improve knowledge of important breeding and staging sites for priority species in Alaska.

a. Encourage monitoring surveys of breeding shorebirds on the Arctic Coastal Plain, with a focus on the 1002 Area of the Arctic National Wildlife Refuge and the National Petroleum Reserve, Alaska.
b. Encourage deployment of tracking devices on priority species, and other representative species, to determine connections between breeding and migration stopover sites in the Arctic, with a focus on the Qupałuk EAAFP Site and other important breeding/staging areas.

Action 4 (United States): Protect previously identified important breeding and staging areas.

a. Encourage and assist in the nomination of important sites to the EAAFP Site Network.
b. Inform the environmental review process when developments are pending at key staging and breeding sites.

Action 5 (Russia/United States): Share experience and methodologies for surveying shorebird distribution, monitoring population size and trends, conducting demographic studies, and managing habitats of priority species and other migratory birds.

a. Share experiences associated with monitoring and conserving breeding shorebirds in Beringia and elsewhere along the EAAF via cooperation projects and exchange visits between Russian and United States specialists, with an initial focus on existing field stations studying Spoon-billed Sandpipers in Chukotka and Dunlin at in Alaska.
b. Cooperate in organizing in 2019 a waterbird aerial survey in the Eastern Russian Arctic using a Russian light plane and observers trained in Alaska. Repeating surveys that were conducted in collaboration with the U.S. Fish and Wildlife Service in the 1990s to 2000s.
c. Summarize knowledge on Emperor Goose distribution, status, trends and harvest evaluations in Russia and present the results at the North American Arctic Goose Symposium in 2020 and other relevant forums in Russia and internationally.

Objective 2: Secure intertidal and associated habitat for AMBI priority species at key staging and wintering sites in the EAAF.

Action 1 (Russia): Ensure improvement of protection of the Russian Far East coastal shorebird stopover sites.

a. Undertake surveys at selected key shorebird concentrations in the Russian Far East during passage seasons and develop habitat mapping, local awareness raising and conservation plans for key areas particularly for areas identified by recent satellite tracking of Spoon-billed Sandpiper and other species.

b. Initiate cooperation with administrations of coastal regions within the Far East of the Russian Federation (Chukotskiy Autonomous District, Sakhalinskaya and Magadanskaya Oblast', Kamchatskiy, Khabrovskiy and Primorskiy Kray) as well as the Sakha (Yakutia) Republic and corporate sector (mineral resources extrication companies etc.) on conservation of shorebirds and environmental education.

Action 2 (United States): Gather better information on the abundance, distribution and habitat use of Dunlin and Bar-tailed Godwits at spring and fall staging sites in Alaska.

Action 3 (China): Enhance protection of Jiangsu Coast ecosystem, especially the Rudong and Dongtai areas for Spoon-billed Sandpiper and other Arctic-breeding shorebirds considering World Heritage Site Nomination requirements.

a. Conduct monitoring on all sites important for Spoon-billed Sandpiper in southern Jiangsu including Tiazoini and Dongling areas.
b. Encourage local governments of southern Jiangsu province to initiate developing of protected areas and infrastructure for birdwatching in key locations for Spoon-billed Sandpiper and other Arctic-breeding shorebirds. Promote exchanging best practices of intertidal conservation from Arctic Council States and Observer countries.
c. Encourage research community in China and internationally to initiate the study of dynamics of Jiangsu intertidal areas and coastal habitat modelling to advise on best planning for long-term conservation management.
d. Undertake public awareness raising and develop local and national pride in migratory stopover and wintering sites including support for Spoon-billed Sandpiper conservation campaign coordinated by local government with support from foundations and non-government organizations.
e. Work with local authorities and communities to address unintentional catch of shorebirds by fishing nets as well as Spartina regulation and encourage restoration of coastal habitats with particular attention to high-tide roosts of shorebirds along Jiangsu coasts.
f. Promote more banding of Arctic-breeding shorebirds in more sites and support satellite tracking of Spoon-billed Sandpiper under the leadership of the National Bird Banding Centre (NBBC) of China.

Action 4 (China): Enhance protection of the Luannan Coast especially Nanpu, Tangshan for Red Knot and other Arctic-breeding shorebirds.

a. Demonstrate optimised management for Arctic-breeding shorebirds of a complex of intertidal, fish/shrimp ponds and salt works.
b. Develop ecotourism and public awareness raising activities to promote local and national pride in the global importance of Nanpu.
c. The National Bird Banding Centre of China to organize the marking and satellite tracking of Bar-tailed Godwits at Bohai Bay, aiming to better understand migration pattern of Limosa lapponica anadyrensis subspecies to enhance conservation planning and future cooperation with Russia to protect this subspecies.

Action 5 (China): Enhance protection at Yalu Jiang, Liaoning for Bar-tailed Godwit, Dunlin, Great Knot and other Arctic shorebirds.

a. At Yalu Jiang National Nature Reserve, support development and implementation of a management plan to halt further loss of intertidal area and conserve and restore habitat for feeding and roosting.
b. Support public awareness raising activities to highlight the global importance of the site and develop local and national pride and ownership including international sharing experience in organising festivals.

Action 6 (China): Increase knowledge of key staging and wintering Arctic-breeding shorebirds sites in southern China (Guangdong, Guangxi and Fujian provinces) and improve conservation status of these sites.

a. Make a joint National Bird Banding Centre of China/CAFF winter survey at Leizhou Peninsula and Fangchengang area and surrounding coasts to improve knowledge on distribution and protection of Spoon-billed Sandpiper. Run local small workshops in both locations to share information with local conservation authorities and further conservation planning.
b. Make an inventory of key sites for Spoon-billed Sandpiper in South China including sites identified by satellite tracking, assess the conservation status and make conservation recommendations. Increase poaching mitigation efforts at these sites.
c. Make efforts to apply best practices and knowledge on coastal conservation and habitat restoration, including technical cooperation and scientific exchange with other comparable regions; increase of education and awareness and support by conservation foundations.
d. Promote development of more bird banding and tagging activities under leadership of the National Bird Banding Centre of China.

Action 7 (Republic of Korea): Support efforts to reverse declining trends of AMBI priority species (SBS, Great Knot, Dunlin and other) and improve habitat conservation along the flyway through sharing knowledge and international cooperative projects.

a. Take the lead in the development of approaches in creation of the artificial high-tide roosting sites for Arctic-breeding shorebirds and encourage sharing best practices and knowledge on protection and management of high-tide roosts located at reclaimed intertidal areas along the flyway.
b. Explore the possibility of supporting mainstreaming of AMBI priorities into an Association of South-East Asian Nations (ASEAN+) Network of migratory bird sites.
c. Discuss the opportunities to cooperate with the Russian Federation in restoring the numbers of Spoon-billed Sandpipers in the breeding and stopover grounds.

Action 8 (Republic of Korea): Promote the importance of conserving Korea's remaining intertidal shorebird zones for the protection of Arctic-breeding and other migratory waterbirds including the Spoon-billed Sandpiper, Great Knot, and Dunlin.

a. Continue to promote the nomination of the Yellow Sea as UNESCO World Heritage Site.
b. Encourage support of building a "Caring for Coasts" Initiative under the CBD and Ramsar Convention.

Action 9 (Republic of Korea/China): Encourage the Governments of China and Republic of Korea to develop measures to address Spartina to protect high ecological value sites for AMBI priority species to ensure meeting the criteria of World Heritage Site nomination.

Action 10 (Republic of Korea/China): Seek China and the Republic of Korea AMBI focal points to develop Resolutions of Cooperation with CAFF Secretariat to guide future cooperation.

Action 11 (Singapore): Encourage utilizing the ASEAN Flyway Network (ASEAN AFN) as a platform to engage ASEAN Member States to mainstream AMBI priorities to promote conservation of wetlands and migratory waterbirds. Explore the possibility of collaborating with ASEAN AFN on a key wetland site conservation program.

Action 12 (Japan): Further develop dialogue to promote cooperation on the conservation of Arctic-breeding migratory birds in the EAAF with a focus on selected priority actions identified within this workplan, including conservation of AMBI priority species in Japan and in the flyway, building on existing bilateral migratory bird agreements.

Action 13 (India): Work with the Ministry of Environment, Forest and Climate Change, Bombay Natural History Society and other relevant Indian institutions to assess the status and trends of AMBI priority species and promote conservation measures.

a. Develop a project in India to assess wader's conservation needs in the region, help to shape a national-waders working group and run the first national workshop on wader/shorebird conservation focused on AMBI priority species. CAFF to delegate AMBI representatives to join AMBI related events and field projects mentioned in this workplan.
b. Initiate a survey of potential wintering sites for the Spoon-billed Sandpiper along the coasts of Bay of Bengal using Landsat based habitat modelling provided by the Spoon-billed Sandpiper Task Force.
c. Increase ringing, colour marking and tagging of AMBI priority species in India to improve the knowledge for conservation purposes.
d. Control the invasion of terrestrial vegetation into the mudflats, e.g., at Chilika Lake.
e. Develop an awareness program for fishermen fishing with gillnets in marshes adjoining shorebirds habitats.
f. Work on restoration of abandoned saltpans as shorebird habitats.

Action 14 (All countries): Explore the possibilities for a collaborative pilot project on Spartina control, with CAFF's Arctic Invasive Alien Species Action Plan International Coordinating Group (ARIAS ICG) and other partners.

Action 15 (Singapore): Cooperate on a satellite tracking program for key migratory waterbird species within the EAAF.

Action 16 (EAAFP): Cooperate with relevant governments and other partners to extend the African-Eurasian Critical Site Network Tool 2.0 (CSN2.0) to the EAAFP to develop, improve and promote the accessible inventory of nationally and internationally important coastal and inland sites for Arctic breeding waterbirds along the flyway.

Objective 3: Prevent illegal hunting and regulate unsustainable legal harvest of Arctic migratory birds along the flyway, with a focus on Spoon-billed Sandpiper, Lesser White-fronted Goose, Bar-tailed Godwit, and other priority species.

Action 1 (Russia): Support development and implementation of national and regional strategies and action plans for the elimination of illegal harvest of birds in Russia.

a. Evaluate hunting pressure on Arctic-breeding shorebirds in stopover areas of Spoon-billed Sandpiper and other AMBI priority shorebird species in Kamchatka, Sakhalin and mainland coasts of Sea of Okhotsk. Analyse ring recoveries stored in the Russian Bird Ringing Centre to identify areas of high hunting pressure on AMBI species.
b. Conduct surveys in selected areas of the Russian Far East to identify key concentrations of shorebirds, Lesser White-fronted Goose and Asian Black Brant during migration. Work with local/regional governments to create protected areas and no hunting zones and implement conservation actions including preparation of regional action plans. Plans should include information on raising awareness of impacts of illegal harvest and methods to reduce and eventually eliminate pressure on AMBI priority species.
c. Work with federal and regional legislators to reduce/close sport hunting of all migratory shorebirds and geese of unfavourable conservation status in Eastern Russia.
d. Update Russian national and regional Red Data books with key declining Arctic-breeding migratory species of EAAF to be included in new editions and initiate planning and implementation of national and regional activities for their conservation.
e. Develop cooperation with the Wildlife Conservation Society (WCS) in conservation of Arctic-breeding shorebird habitats, creation of protected areas and mitigation of illegal hunting at the Russian Far East including educational workshops at WCS Terney base.
f. Organise round-table discussion on evaluation of hunting pressure on shorebirds in the Russian Far East during the Wader Research Group Conference in Minsk in 2019 and relevant events in following years.

Action 2 (United States): Conduct outreach, assess the magnitude and impacts of legal subsistence harvest on priority birds in Alaska, with a focus on Emperor Goose and Bar-tailed Godwits.

a. Develop outreach materials on priority species that are harvested in the spring and summer subsistence harvests; materials should be in English and relevant Indigenous languages.
b. Work with the Alaska Migratory Bird Co-management Council, U.S. Fish and Wildlife Service Refuge Information Technicians, the Alaska Department of Fish and Game, and other relevant entities as appropriate, to discuss the status of priority species with rural Alaskans, and the role they play in regulating these populations.
c. Continue to collect harvest data, with a special focus on Emperor Goose and Bar-tailed Godwit.
d. Improve Arctic-breeding shorebird harvest data collection by incorporating recent ethnographic information on identification into survey materials.
e. Conduct population modelling to assess how subsistence harvest and other limiting factors are impacting population sizes of priority species.
f. Should levels of harvest be found to have a measurable impact on the priority species, work to:
    i. promote a sustainable legal harvest of relevant species by working with management bodies,
    ii. develop outreach programs to reduce level of harvest, and
    iii. develop classroom programs to educate students about impact of harvest.
g. Share best experiences with the Russian parts of Beringia and other areas of the Russian Far East on how to develop meaningful dialogue with local communities on sustainable hunting of waterbirds and the improvement of management practices.

Action 3 (China): Support development and implementation of national and regional strategies, action plans and implementation activities for the elimination of poaching of birds in China.

a. Promote upgrade of the Critically Endangered Spoon-billed Sandpiper to the highest class of national protection in China and follow up with development of National Action Plan and adequate conservation measures of the species and it's habitat.
b. Work with local/regional governments to strengthen patrolling and law enforcement at all key coastal sites used by Spoon-billed Sandpiper, to prevent illegal poaching and conserve the population.
c. Improve survey and monitoring efforts to increase the knowledge and distribution of priority species including Brant Goose, Dunlin, Bar-tailed Godwits, and Great and Red Knots at stopover and wintering grounds to assess levels of and to mitigate poaching.
d. Better understand and address the drivers behind the system of poaching and marketing of wild birds.
e. Support the development of regular monitoring and enforcement actions at key markets and restaurants focused on illegal wild birds in cooperation with the National Grasslands and Forestry Administration, regional governments, law enforcement organizations and food control inspectors.
f. Support the organization of national and regional workshops in China to address shorebird conservation and follow up actions on implementation including poaching control.

Action 4 (India): Work with the Ministry of Environment, Forest and Climate Change, Government of India, Bombay Natural History Society and other Indian ministries and research institutions to promote AMBI work and address illegal hunting issues.

a. Host a side event on AMBI implementation in India during CMS COP in February 2020.
b. Initiate a project in India to assess the illegal hunting of waders and other birds and develop poaching mitigation measures at regional and national levels.

Action 5 (All countries): Engage with the EAAFP and the CMS Task Forces on Illegal Killing/Hunting, Taking and Trade of Birds to develop implementation of actions to address this threat to migratory Arctic-breeding birds.

a. Coordinate with EAAFP partners, NGOs and other national and subnational organizations to raise funds and promote implementation actions to address the illegal hunting and unsustainable harvest issue.
b. Work on preparation of comprehensive overviews of the level of illegal hunting and unsustainable harvest problems within the flyway.
c. Support the preparation of case studies aimed at highlighting solutions to poaching regulations and illegal harvest at demonstration sites, including raising awareness of the issue, conservation planning and alternative livelihood programs following methodology developed by the Spoon-billed Sandpiper Task Force in Bangladesh and Myanmar, and the Mediterranean experience accumulated by the CMS.
d. Follow up on the Southeast Asia situation analysis to ensure adequate conservation measures in locations where Arctic-breeding migratory birds are subject of illegal hunting including recently identified areas in northern Vietnam and norther Sumatra (Indonesia) and new areas to be identified in 2019-2023.

Action 6 (All countries): Work to curb the use of equipment for illegally captured birds.

a. Work to regulate the production, sale, and use of mist nets including at an international level, and promote the best practices from Arctic Council States and Observer countries.
b. Work with local fish industries and local communities to reduce unintentional catch of shorebirds by fish nets with special attention to Spoon-billed Sandpiper stopover sites.

Action 7 (All countries): Raise the profile of illegal hunting, taking and trade of migratory Arctic birds by linking it to broader forums and discussions on illegal wildlife trade, the bushmeat trade, and wildlife crime discourse in CBD, CITES and other relevant organizations.

Action 8 (All countries): Support an illegal hunting technical workshop to share expertise and address illegal hunting along the flyway.

Action 9 (All countries): Develop or support monthly mist net surveys and removal activities in key Spoon-billed Sandpiper sites, using the positive experiences in China as an example.

Action 10 (All countries): Initiate a research project on human dimension in bird poaching mitigation along the East Asian-Australasian Flyway considering cultural traditions and Traditional Knowledge.

Action 11 (USA and Russia): Work to assess legal and illegal Emperor Goose harvest in Russia and Alaska to develop a consistent Beringia-wide legal framework for the management and long-term sustainability of the species.

Action 12 (Russia, China, India): Prioritise conservation of Eastern and Central Asian populations of Lesser White-fronted Goose (LWFG) and reverse their declining trends.

a. Prioritise conservation of LWFG on national and regional levels including development of regular monitoring schemes in key locations within the range.
b. Develop collaboration of Bird Ringing/Banding Centres and other interested institutions in China and Russia to prioritise migration studies of LWFG. Collaborate with Bird Ringing Centre of Belgium and other countries.
c. Summarise knowledge on LWFG status in India, run a survey in areas of recent species concentrations and initiate a satellite tracking project of the species to identify still undiscovered sites along the Central Asian Flyway of LWFG.
d. Analyse the results of satellite tracking data and other sources of information to identify key stopovers of LWFG, conduct surveys and assessments there, identify threats and work with national/regional governments, research institutions and NGOs to develop monitoring techniques and implement conservation plans including elimination of poaching.
e. Explore the opportunities to implement Russian experience of development of temporary seasonal non-hunting/poaching control zones at stopovers, which are changing location from year to year due to climate factors and other reasons.

f. Run LWFG conservation session during Russian Waterfowl Conservation Conference in Moscow Region in spring 2020 and further plan LWFG conservation workshop in China.

Objective 4: Work with partners to increase the number and quality of population estimates of Arctic-breeding waterbirds in the East Asian-Australasian Flyway.

Action 1 (All countries): Work with partners such as EAAF Partnership, Wetlands International and other partners to improve population estimates for AMBI priority species by supporting collation of up-to-date information on estimates and trends.

Action 2 (All countries): Cooperate with partners such as the EAAF Partnership Waterbird Monitoring Task Force, Wetlands International, BirdLife International and the Global Flyway Network to strengthen monitoring of Arctic-breeding migratory waterbirds along the flyway, particularly in the Yellow Sea and Southeast Asia.

Objective 5: Address other threats to Arctic migratory birds along EAAF and improve international cooperation.

Action 1 (All countries): Analyse and assess high-income-country development aid funding structures and opportunities to help identify how AMBI can support conservation of important priority species' habitats, and alternative livelihoods of coastal communities where illegal hunting pressures exist.

Action 2 (All countries): Initiate work on evaluation of the effect of contaminants on Arctic-breeding migratory birds as factor possibly decreasing their survival and reproduction potential and estimate bio-transition of them along the flyway to the Arctic.

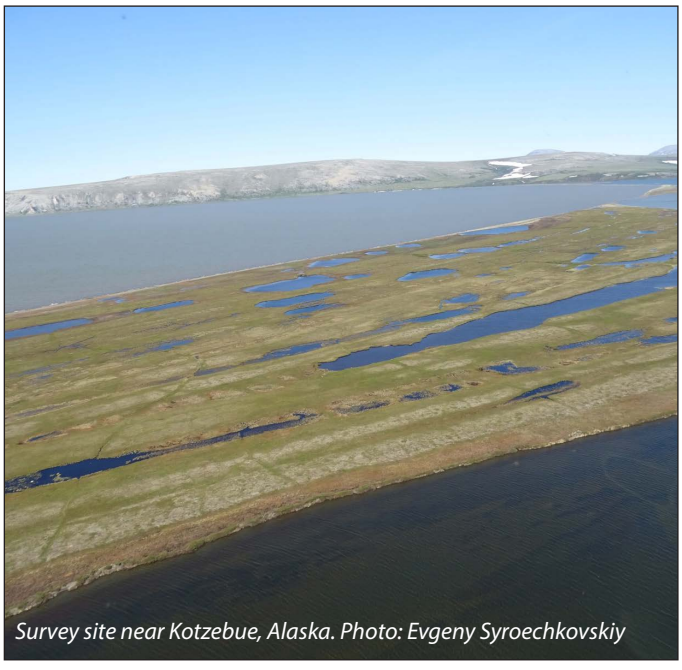
Action 3 (All countries): Promote cooperation between EAAFP's Spoon-billed Sandpiper Task Force and AMBI in addressing Spoon-billed Sandpiper conservation activities identified in this workplan.

Action 4 (All countries): Create an intervention tool box to ensure resilience of Arctic-breeding migratory birds along East Asian-Australasian Flyway with the involvement of Arctic Council Observer countries as recommended by the draft AMBI crosswalk analysis under the PSI funded project.

Participants at the AMBI Hainan, P.R. China workshop, December 2018. Photo: Eugene Cheah

Representatives from the U.S.A., P.R. China and Finland at the high level session at the AMBI Hainan workshop, December 2018. Photo: Eugene Cheah

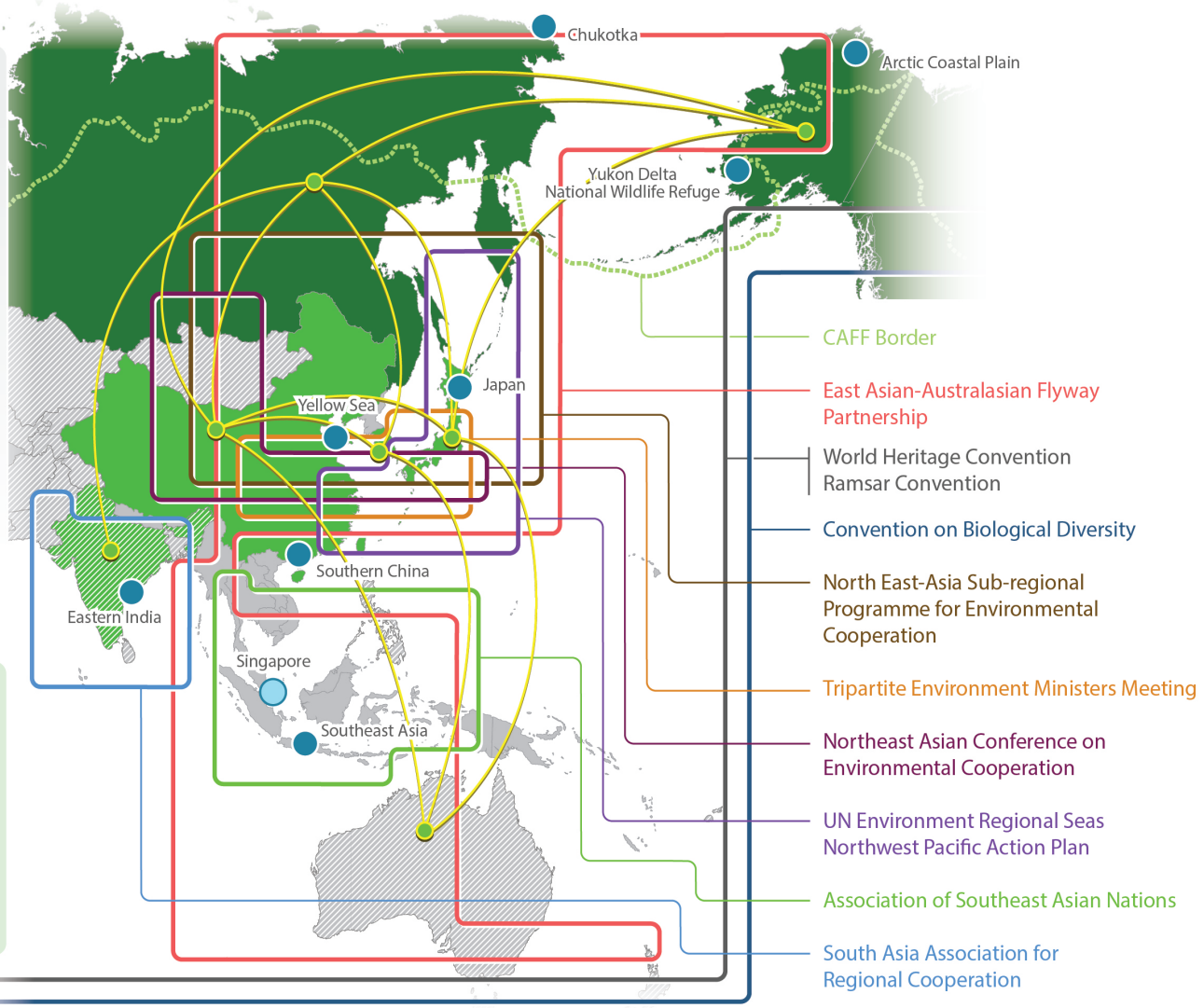
Russian scientists (Ministry of Environment and Natural Resources and Russian Academy of Sciences) join U.S. colleagues (USFWS, USNPS and Wildlife Conservation Society) on a survey for Spoon-billed Sandpipers and other waterbirds in Alaska. Photo: Evgeny Syroechkovskiy



Survey site near Kotzebue, Alaska. Photo: Evgeny Syroechkovskiy

Arctic Migratory Birds Initiative (AMBI) East Asian-Australasian Flyway Crosswalk Map

This graphic depicts selected international mechanisms in the East Asian-Australasian Flyway that are relevant for migratory bird conservation. Borders are approximate, non-exclusive, abstract depictions. AMBI works with existing partners, networks and frameworks to secure the long-term sustainability of Arctic-breeding migratory birds. Information current as of March 2019.



Arctic Council Project Support Instrument (PSI) investment,
managed by Nordic Environment Finance Corporation

31% *of direct funding for AMBI in this flyway provided by PSI/NEFCO*

NEFCO

- Helped secure full-time coordinator
- Developed strategic crosswalk and implementation plans
- Allowed for consultation and development of Work Plan
- Leveraged additional support
- Facilitated infographics and communications

AMBI Arctic Migratory Birds Initiative

CAFF Conservation of Arctic Flora and Fauna

ARCTIC COUNCIL

The Arctic Migratory Birds Initiative (AMBI) is a project under the Conservation of Arctic Flora and Fauna (CAFF) Working Group of the Arctic Council, designed to improve the status and secure the long-term sustainability of declining Arctic breeding migratory bird populations. www.caff.is/ambi.

Summary of actions

Flyway	Objective	Action
African Eurasian Flyway	Objective 1: Improve conservation and management of shorebird sites throughout the African-Eurasian flyway	Action 1: Secure intertidal habitat of Arctic-breeding shorebirds in Bijagós Archipelago, Guinea-Bissau
		Action 2: Ensure identification and documentation of key sites for shorebirds in available format as a tool for national/international sustainable site management
	Objective 2: Increase quality and quantity of population status assessment data of Arctic breeding waterbirds in the African-Eurasian Flyway	Action 1: Support the implementation of the Circumpolar Biodiversity Monitoring Programme (CBMP) and the revised AEWA Guidelines on Waterbird Monitoring with respect to those Arctic-breeding waterbirds for which optimal data are still lacking, through cooperation with the African-Eurasian Waterbird Monitoring Partnership and the Wadden Sea Flyway Initiative by providing financial and/or technical support
		Action 2: Support improved population delineation of Arctic-breeding waders by collating Arctic breeding wader migration data (tracking, colour-marking, geolocator, ringing data, etc.) and presenting it on the CSN tool to improve flyway delineation data
	Objective 3: Development and dissemination of information and awareness materials addressing priority target	Action 1: Support the development of communication products (in collaboration with flyway partners) showcasing migratory connectivity, knowledge gaps, and threats in the African-Eurasian flyway area
	Objective 4: Reduce bycatch of seaducks in the Baltic Sea	Action 1: Support the implementation of the AEWA Long-tailed Duck and Velvet Scoter International Single Species Action Plans with respect to the identified activities regarding bycatch under the auspices of the AEWA European Seaduck International Working Group
	Objective 5: Support measures under the AEWA Lesser White-fronted Goose (LWfG) International Working Group (IWG) to prevent illegal killing	Action 1: Assist the AEWA LWfG IWG with the translation and dissemination of awareness-raising and education materials in key areas for the species within the Russian Arctic amongst indigenous and local communities
		Action 2: Support the UNEP/AEWA Secretariat in engaging key Range States on a diplomatic level through Arctic Council member and observer country embassies

Flyway	Objective	Action
Circumpolar Flyway	Objective 1: Enhance data collection and data input into habitat protection initiatives	Action 1: Raise awareness and facilitate protection of at-sea areas where key marine bird habitats intersect with human activities
		Action 2: Support country participation in circumpolar collaborations to enhance Ivory Gull surveys and collection and synthesis of marine bird tracking data (including Ivory Gulls)
		Action 3: Knowledge gap analysis of circumpolar seabird tracking studies
	Objective 2: Harvest assessments and mitigation of unsustainable harvest	Action 1: Work with CBird to promote dialogue with authorities for management plans to combine the knowledge of status of hunted species between countries
		Action 2: Assess the population-level impact of seabird harvest in relation to other stressors
		Action 3: Conduct/update a harvest inventory for circumpolar regions of interest
	Objective 3: Mitigate seabird and seaduck bycatch	Action 1: Initiate an overlap analysis for seabird bycatch in circumpolar region
		Action 2: Continue discussions about mitigation measures with fisheries partners
		Action 3: Support efforts to develop best practices for bycatch data collection
		Action 4: Finalize gill net bycatch assessment in key regions
	Objective 4: Address environmental pollution issues	Action 1: State of knowledge assessment for plastics in wildlife
		Action 2: Work with Arctic Council countries and Permanent Participants, PAME, and AMAP to begin to address knowledge gaps
	Objective 5: Support the activities and priorities of the International Snowy Owl Working Group (ISOWG)	Action 1: Publish a more precise global population estimate and assessment of population trends
		Action 2: Implement wider-scale tracking of Snowy Owls throughout their range

Flyway	Objective	Action
Americas Flyway	***Theme 1: Evaluate impacts of overabundant geese populations on Arctic shorebird habitat and implement appropriate mitigation measures***	
	Objective 1: Understand the expansion of white geese populations in Arctic shorebird habitat	Action 1: Understand impacts of populations of white geese on other bird species in western Canada
		Action 2: Understand trends in the populations of white geese in Alaska and their impacts on shorebird breeding habitats
	Objective 2: Mitigate effects of over-abundant white geese populations on shorebird habitat	Action 1: Implement management actions resulting from study of white geese impacts in Canada (undertaken as part of AMBI Phase 1)
	Objective 3: Ensure Traditional Knowledge is incorporated into white geese impacts research and mitigation measures	Action 1: Continue to include Traditional Knowledge in future work
	Theme 2: Identification of climate resilient shorebird breeding and wintering habitat	
	Objective 4: Determine climate change resilient areas of shorebird habitat and promote their protection	Action 1: Carry out an analysis of the resilience of shorebird wintering habitat to climate change
		Action 2: Promote protection of climate change resilient shorebird breeding, wintering and migration habitats
	Theme 3: Reduce shorebird habitat impairment from human intrusions, disturbances, destruction and degradation	
	Objective 5: Mitigate habitat impairment from human intrusions and disturbances	Action 1: Support efforts to develop policies and legislation to ensure the sustainability of legal hunting of shorebirds in North and South America
		Action 2: Promote studies that assess the prevalence and impacts of plastic contamination in shorebird populations in the Arctic
		Action 3: Work with communities and governments to protect important sites for shorebirds
	Objective 6: Mitigate habitat impairment from destruction and degradation of coastal habitats and productive landscapes	Action 1: Evaluate the impacts of habitat loss and degradation from agriculture, aquaculture, renewable energy production and tourism development on shorebirds and their habitats in Latin America
		Action 2: Ensure mitigation measures are incorporated into development decisions
		Action 3: Designate important sites under appropriate international conservation frameworks (e.g. Ramsar Convention, WHSRN, World Heritage)
		Action 4: Work with communities and governments to protect important sites
	Theme 4: Flyway Planning and Implementation	
	Objective 7: Contribute to the implementation and development of regional flyway initiatives	Action 1: Promote and support the implementation of regional strategies and flyway initiatives
		Action 2: Encourage/coordinate the development of an American Mid-continental Flyway strategy

Flyway	Objective	Action
East Asian Australasian Flyway	Objective 1: Identify and secure important breeding and staging habitats of key AMBI-EAAF migratory bird species in Arctic Russia and Alaska, with a focus on Spoon-billed Sandpiper, Bar-tailed Godwit, Red Knot, Dunlin, Emperor Goose and Brant Goose	Action 1 (Russia): Improve conservation work on Spoon-billed Sandpiper (SBS) and other AMBI priority species in the breeding grounds
		Action 2 (Russia): Identify important breeding and staging areas in coastal areas of Russia for AMBI priority species, and where possible encourage and assist their nomination as EAAF Partnership Network Sites with follow-up conservation actions
		Action 3 (United States): Undertake bird surveys and tracking studies to improve knowledge of important breeding and staging sites for priority species in Alaska
		Action 4 (United States): Protect previously identified important breeding and staging areas
		Action 5 (Russia/United States): Share experience and methodologies for surveying shorebird distribution, monitoring population size and trends, conducting demographic studies, and managing habitats of priority species and other migratory birds
	Objective 2: Secure intertidal and associated habitat for AMBI priority species at key staging and wintering sites in the EAAF	Action 1 (Russia): Ensure improvement of protection of the Russian Far East coastal shorebird stopover sites
		Action 2 (United States): Gather better information on the abundance, distribution and habitat use of Dunlin and Bar-tailed Godwits at spring and fall staging sites in Alaska
		Action 3 (China): Enhance protection of Jiangsu Coast ecosystem, especially the Rudong and Dongtai areas for Spoon-billed Sandpiper and other Arctic-breeding shorebirds considering World Heritage Site Nomination requirements
		Action 4 (China): Enhance protection of the Luannan Coast especially Nanpu, Tangshan for Red Knot and other Arctic-breeding shorebirds
		Action 5 (China): Enhance protection at Yalu Jiang, Liaoning for Bar-tailed Godwit, Dunlin, Great Knot and other Arctic shorebirds
		Action 6 (China): Increase knowledge of key staging and wintering Arctic-breeding shorebirds sites in southern China (Guangdong, Guangxi and Fujian provinces) and improve conservation status of these sites
		Action 7 (Republic of Korea): Support efforts to reverse declining trends of AMBI priority species (SBS, Great Knot, Dunlin and other) and improve habitat conservation along the flyway through sharing knowledge and international cooperative projects
		Action 8 (Republic of Korea): Promote the importance of conserving Korea's remaining intertidal shorebird zones for the protection of Arctic-breeding and other migratory waterbirds including the Spoon-billed Sandpiper, Great Knot, and Dunlin
		Action 9 (Republic of Korea/China): Encourage the Governments of China and Republic of Korea to develop measures to address Spartina to protect high ecological value sites for AMBI priority species to ensure meeting the criteria of World Heritage Site nomination
		Action 10 (Republic of Korea/China): Seek China and the Republic of Korea AMBI focal points to develop Resolutions of Cooperation with CAFF Secretariat to guide future cooperation
		Action 11 (Singapore): Encourage utilizing the ASEAN Flyway Network (ASEAN AFN) as a platform to engage ASEAN Member States to mainstream AMBI priorities to promote conservation of wetlands and migratory waterbirds. Explore the possibility of collaborating with ASEAN AFN on a key wetland site conservation program.
		Action 12 (Japan): Further develop dialogue to promote cooperation on the conservation of Arctic-breeding migratory birds in the EAAF with a focus on selected priority actions identified within this workplan, including conservation of AMBI priority species in Japan and in the flyway, building on existing bilateral migratory bird agreements
		Action 13 (India): Work with the Ministry of Environment, Forest and Climate Change, Bombay Natural History Society and other relevant Indian institutions to assess the status and trends of AMBI priority species and promote conservation measures
		Action 14 (All countries): Explore the possibilities for a collaborative pilot project on Spartina control, with CAFF's Arctic Invasive Alien Species Action Plan International Coordinating Group (ARIAS ICG) and other partners
		Action 15 (Singapore): Cooperate on a satellite tracking program for key migratory waterbird species within the EAAF
		Action 16 (EAAFP) Cooperate with relevant governments and other partners to extend the African-Eurasian Critical Site Network Tool 2.0 (CSN2.0) to the EAAFP to develop, improve and promote the accessible inventory of nationally and internationally important coastal and inland sites for Arctic breeding waterbirds along the flyway.

Flyway	Objective	Action
	Objective 3: Prevent illegal hunting and regulate unsustainable legal harvest of Arctic migratory birds along the flyway, with a focus on Spoon-billed Sandpiper, Lesser White-fronted Goose, Bar-tailed Godwit, and other priority species.	Action 1 (Russia): Support development and implementation of national and regional strategies and action plans for the elimination of illegal harvest of birds in Russia.
		Action 2 (United States): Conduct outreach, assess the magnitude and impacts of legal subsistence harvest on priority birds in Alaska, with a focus on Emperor Goose and Bar-tailed Godwits
		Action 3 (China): Support development and implementation of national and regional strategies, action plans and implementation activities for the elimination of poaching of birds in China
		Action 4 (India): Work with the Ministry of Environment, Forest and Climate Change, Government of India, Bombay Natural History Society and other Indian ministries and research institutions to promote AMBI work and address illegal hunting issues
		Action 5 (All countries): Engage with the EAAFP and the CMS Task Forces on Illegal Killing/ Hunting, Taking and Trade of Birds to develop implementation of actions to address this threat to migratory Arctic-breeding birds
		Action 6 (All countries): Work to curb the use of equipment for illegally captured birds
		Action 7 (All countries): Raise the profile of illegal hunting, taking and trade of migratory Arctic birds by linking it to broader forums and discussions on illegal wildlife trade, the bushmeat trade, and wildlife crime discourse in CBD, CITES and other relevant organizations
		Action 8 (All countries): Support an illegal hunting technical workshop to share expertise and address illegal hunting along the flyway
		Action 9 (All countries): Develop or support monthly mist net surveys and removal activities in key Spoon-billed Sandpiper sites, using the positive experiences in China as an example
		Action 10. (All countries): Initiate a research project on human dimension in bird poaching mitigation along the East Asian-Australasian Flyway considering cultural traditions and Traditional Knowledge
		Action 11 (USA and Russia): Work to assess legal and illegal Emperor Goose harvest in Russia and Alaska to develop a consistent Beringia-wide legal framework for the management and long-term sustainability of the species
		Action 12 (Russia, China, India): Prioritise conservation of Eastern and Central Asian populations of Lesser White-fronted Goose (LWFG) and reverse their declining trends
	Objective 4: Work with partners to increase the number and quality of population estimates of Arctic-breeding waterbirds in the East Asian-Australasian Flyway	Action 1 (All countries): Work with partners such as EAAF Partnership, Wetlands International and other partners to improve population estimates for AMBI priority species by supporting collation of up-to-date information on estimates and trends
		Action 2 (All countries): Cooperate with partners such as the EAAF Partnership Waterbird Monitoring Task Force, Wetlands International, BirdLife International and the Global Flyway Network to strengthen monitoring of Arctic-breeding migratory waterbirds along the flyway, particularly in the Yellow Sea and Southeast Asia
	Objective 5: Address other threats to Arctic migratory birds along EAAF and improve international cooperation	Action 1 (All countries): Analyse and assess high-income-country development aid funding structures and opportunities to help identify how AMBI can support conservation of important priority species' habitats, and alternative livelihoods of coastal communities where illegal hunting pressures exist
		Action 2 (All countries): Initiate work on evaluation of the effect of contaminants on Arctic-breeding migratory birds as factor possibly decreasing their survival and reproduction potential and estimate bio-transition of them along the flyway to the Arctic
		Action 3 (All countries): Promote cooperation between EAAFP's Spoon-billed Sandpiper Task Force and AMBI in addressing Spoon-billed Sandpiper conservation activities identified in this workplan
		Action 4 (All countries): Create an intervention tool box to ensure resilience of Arctic-breeding migratory birds along East Asian-Australasian Flyway with the involvement of Arctic Council Observer countries as recommended by the draft AMBI crosswalk analysis under the PSI funded project

Photo: Chris Miller

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