

# **Flyways, ecosystems and ecosystem services: the role of the Arctic**

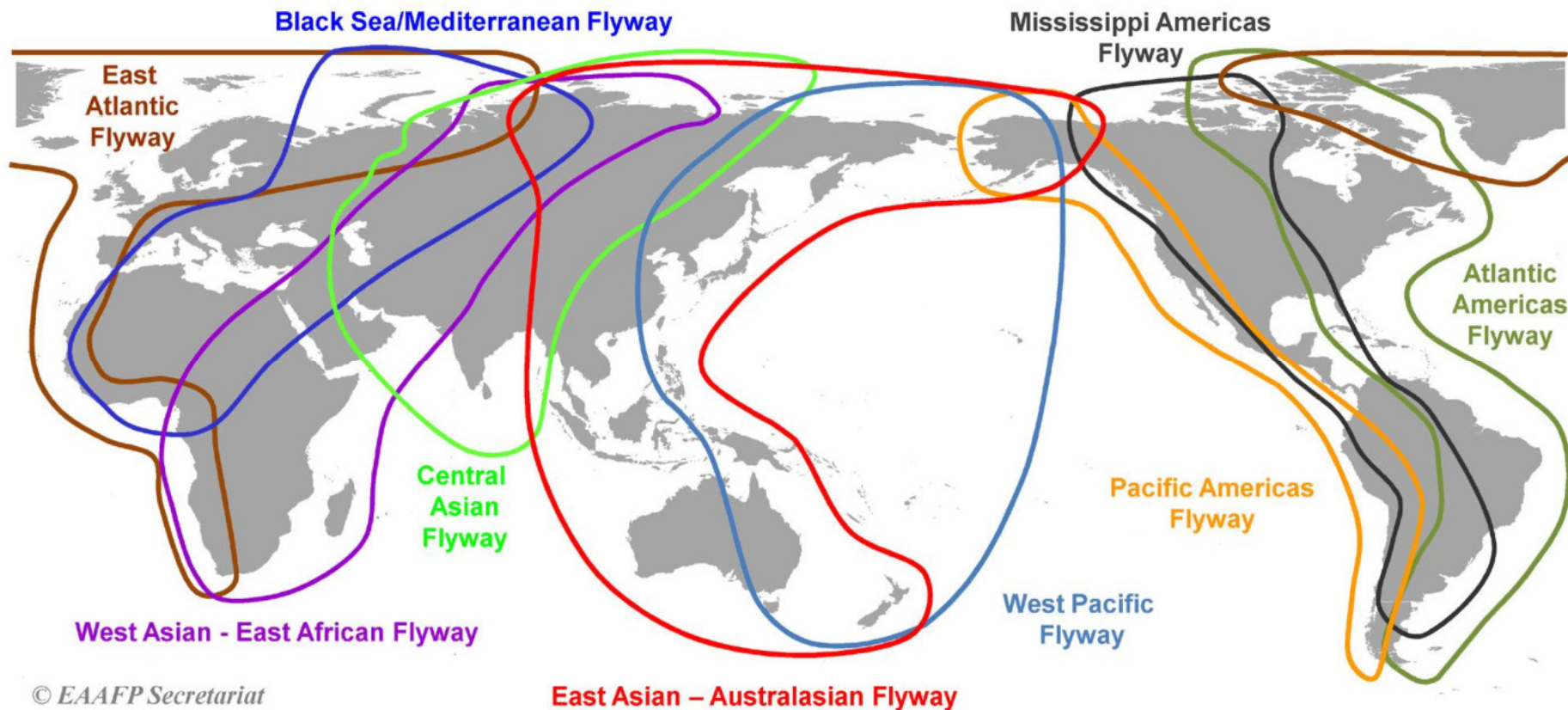
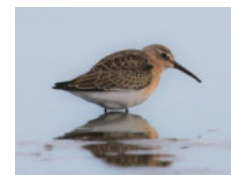
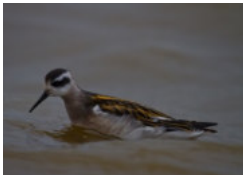
Taej Mundkur, Wetlands International  
Arctic Biodiversity Conference

# Arctic Wetlands

- Support a very high and unique biodiversity
- Providing a range of ecosystem services
- Mapping critical habitats for Arctic biodiversity
- Summary

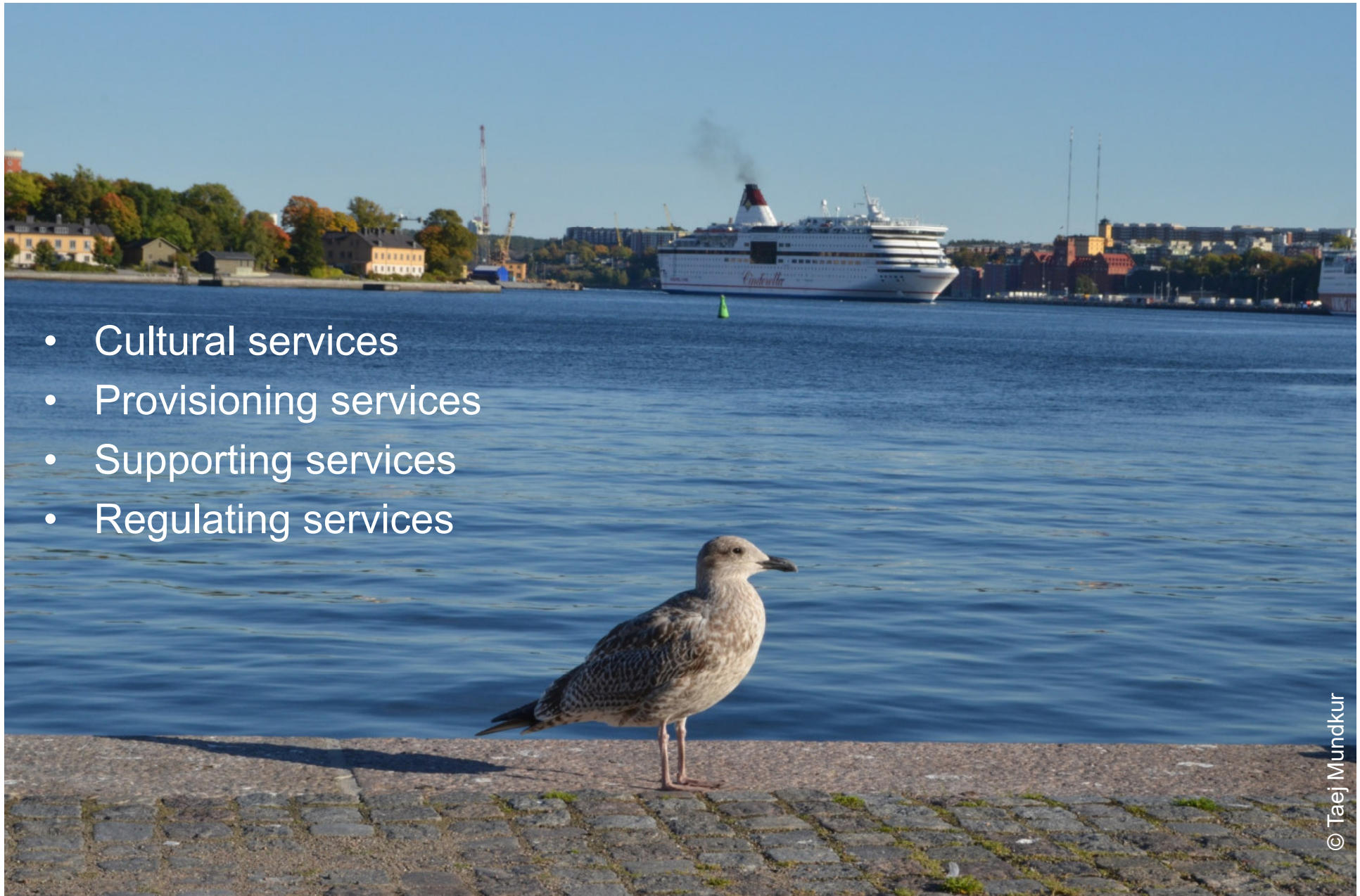
# Arctic connected through flyways

Bird Migration Routes to the Arctic



# Ecosystem services of waterbirds: an overview

- Cultural services
- Provisioning services
- Supporting services
- Regulating services



# Cultural Services



Conservation Flagships - cranes, ducks, shorebirds, storks, threatened waterbirds

## Provisioning services –within & outside the Arctic

- **Down** (feathers) – 40 M\$ Iceland
- **Feathers** for clothing and ornaments
- **Grease for waterproofing**

- **Eggs**

- **Meat**

6.7 million hunters in Europe taking about 7.6 million waterfowl, shorebirds & gulls

USA - one state generates 155 Million\$ annual revenue

Canada 26\$ a duck



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## Provisioning services – outside the Arctic



# Supporting services

**Animal propagule dispersal**

**Plant propagule dispersal**

**Nutrient cycling**

**Stimulating primary productivity**

**Stimulating decomposition**

**Reduction of methane production**

**Plant diversity**

**Animal diversity**

**Protection from predators**

**Bioindicators of plants**

**Bioindicators of animals**

**Bioindicators of nutrients/contaminants**

**Anatidae, coots**

**Anatidae, shorebirds**

**Pelican, cormorants, geese**

**Geese**

**Ducks**

**Swans**

**Anatidae**

**Anatidae, cormorants**

**Geese, gulls, terns**

**Anatidae, coots**

**Anatidae**

**Herons, grebes, ducks**



## Supporting services

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Plant propagule dispersal - geese, ducks

## Regulating services



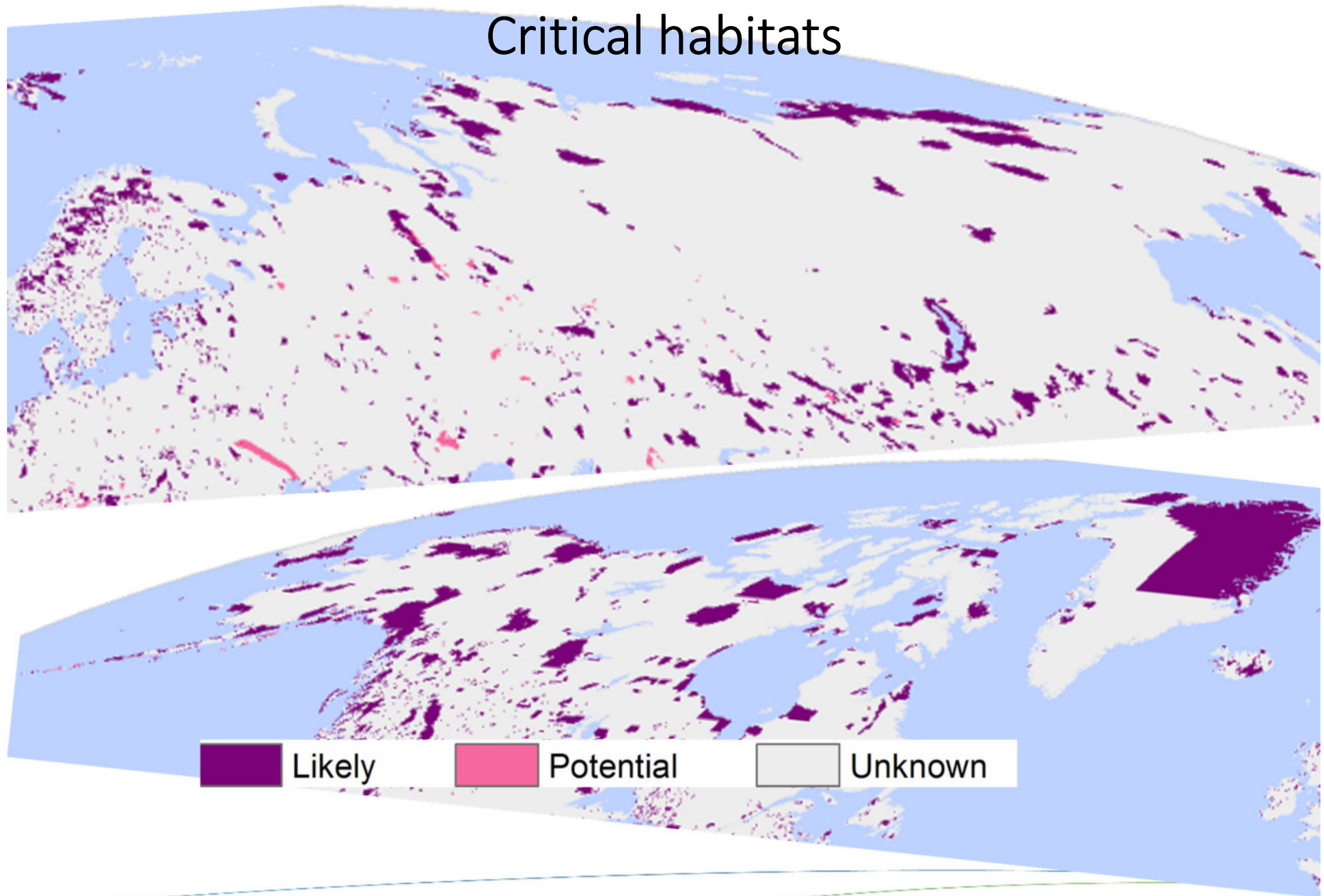
(c) Taej Mundkur



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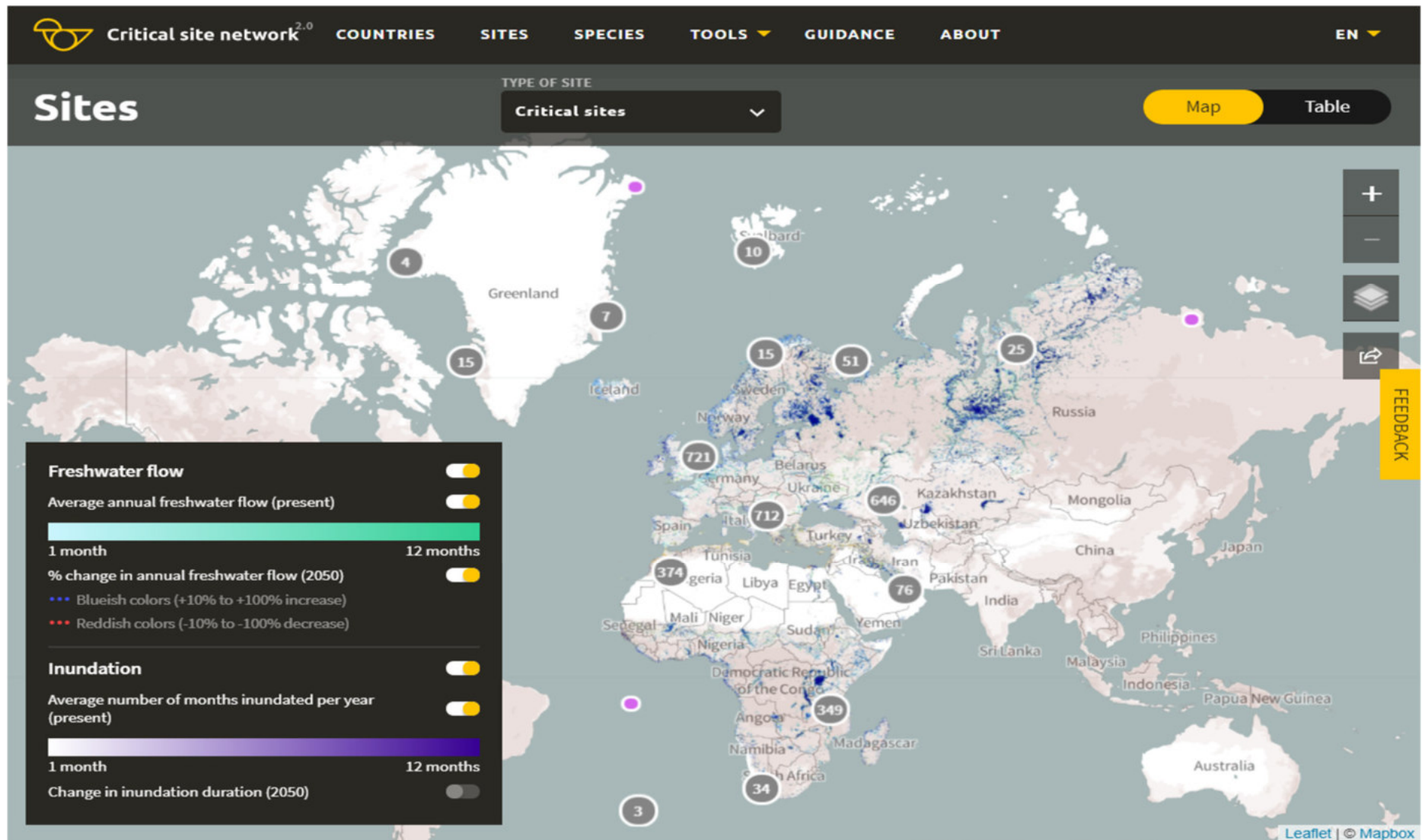
## Consumption of insect pests

## Critical habitats



Source: Brauner KM, et al. (2018) Global screening for Critical Habitat in the terrestrial realm. PLoS ONE 13(3): e0193102.

# Critical Site Network Tool – a decision support tool for policy makers, planners, managers and conservationists



<http://critical-sites.wetlands.org/en>



Critical site network<sup>2.0</sup>

COUNTRIES

SITES

SPECIES

TOOLS

GUIDANCE

ABOUT

< BACK

*Anas acuta* LC

ENGLISH NAME

Northern Pintail

FAMILY

Anatidae

BIRDLIFE FACTSHEET



#### Protection Level



- ☐ Little/none
- ☐ Some
- ☐ Most
- ☐ Whole
- ☐ Unknown

#### Population Boundaries



- ☐ North-west Europe
- ☐ W Siberia, NE & E Europe/S Europe & West Africa
- ☐ Western Siberia/SW Asia & Eastern Africa

#### Freshwater flow



Average annual freshwater flow (present)



1 month

12 months

% change in annual freshwater flow (2050)



#### Inundation



IBA

CSN

Population

Look-alike species

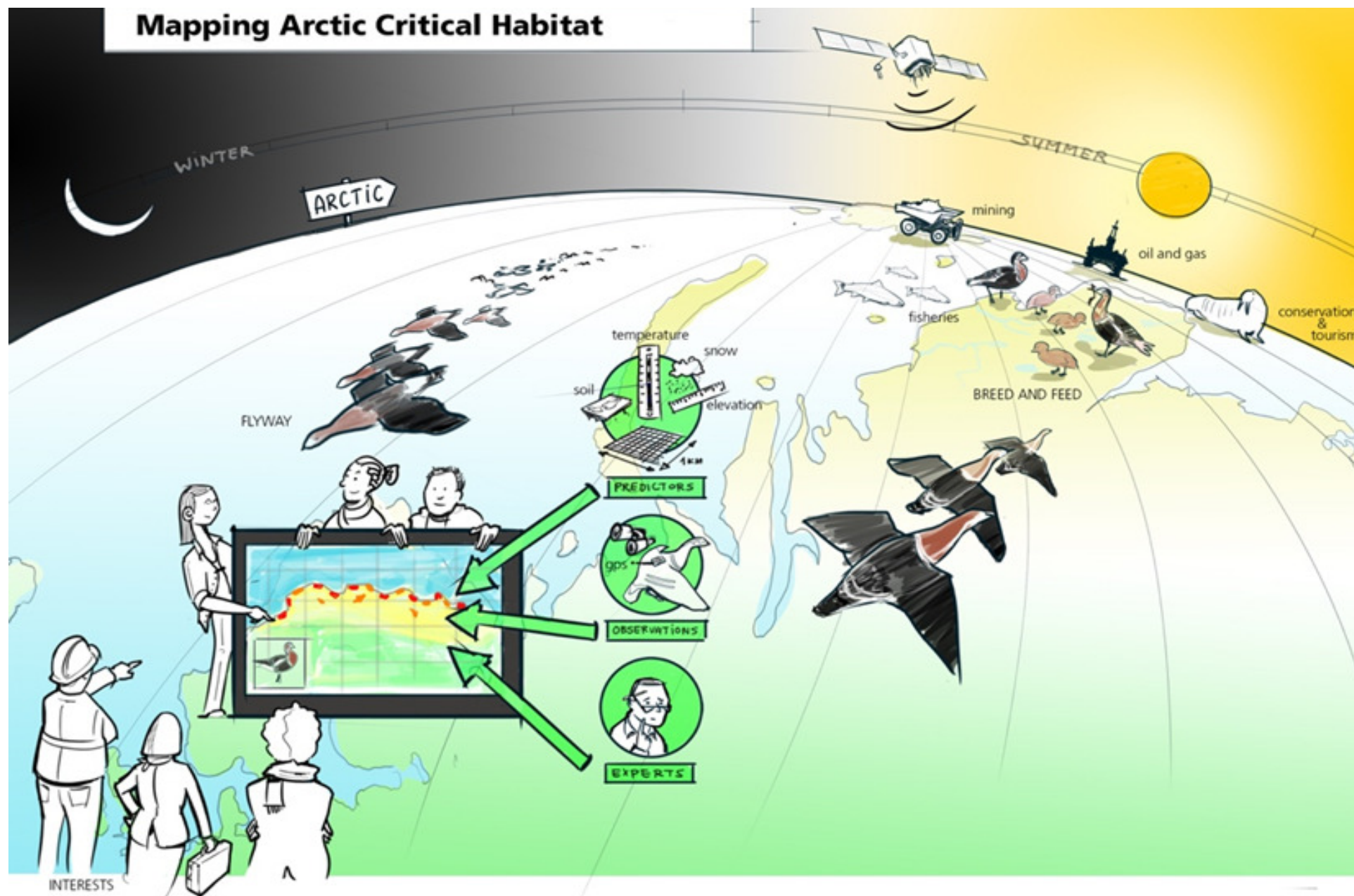


Scroll down to see the data

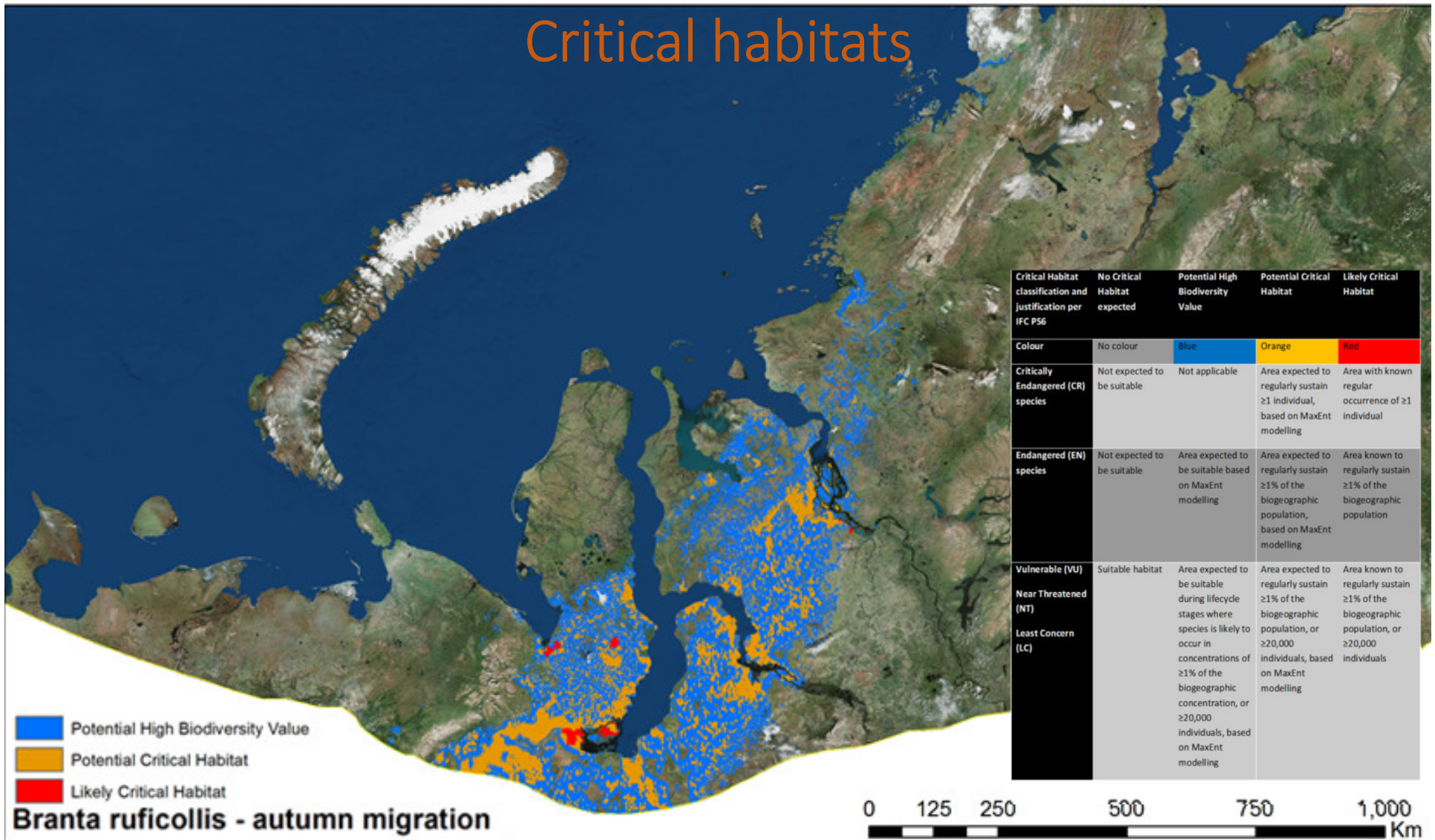


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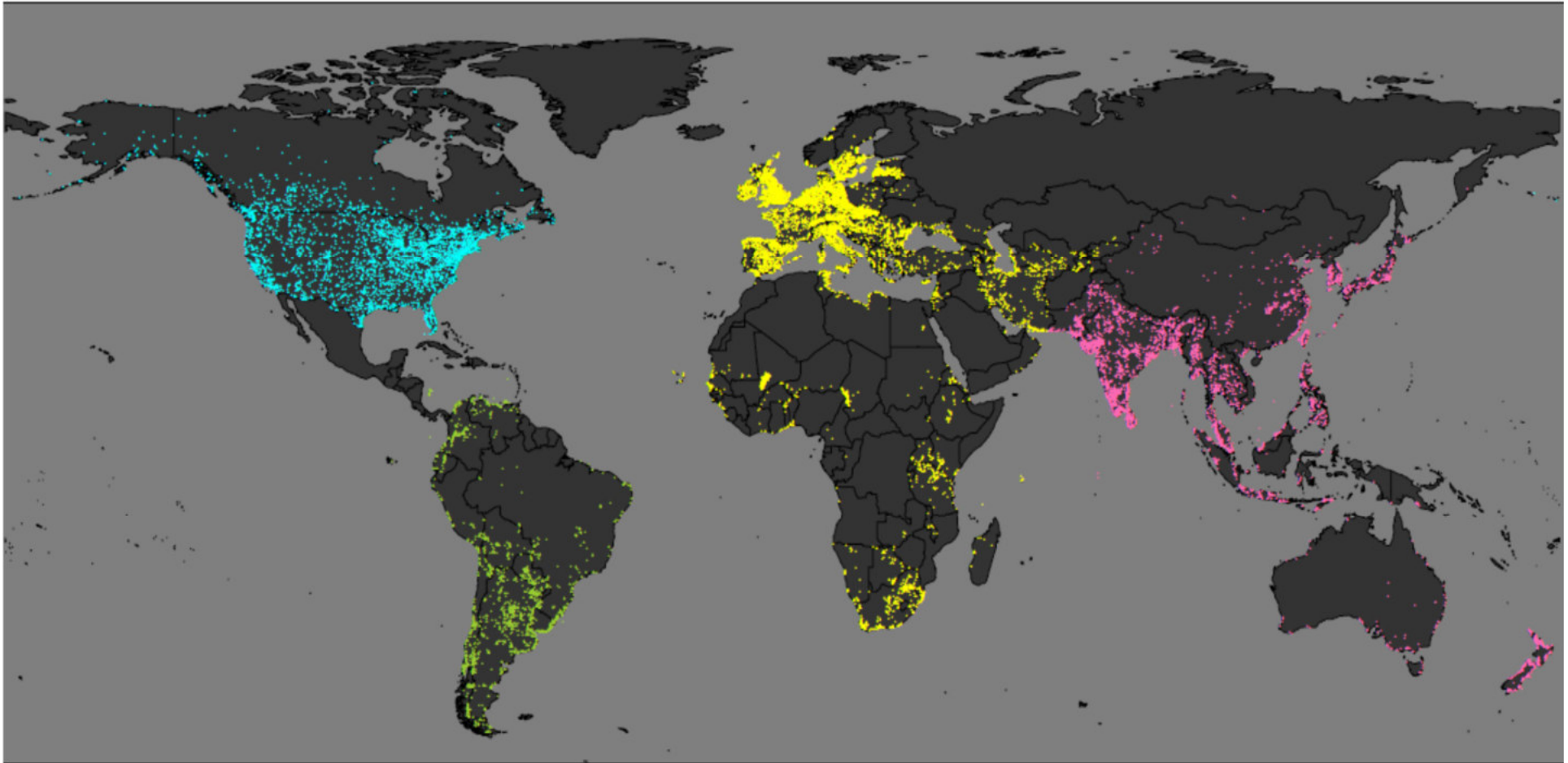
# Mapping Arctic Critical Habitat



# Critical habitats



# Monitoring of coastal waterbirds - global coverage of the International Waterbird Census and US Christmas Bird Count



International Waterbird Census [www.wetlands.org/IWC](http://www.wetlands.org/IWC)

## Building capacity for monitoring of ecosystem services & site management



# Summarising

- Arctic wetlands support great and unique biological diversity that provide a range of ecosystem services – **WITHIN AND OUTSIDE** the Arctic
- Bird flyways provide direct linkages between ecosystems in the Arctic to freshwater and coastal ecosystems across the whole world
- People and biodiversity across the world are linked to Arctic ecosystems and many depend on services provided by Arctic migrants
- Better understand status and trends especially in relation to increasing threats, incl. role of climate change.
- Stronger connections needed between the people of the Arctic and along flyways to manage migratory species and their habitats (e.g CAFF, AMBI).
- Greater capacity needed to strengthen monitoring of ecosystem services and management of important sites for Arctic biodiversity.



Thank you!

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