



Status of AEWA Goose Management Plans

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Aarhus University, Denmark



Outline of presentation

- Introduction to AEWA and the EGMP
- Barnacle Goose plan process
- Greylag Goose plan process
- Next steps

- Please ask questions as we go along



AEWA

Fundamental Principle

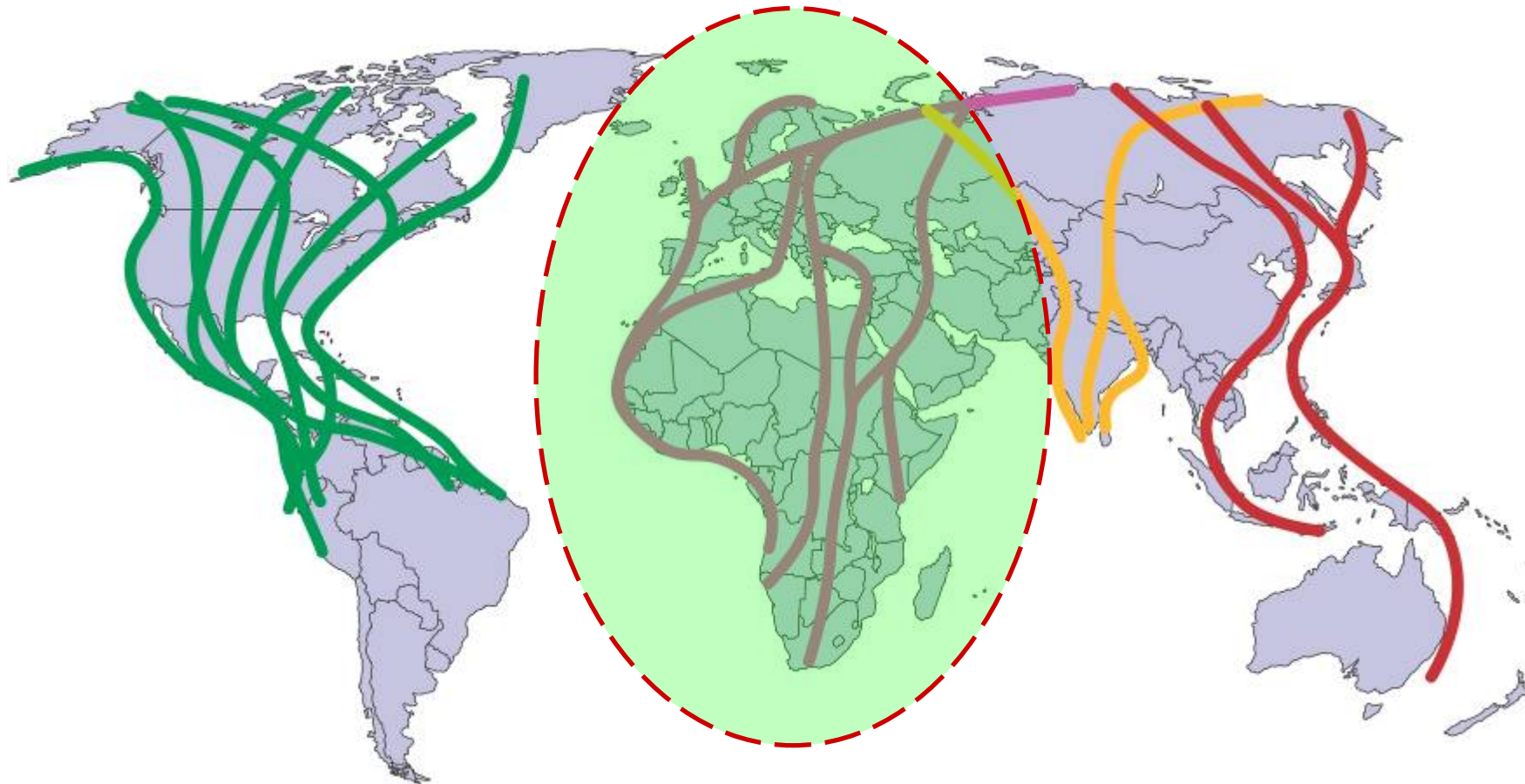
“Parties shall take **coordinated measures** to maintain migratory **waterbird** species in a **favourable conservation status** or to **restore** them to such a status.”

Sustainable use

“Ensure that **any use of migratory waterbirds** is based on an assessment of the **best available knowledge** of their ecology and is **sustainable** for the **species** as well as for the **ecological systems** that support them;”



AEWA = FLYWAY CONSERVATION



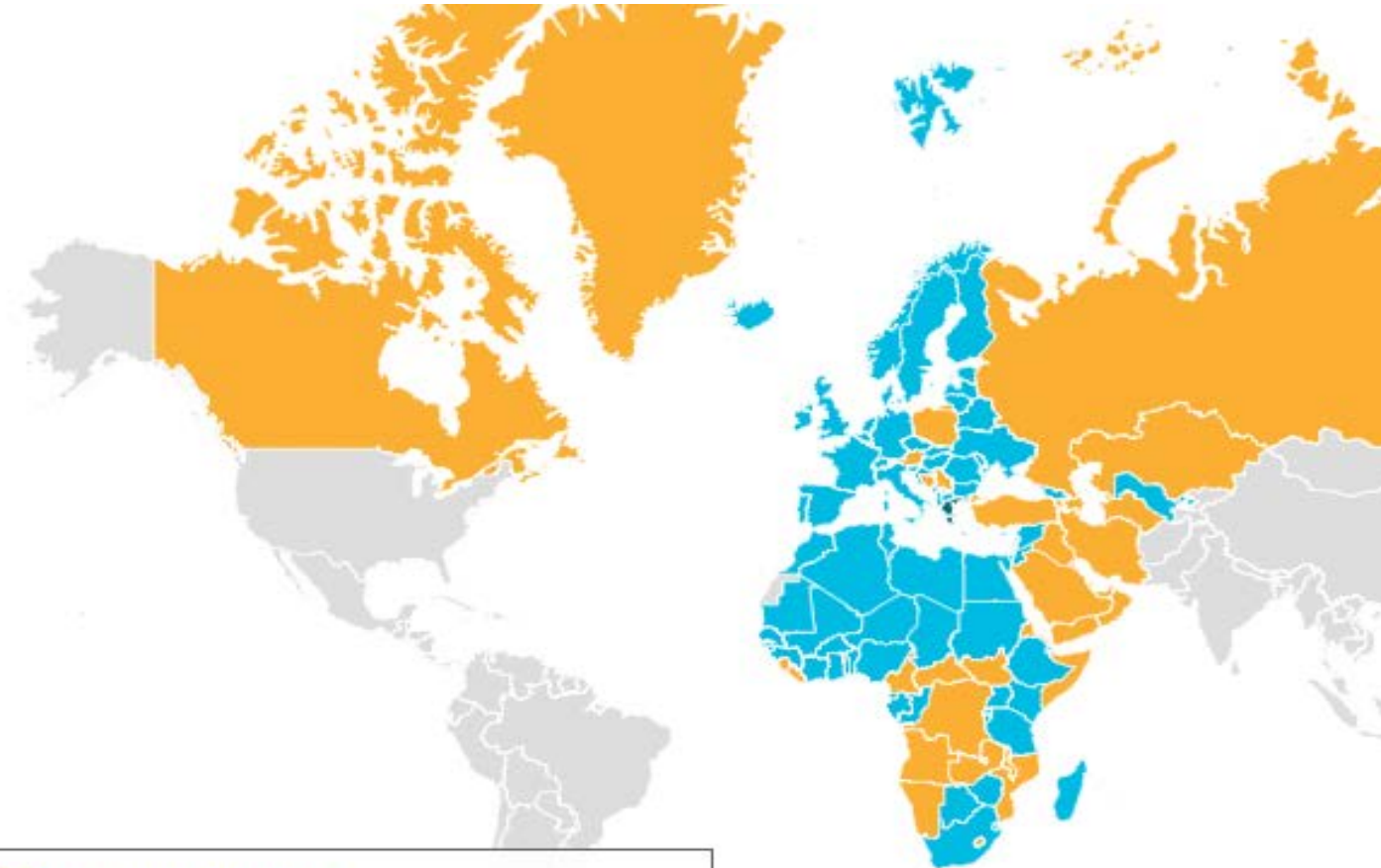
Across the African-Eurasian Flyway



AEWA Geographic Scope (Annex 1)

AEWA currently has **77**
Contracting Parties

- 41 from Eurasia
- 36 from Africa



Contracting Party Non-Party Range State



AEWA **Action Plan** (Annex 3)

The AEWA Action Plan specifies activities under six headings:

Species conservation

Habitat conservation

Management of human activities

Research and monitoring

Education and information

Implementation



Implementation Tools: AEWA **Action Plans & IWGs**

International Single Species Action and Management Plans adopted for prioritized species;

Inter-governmental Species **Working Groups** convened to coordinate implementation of SSAPs



AEWA provisions for waterbird management (2)

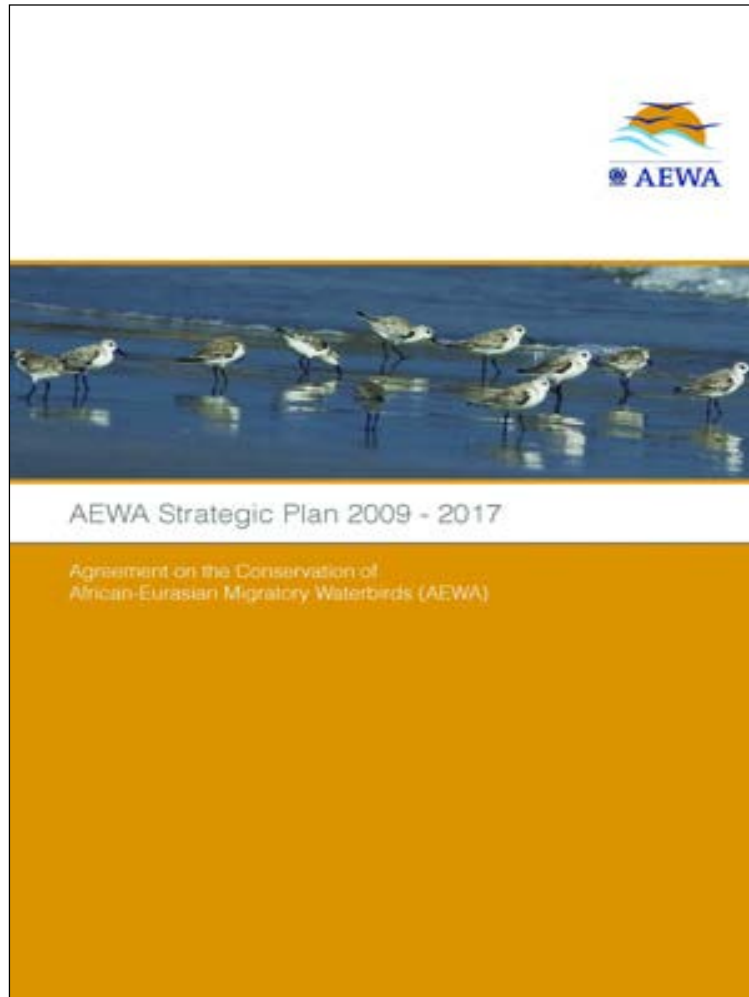
Damage control

“Parties shall **cooperate** with a view to identifying appropriate techniques to **minimize damage**, or to **mitigate the effects** of damage, in particular to crops and to fisheries...”

“Parties shall **cooperate** with a view to **developing single species management plans** for populations which cause **significant damage**, in particular to crops and to fisheries...”



AEWA Strategic Plan 2009-2017



Target 2.5

“**Adaptive harvest management** of quarry populations is ensured at international level.”

Indicator

“**International harvest management plans** for two quarry populations are developed and implemented”



The **first** European trial of **adaptive management** of a **migratory** population



TECHNICAL SERIES No.48



International Species Management Plan
for the Svalbard Population of the
Pink-footed Goose

Anser brachyrhynchus



International Single Species Action Plan for the Conservation of the **Taiga Bean Goose**

Action planning launched in November 2013;

ISSAP approved by MOP6 in November 2015;

Adaptive management programme was
developed in 2016.

1st time consensus reached amongst
countries in Europe on how to reduce hunting
to enable a species to recover



European Goose Management Platform (EGMP)

Need & justification

- Goose-human conflicts and ecosystem impacts continue and are becoming more acute and complex
- Geese hold societal value (birdwatching, hunting, ecosystem services)
- AEWA listing requirements
- Lack of coordinated approach: management and data collection (population size, harvest, derogation shooting)
- Requires structures flyway-scale decision-making process
- A goose management platform can serve as a model for sustainable practicing of waterbird harvest in general



6th Session of the Meeting of the Parties (MOP6) – EGMP Mandate

Resolution 6.4: “Requests the Secretariat to facilitate, funding permitting, the establishment of an **European multispecies goose management platform** and process to address **sustainable use** of goose populations and to provide for the resolution of **human-goose conflict**

[...]

and invites interested **Parties, Range States** and other **stakeholders** to take pro-active role in this initiative, including to **ensure necessary resources** for the **maintenance** and the **functioning** of the platform.”



EGMP established in 2016

Paris negotiation meeting (May 2016) – confirmation of commitment and agreement on modalities (**Paris Declaration**)



EGMP goal

Provide the mechanism for a **structured, coordinated and inclusive decision-making** and **implementation process** for the **sustainable management** of goose populations in Europe, with the objective of maintaining them in a **favourable conservation status**, while taking into account **concerns of relevant stakeholders** and the pertinent **legislative frameworks** and regulations.

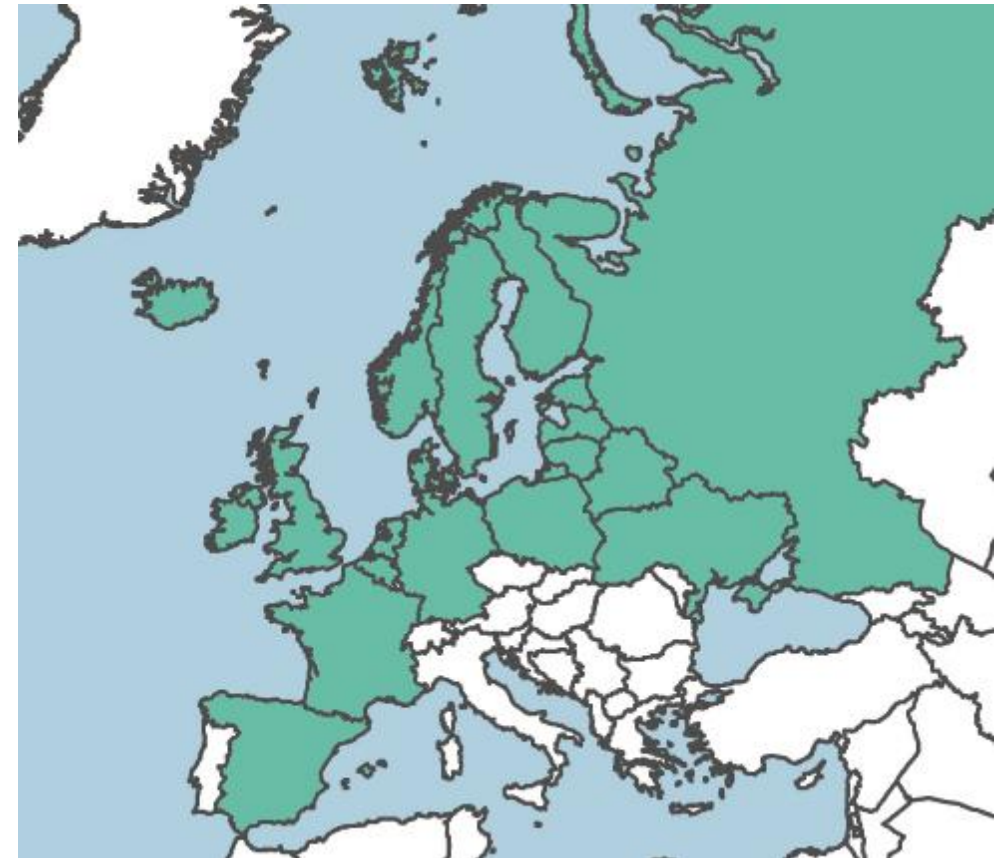
Populations to be included for a start

- **Pink-footed Goose**, Svalbard population; ISMP implemented since 2012
- **Taiga Bean Goose**; ISAP endorsed at AEWA MOP6, November 2015
- **Barnacle Goose**, 3 populations
- **Greylag Goose**, North-west European population



19 EGMP range states + EU

Belarus – 1 population	Latvia – 2
Belgium – 3	Lithuania – 2
Greenland – 1	Netherlands – 4
Denmark – 4	Norway – 4
Estonia – 2	Poland – 3
EU - 6	Russia – 2
Finland – 4	Spain – 1
France – 1	Sweden – 4
Germany – 3	UK – 2
Iceland – 1	Ukraine – 1
Ireland – 1	





EUROPEAN GOOSE MANAGEMENT PLATFORM (EGMP)



European Goose Management International Working Group
(EGM IWG)

Agriculture Task Force

Pink-footed Goose
Task Force

Taiga Bean Goose
Task Force

AEWA/ Secretariat

based in Bonn, Germany

EGMP Data Centre

based in Aarhus, Denmark

**Modelling
Consortium**



EUROPEAN GOOSE MANAGEMENT PLATFORM (EGMP)



European Goose Management International Working Group
(EGM IWG)



Range States, National Experts, Observer NGO's

Decision making body

Annual meetings (last in June 2017)

Respond to recommendations produced by the
Task Forces and Data Centre





EUROPEAN GOOSE MANAGEMENT PLATFORM (EGMP)



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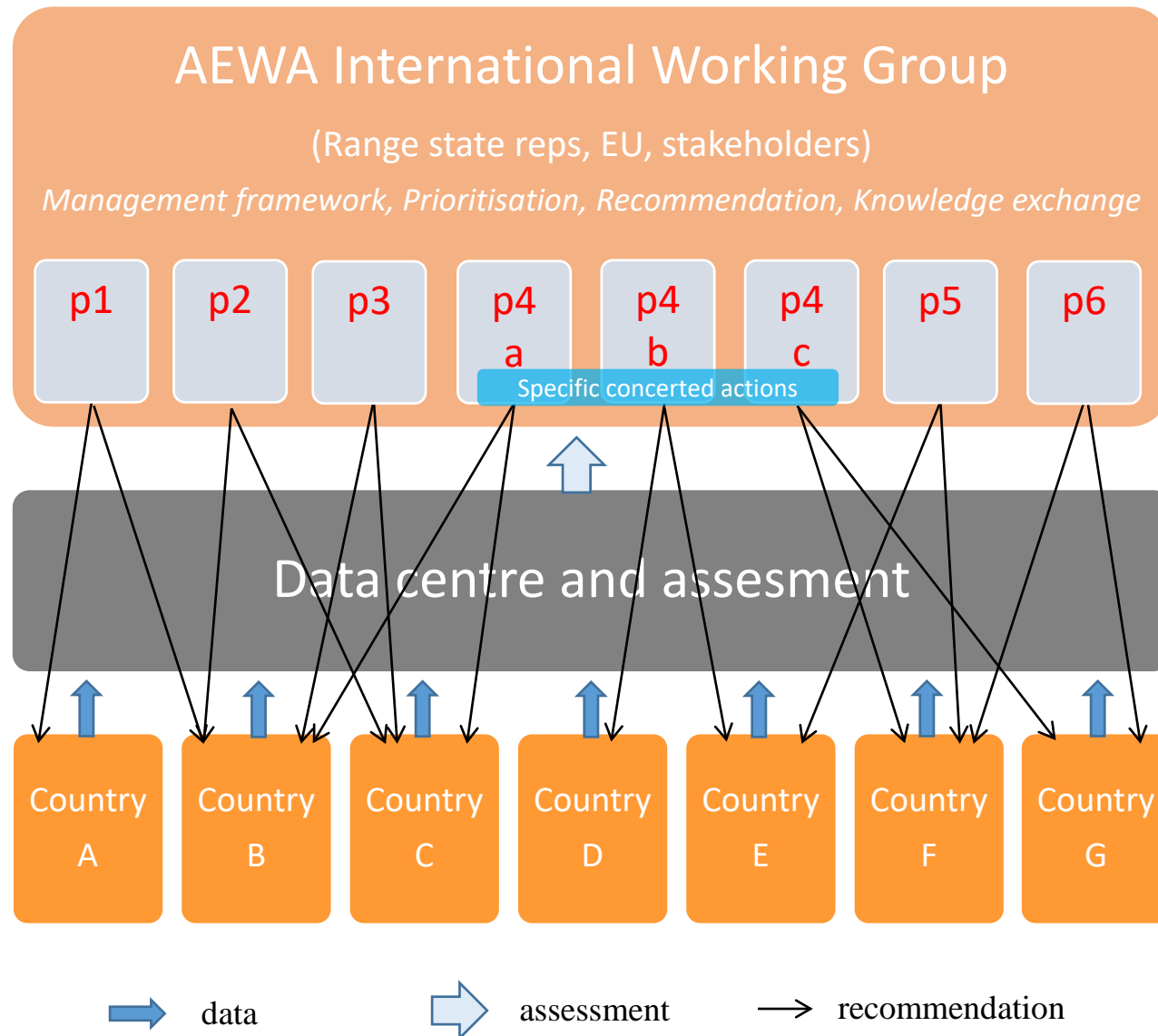
based in Bonn, Germany

EGMP Data Centre

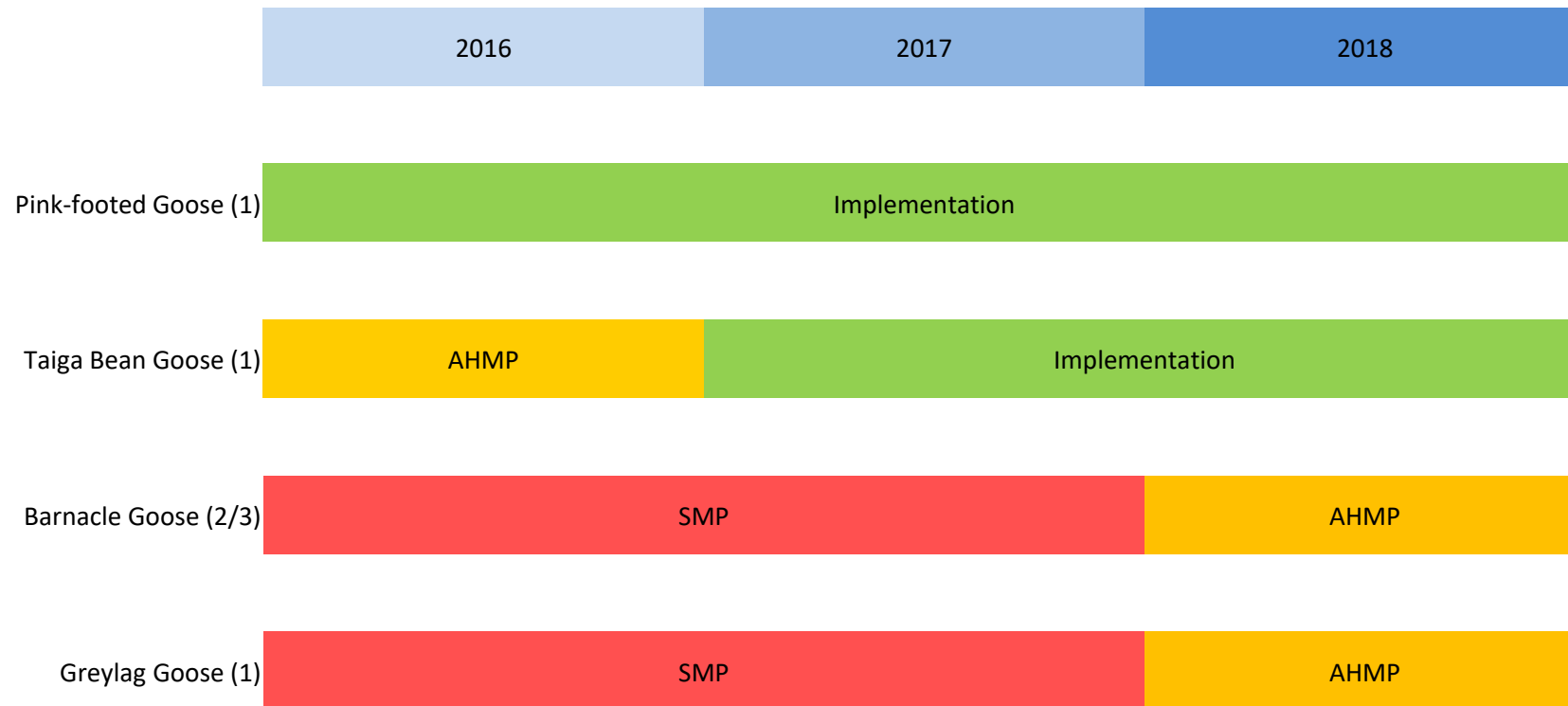
based in Aarhus, Denmark

**Modelling
Consortium**





Timeline 2016-2018



International Single Species Management Plan for the **Barnacle Goose**



Ministry of Environment
and Food of Denmark
Environmental
Protection Agency



Photo: Magnus Elander

- 1st Barnacle Goose Management Planning Workshop (12-14 June 2017, Copenhagen)
- 2nd Barnacle Goose Management Planning Workshop scheduled for June 2018
- Development of ISMP in progress

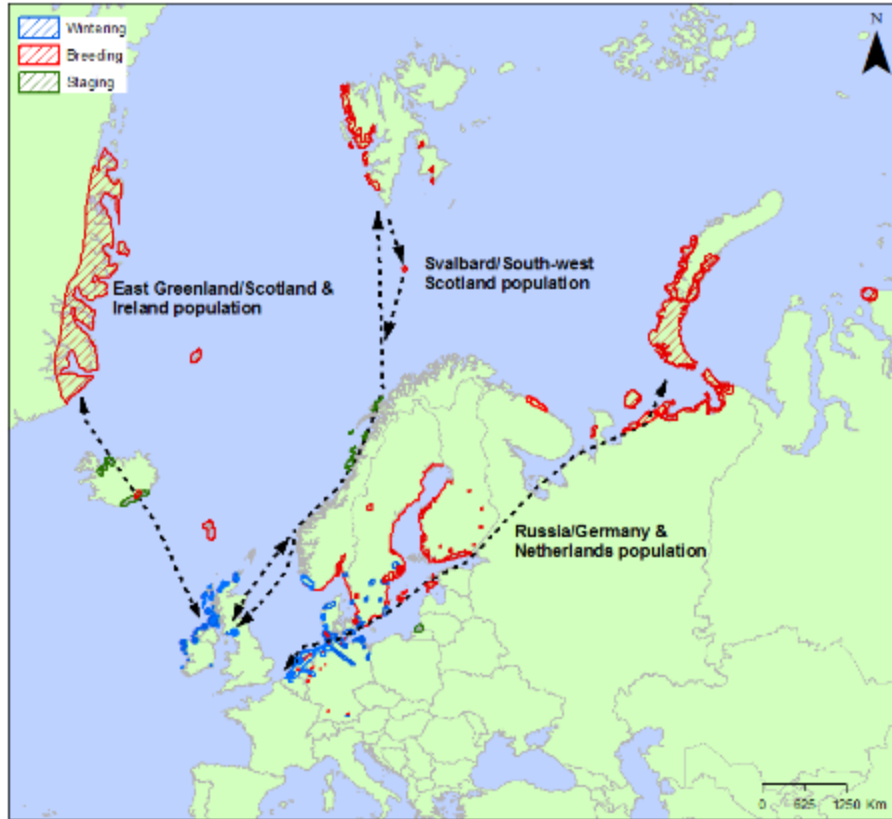


International Single Species Management Plan for the **Greylag Goose** (NW/SW European population)



Stakeholder Workshop in Paris, October 2017



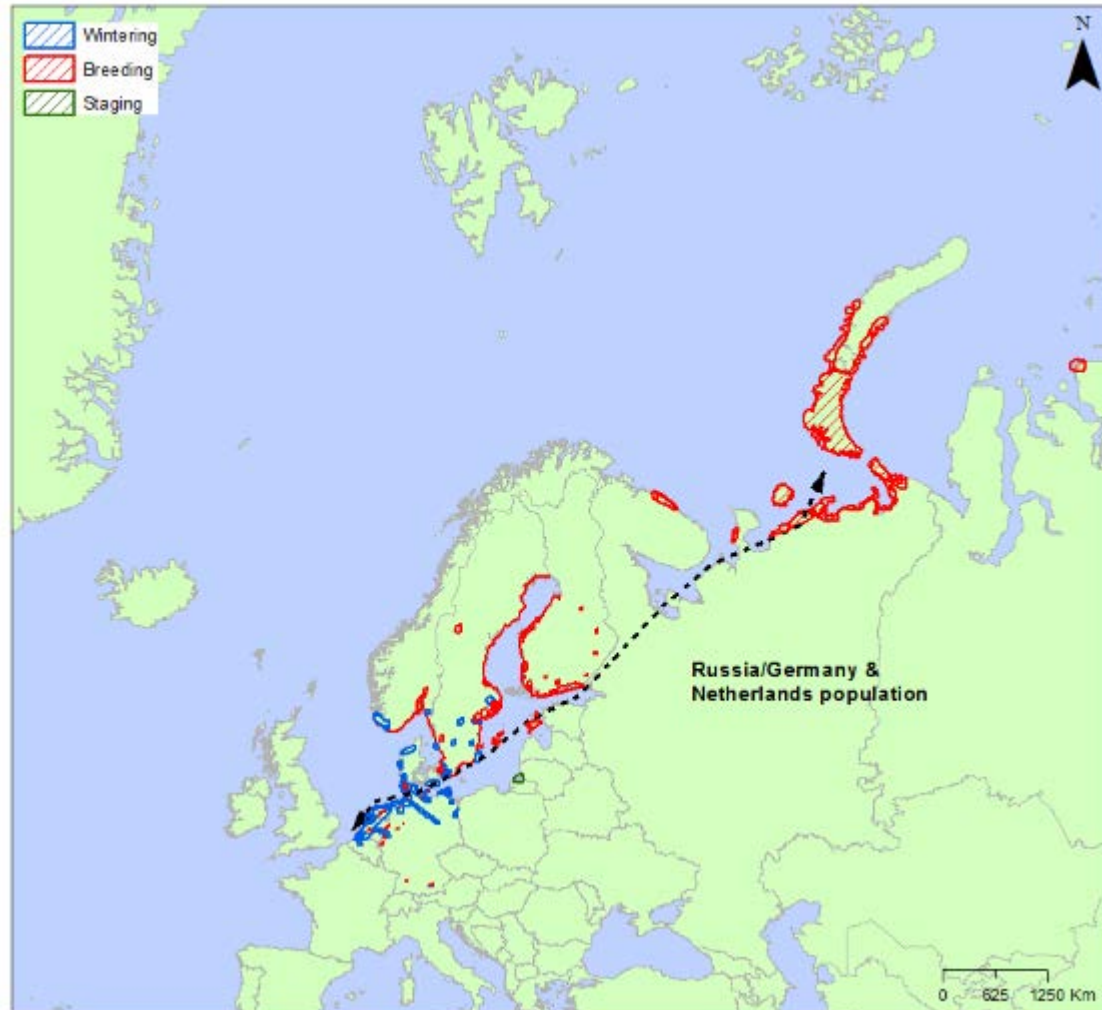


Barnacle Goose

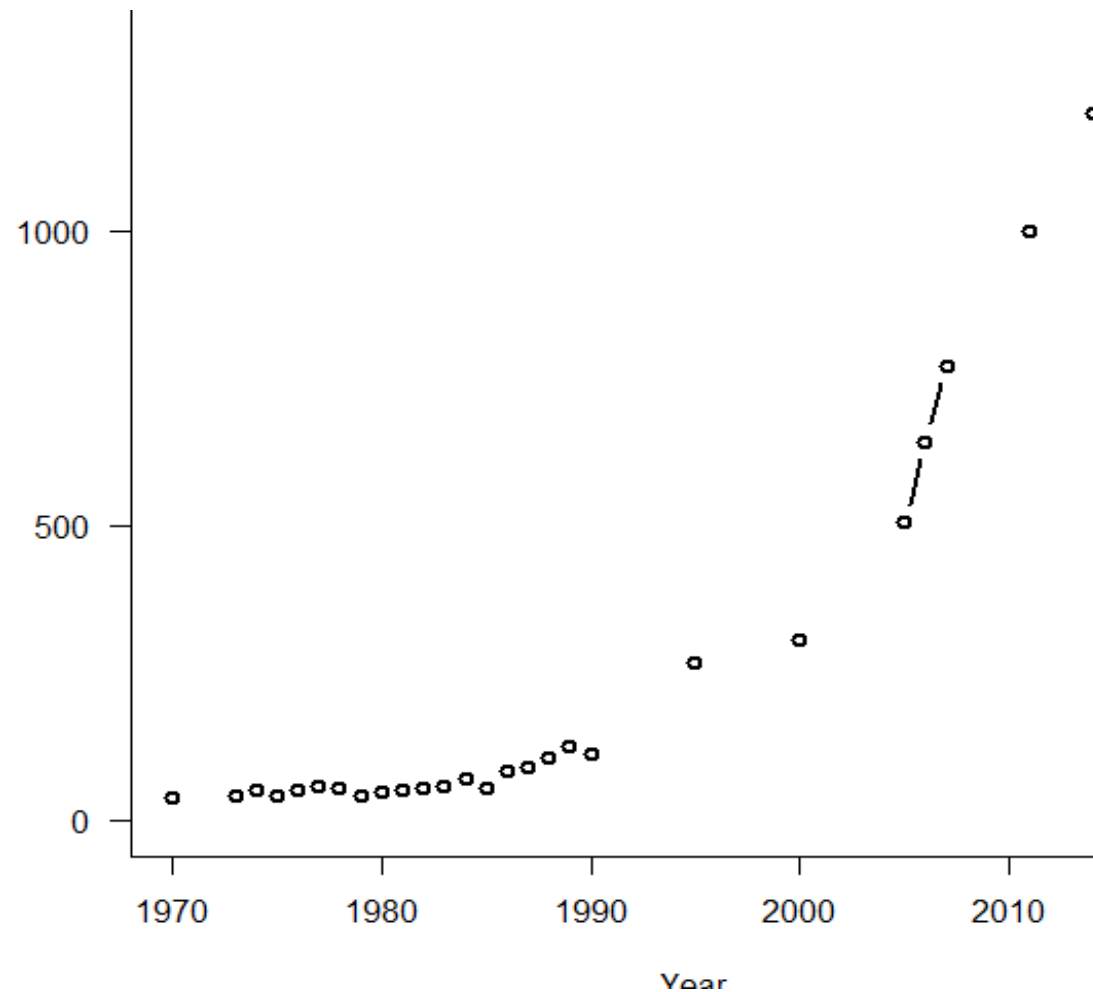
East Greenland/Scotland & Ireland
Svalbard/South-west Scotland
Russia/Germany & Netherlands



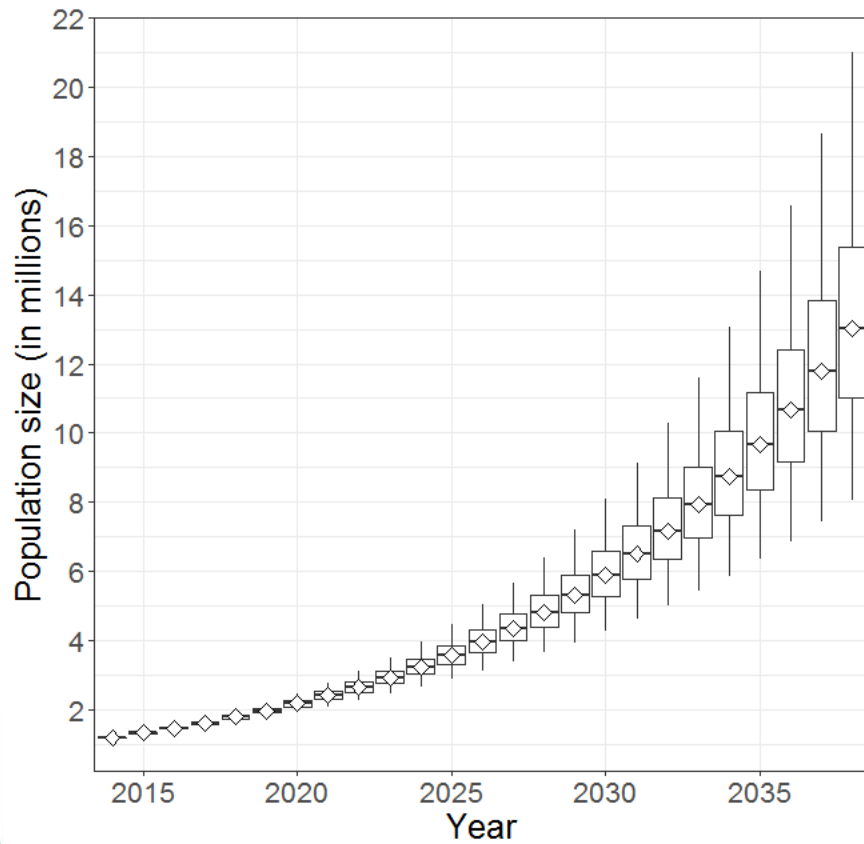
Russia/Germany & Netherlands population



Russia/Germany & Netherlands population



Population projection: Russia/Germany & Netherlands population



Total population estimates

Data 2000 to 2014 (n=6)

Mean growth rate of 10.4 %

Increase from 1.2 million birds in 2014 to a population size in 2038 ranging from 8.1 million to 21.1 million birds (95%ci), with a median of 13 million



Range expansion – an example

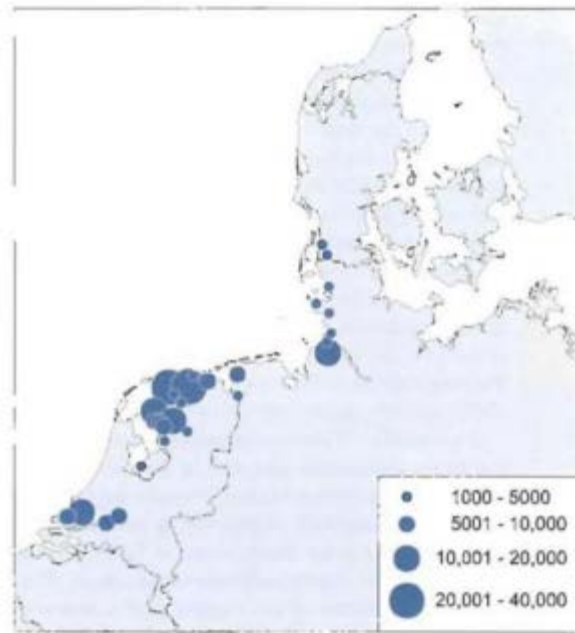
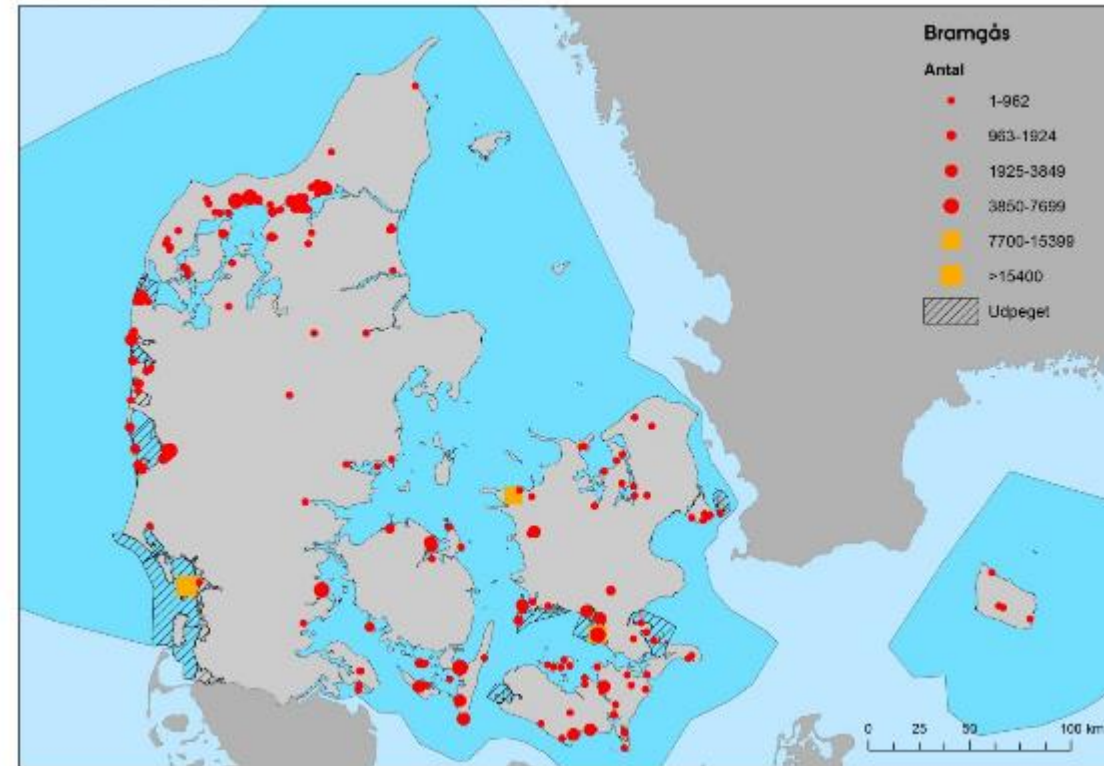


Fig. 19.10. Winter distribution of Barnacle Geese in mild winters. Germany, January 1990-95 (WWF-Projektbüro Wattenmeer unpubl. data, Niedersächsisches Landesamt für Ökologie unpubl. data); the Netherlands, January/February 1985-94 (Koffijberg, Voslamber & van Winden)



Fig. 19.9. March distribution of Barnacle Geese following mild winters. Germany, March 1990-95 (WWF-Projektbüro Wattenmeer unpubl. data, Niedersächsisches Landesamt für Ökologie unpubl. data); the Netherlands, March 1985-94 (Koffijberg, Voslamber & van Winden 1997); Denmark 1990-96 (Wetlands International Goose Database).



From: Danish Nature Monitoring Program 2015

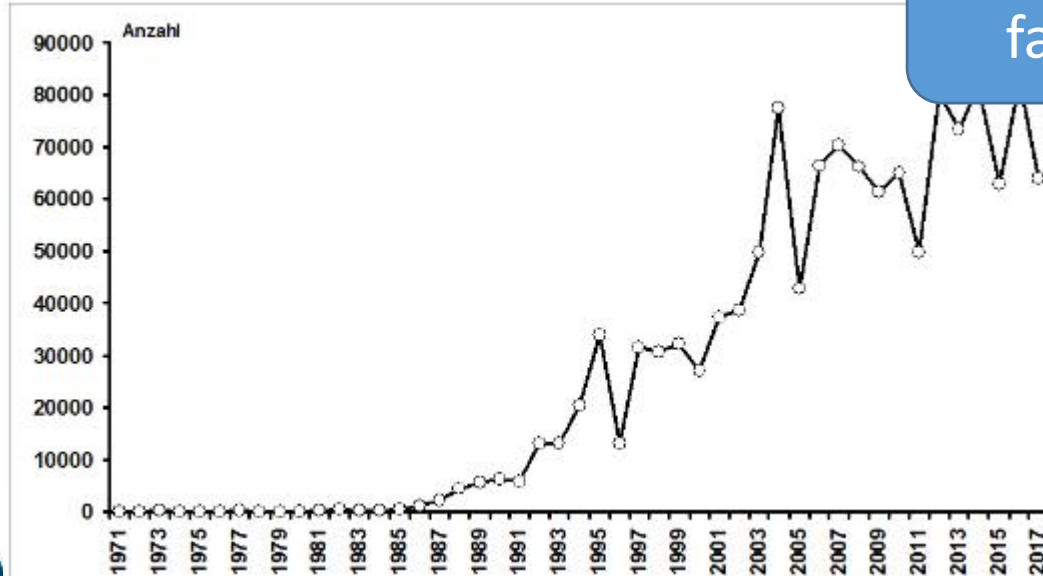
From: Goose Populations of the Western Palearctic 1999



Examples of range changes (Russian pop.)

Within existing range:

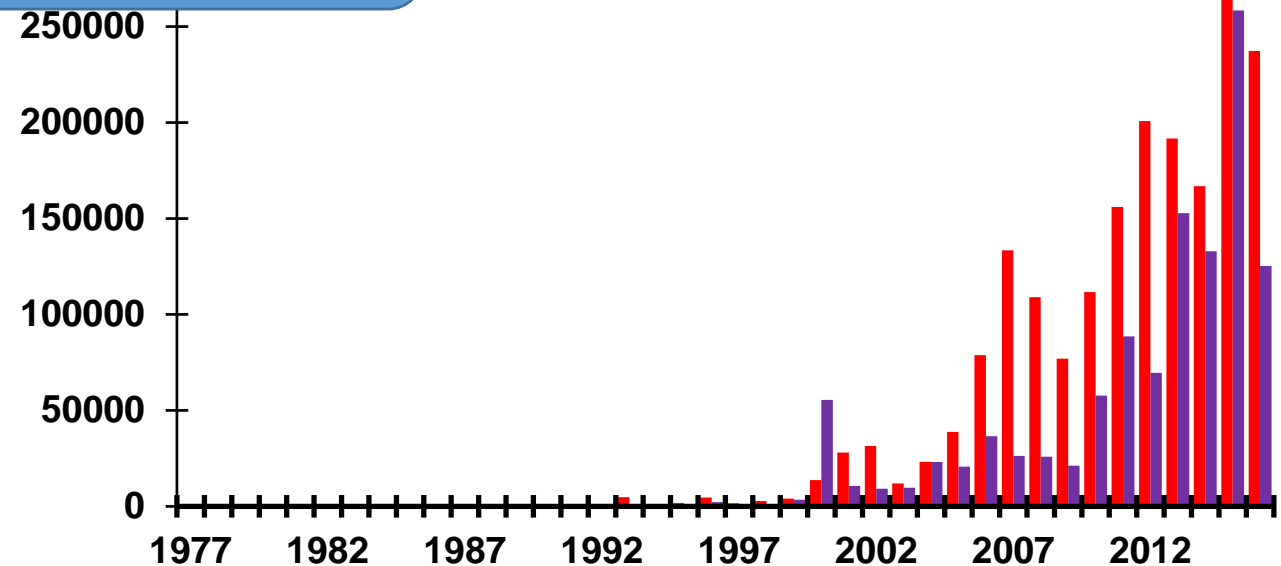
Numbers staging/wintering in Dollard, Lower Saxony, Germany (K. Gerdes & H. Kruckent)



Cultural learning =>
fast range shifts

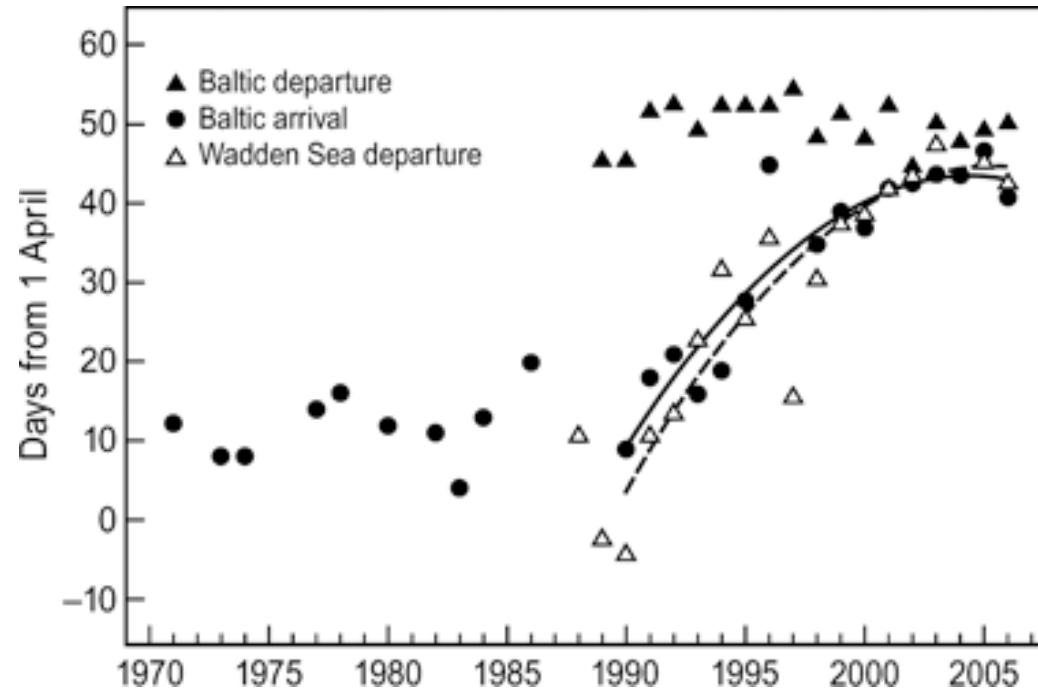
Outside existing range:

Numbers staging in South Sweden (L. Nilsson)



Barnacle Geese have skipped the Baltic spring staging grounds

Eichhorn et al. 2008; J. Anim. Ecol.



Threats associated with each Barnacle Goose population



And..industrial oil/gas/mineral development in Russia

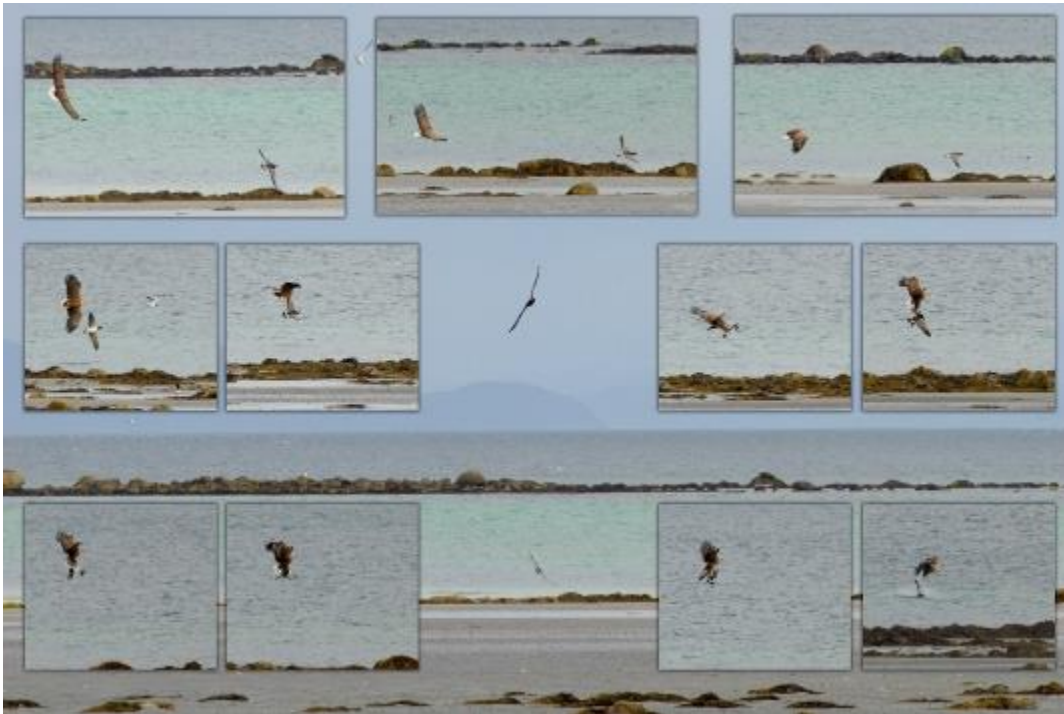


Table 5. Availability of bag statistics/derogation reports and recent bag sizes for the Barnacle goose. *For EU countries, derogation reports to the EU. **Incomplete numbers/numbers have not been verified nationally. *** Egg destruction not included.

Threat (Low impact)	Range state	Annual statutory bag statistics*	Annual bag size (latest estimate)***	Period	Responsibility	Range state
	Russia	No	204** 3141**	2015 2016	Hunting bag report on Brant geese from hunters in the territory of NAO	Russia
	Norway	Yes	0	-	-	Norway
	Sweden	Yes	598	2008-2015	EU derogation report	Sweden
	Denmark	Yes	3258	2008-2015	EU derogation report	Denmark
	Germany	Yes	1980	2008-2015	EU derogation report	Germany
Persecution/ Control	Netherlands	Yes	20110**	2008-2015	EU derogation report	Netherlands
	Belgium	Yes	395**	2008-2015	EU derogation report	Belgium
	Finland	Yes	0	2008-2015	EU derogation report	Finland
	Estonia	Yes	3039**	2008-2015	EU derogation report	Estonia
	Latvia	Yes	0	2008-2015	EU derogation report	Latvia
	Lithuania	Yes	0	2008-2015	EU derogation report	Lithuania
	TOTAL		~ 32725			



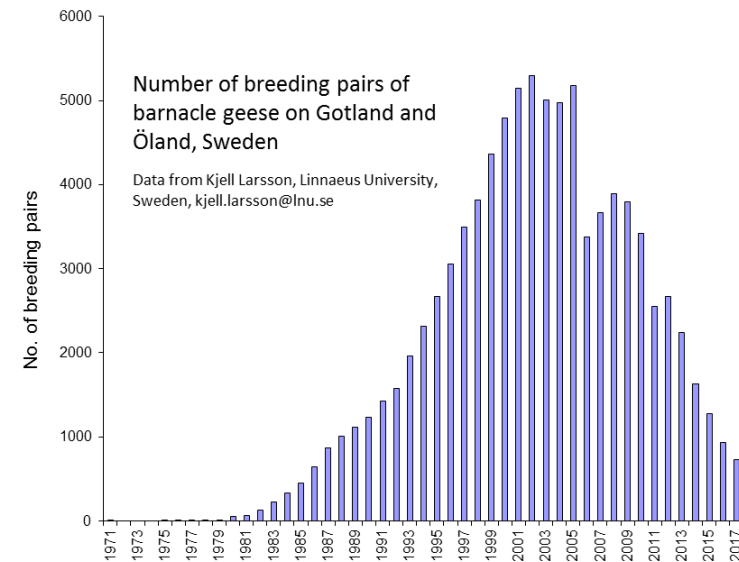
Russia/Germany & Netherlands: Problematic native species



White-tailed eagle (Sweden)

Development in numbers of breeding barnacle geese on Gotland and Öland, Sweden

Data courtesy: K. Larsson



Problems and services associated with Barnacle Geese

- Agricultural damage and management actions
- Ecosystem impacts
- Air safety (bird strike)
- Ecosystem services



AEWA European Goose Management Platform

30 November 2017
Wadden Sea Forum
Hamburg, Germany



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Habitat use



Damage to agricultural crops

Barnacle goose population	Most affected	Other crops which are affected
Greenland and Svalbard (wintering and staging)	fertilised grassland (pasture), new-sown grassland	permanent grassland, winter cereals, spring cereals
Baltic/S North Sea group (summering)	permanent grassland, spring cereals, beet/vegetables	fertilised grassland (pasture), winter cereals, new-sown grassland, grass seed, maize, silage
Russian group (winter/staging)	permanent grassland, winter cereals, fertilised grassland (pastures)	spring cereals, ripening cereals, new-sown grassland



Management actions	Number of countries (total 11)
Local scaring	All
Economic compensation to affected farmers	7
EU agro-environment subsidy schemes	1 (Germany)
National subsidy scheme	3 (Sweden, Finland and Norway)
Alternative goose foraging areas	5
Derogation shooting	6
Local population control	6
Which means of control is used?	Culling of adults and young, egg collection, egg oiling/pricking, shaking of eggs
Is there a national goose management strategy?	Norway, Scotland
Is there a systematic recording of goose agricultural damage?	6
Is the information available at species/population level?	4



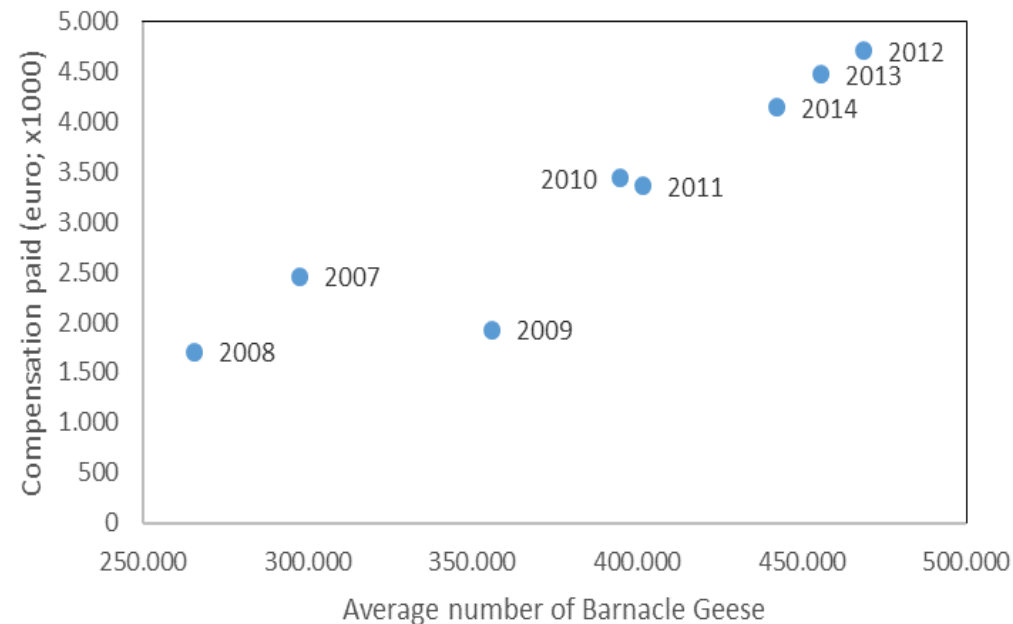
Is there a relationship between population size and the severity of agricultural damage?

Few national datasets available for analysis:

- Netherlands
- Sweden



Relationship between number of Barnacle Geese and compensation paid in the Netherlands (2007-2014) – data Fanunafonds



Damage assessed during 1st cut in spring

Shown are direct payments, not corrected for inflation or price level. Payments for accommodation areas not included.

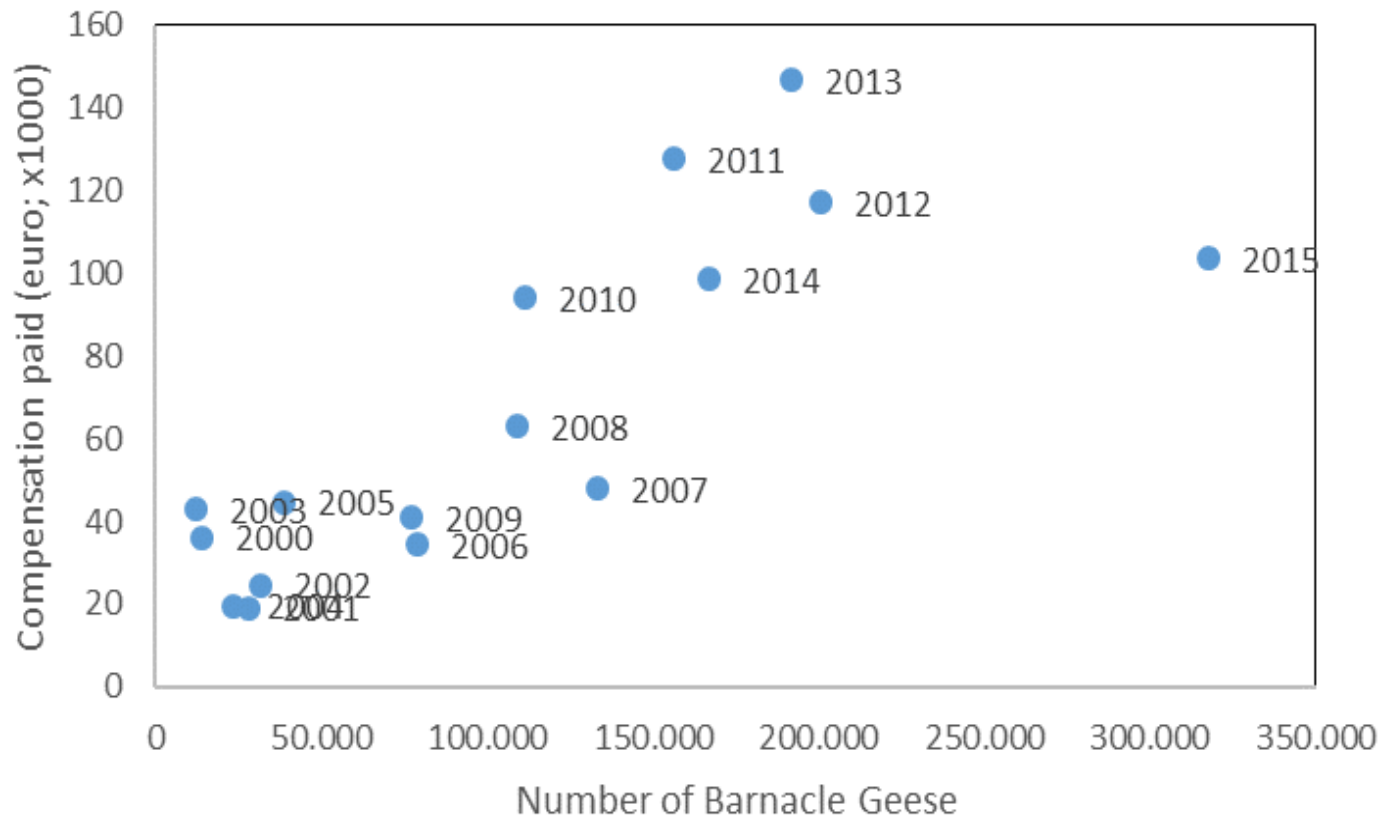
There seems to be a strong relationship..., but there are doubts about a proper species ID when assessing damage in the field

Other analyses, with different species, or at different geographical scale have shown very different relationships, suggesting a less direct association between numbers and damage level.

So caution needed how to interpret these results



Relationship between number of Barnacle Geese and compensation paid in Sweden



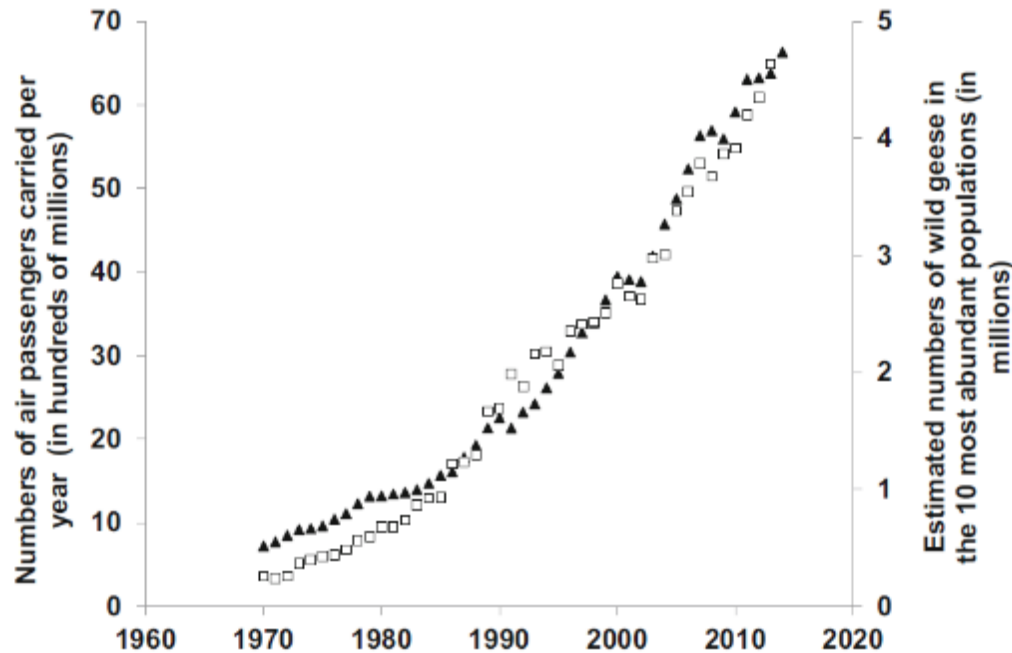
Ecosystem impacts

Management issue

- Eutrophication of lakes (defaecation)
- Grazing of swards (effects on breeding meadow birds)
- Grazing of swards (effects on terrestrial ecosystem, vegetation composition and natural terrestrial habitats)
- (Interspecific competition)



Air Safety (Bird strike)



Ambio 2007, 46(Suppl. 2):S328-S338
DOI: 10.1017/S15250117-09005-4

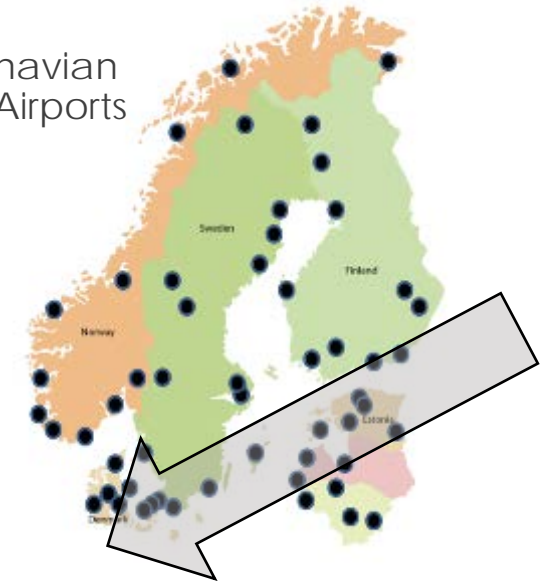


Key actions towards the sustainable management of European geese

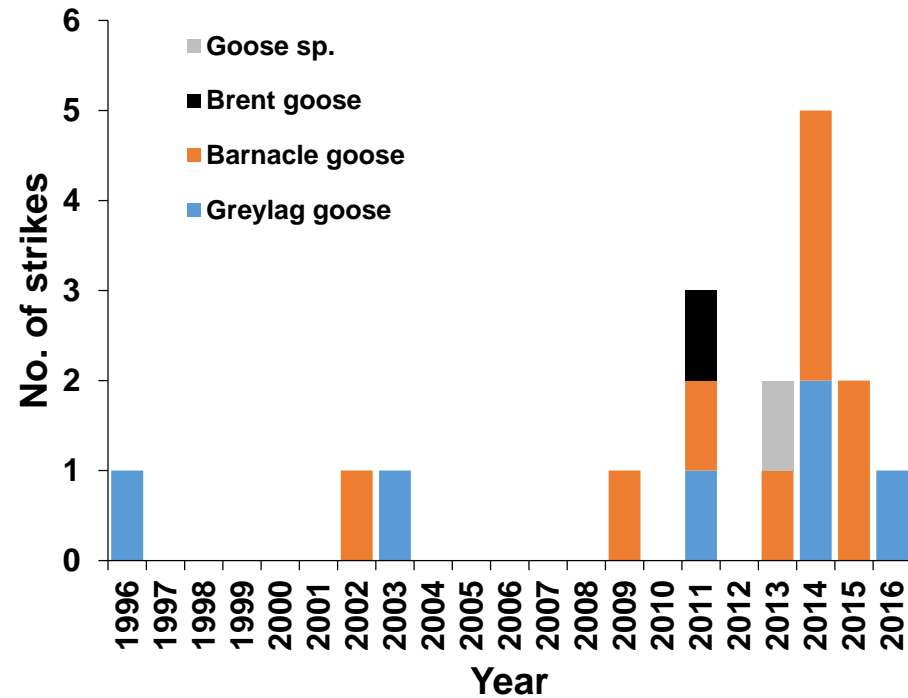
David A. Stroud, Jesper Madsen, Anthony D. Fox

- Inside airport concern: Denmark & Sweden
- Passing/migrating/wintering birds causing concern: Denmark, Sweden, Netherlands, Belgium (Baltic/Russian), UK (Greenland)

Baltic/Scandinavian International Airports



Air safety (bird strike)

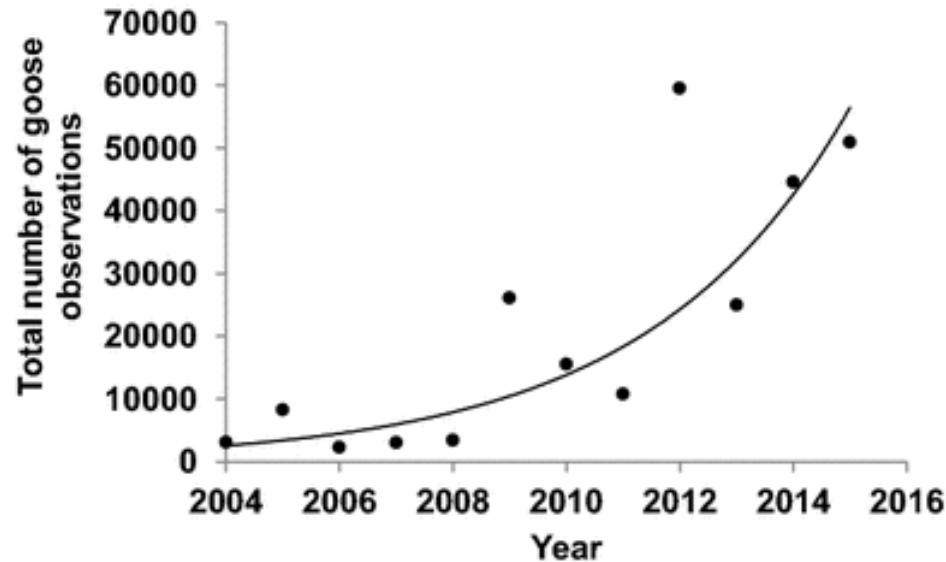


Number of strikes with geese in Copenhagen Airport
1996-2016

Data courtesy of Copenhagen Airport



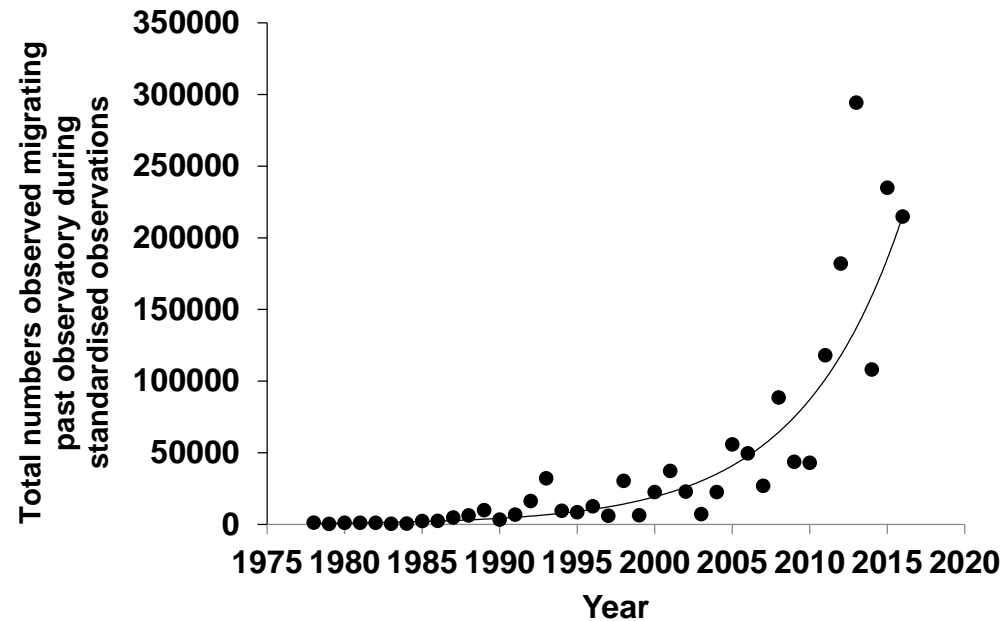
Air safety (bird strike)



Increase in annual number of observations of geese of all species (mainly barnacle and greylag geese, but including small numbers of white-fronted and Canada geese) flying over or settling at Copenhagen Airport, 2004–2015. The rate of increase is equivalent to a 28% increase per annum ($r^2 = 0.72$, $P = 0.0005$) in response to constant effort in monitoring. Data courtesy of Copenhagen Airport

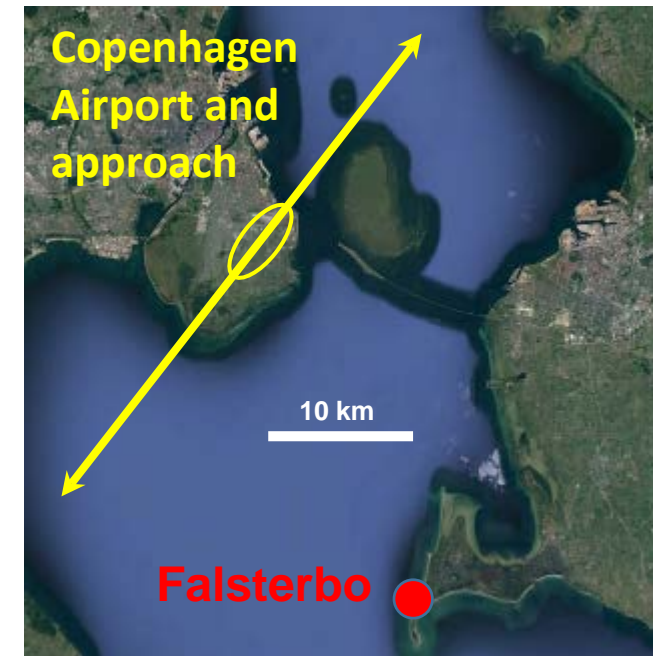


Air safety (bird strike)

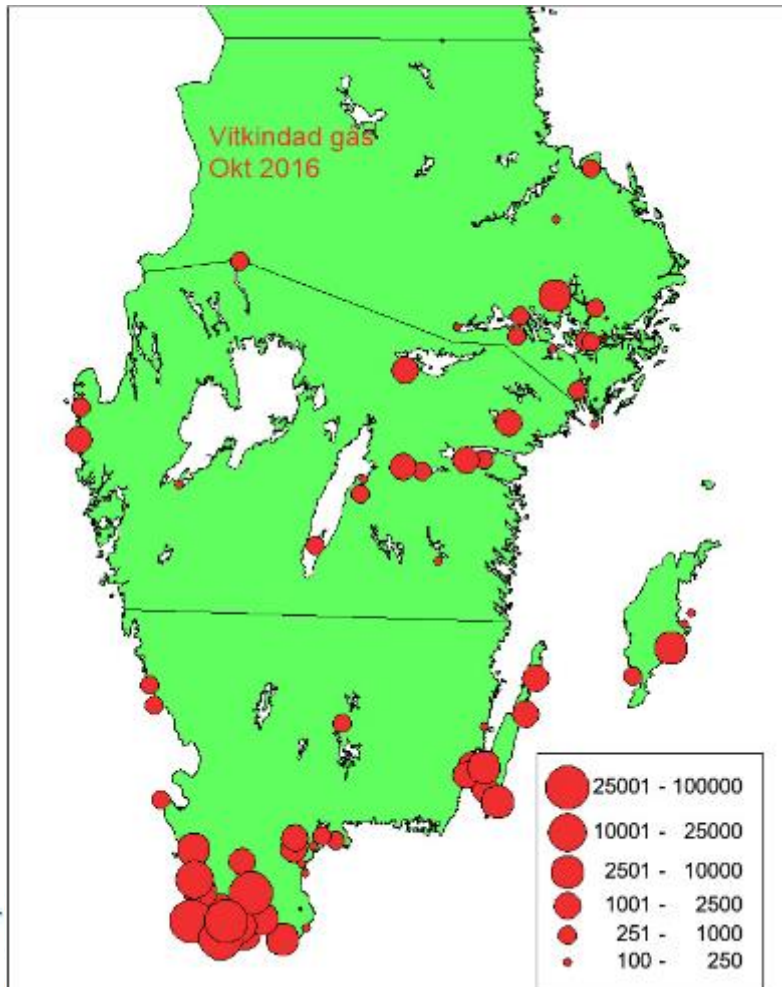


Passage of Barnacle Geese in autumn, Falsterbo, South Sweden
Data courtesy: Falsterbo Bird Observatory

(http://www.falsterbofagelstation.se/index_e.html)

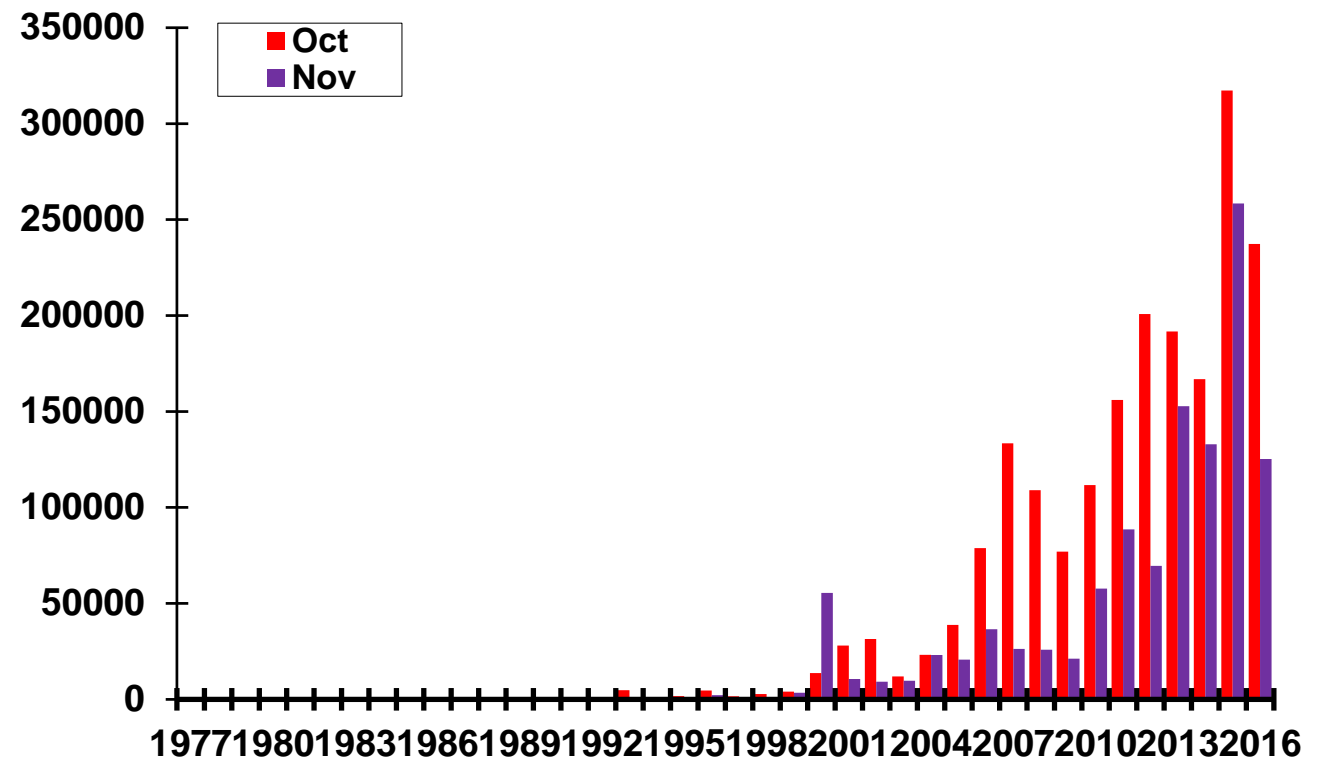


Air safety (bird strike)



Distribution and numbers of barnacle geese, Sweden

Data courtesy: L. Nilsson, University of Lund



Ecosystem services

Propagule dispersal by Barnacle geese in Svalbard

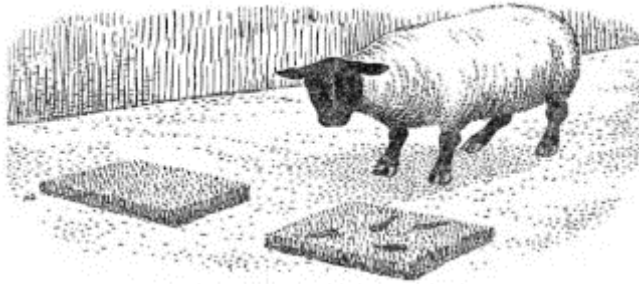


- Grasses
- Cyperacean species
- Forbs - Arctic Bistort *Bistorta vivipara*
- Berries

→ geese enable range shift in response to climate change



Defaecation

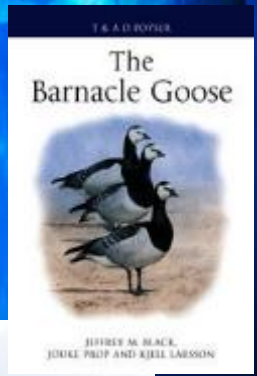
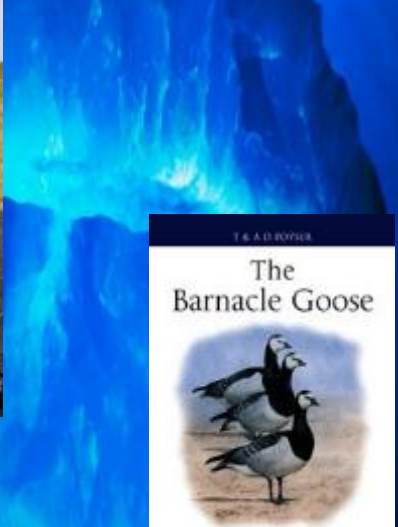
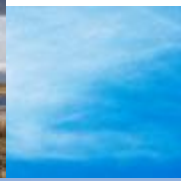


Ingram 1933, Rochard & Kear 1968, 1970, van der Wal & Loonen 1998



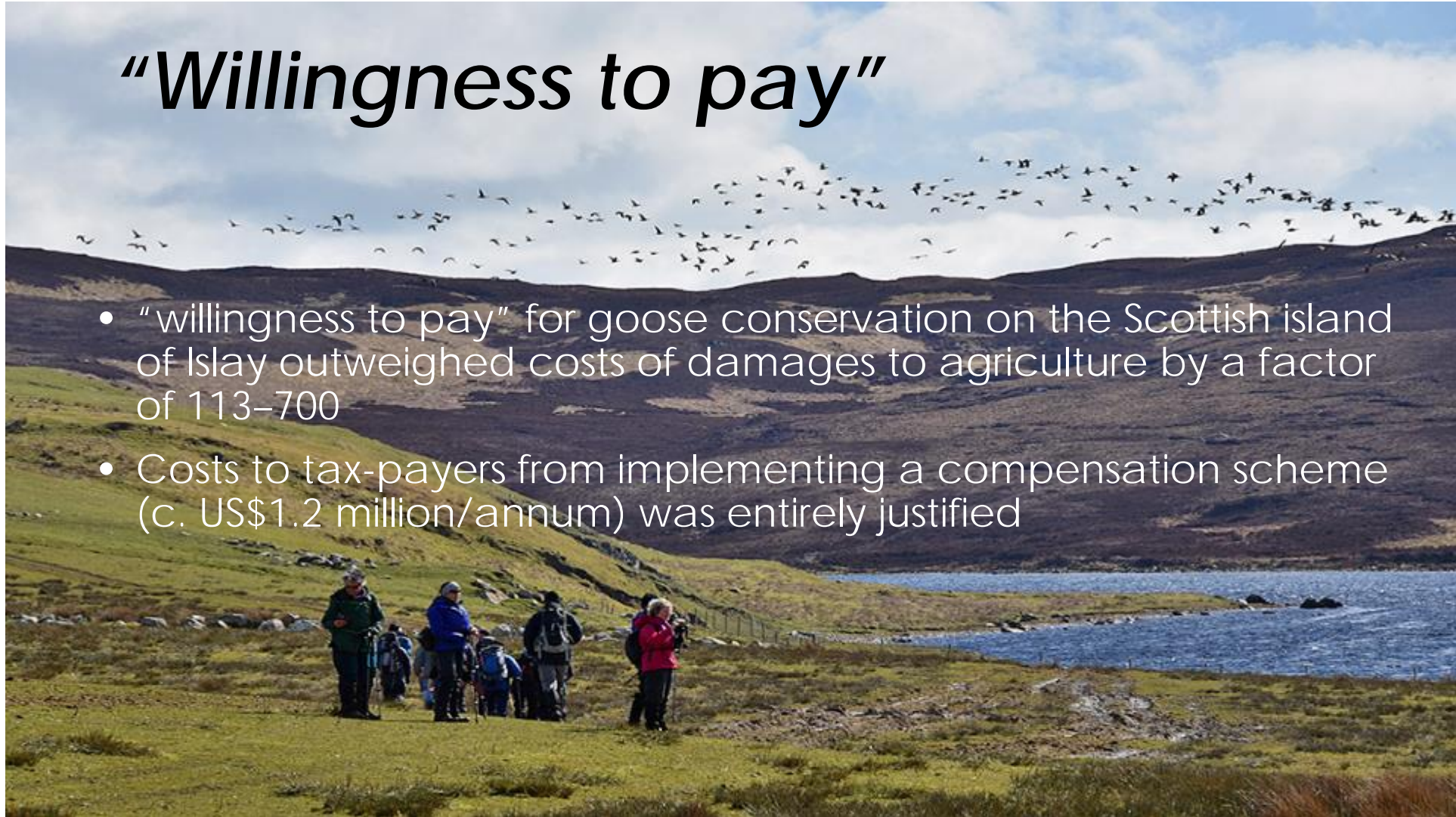
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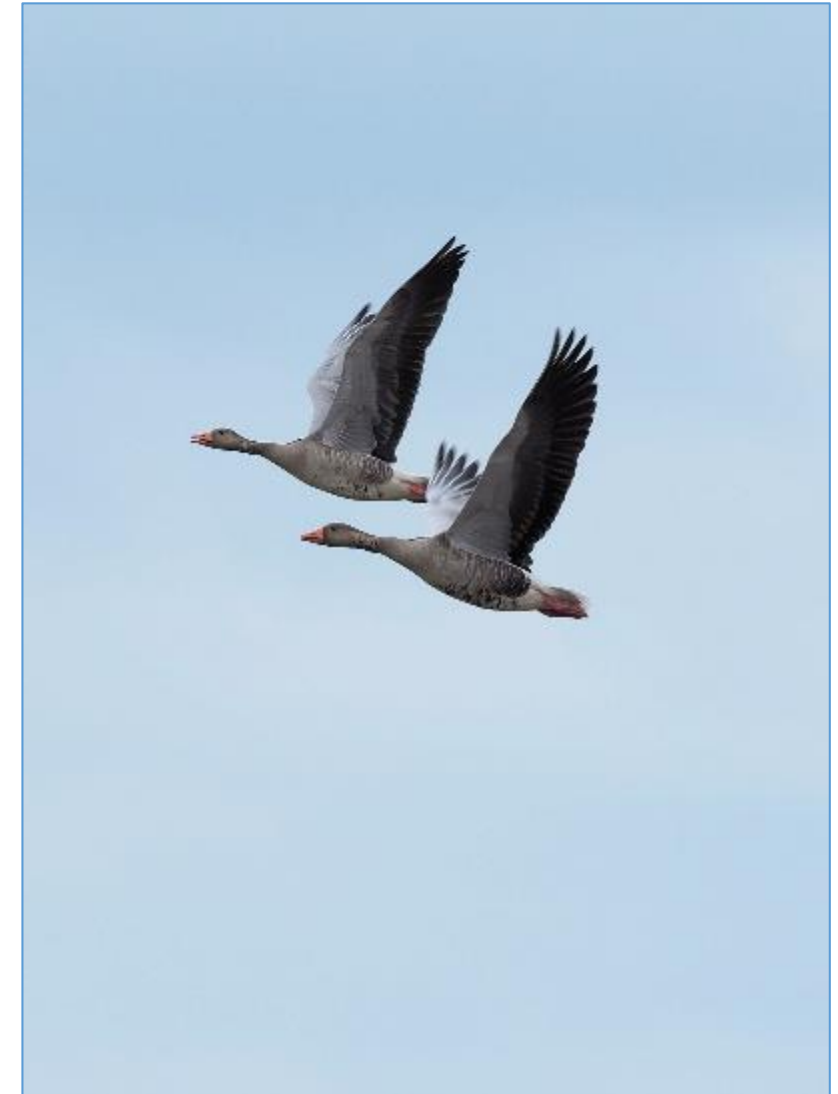
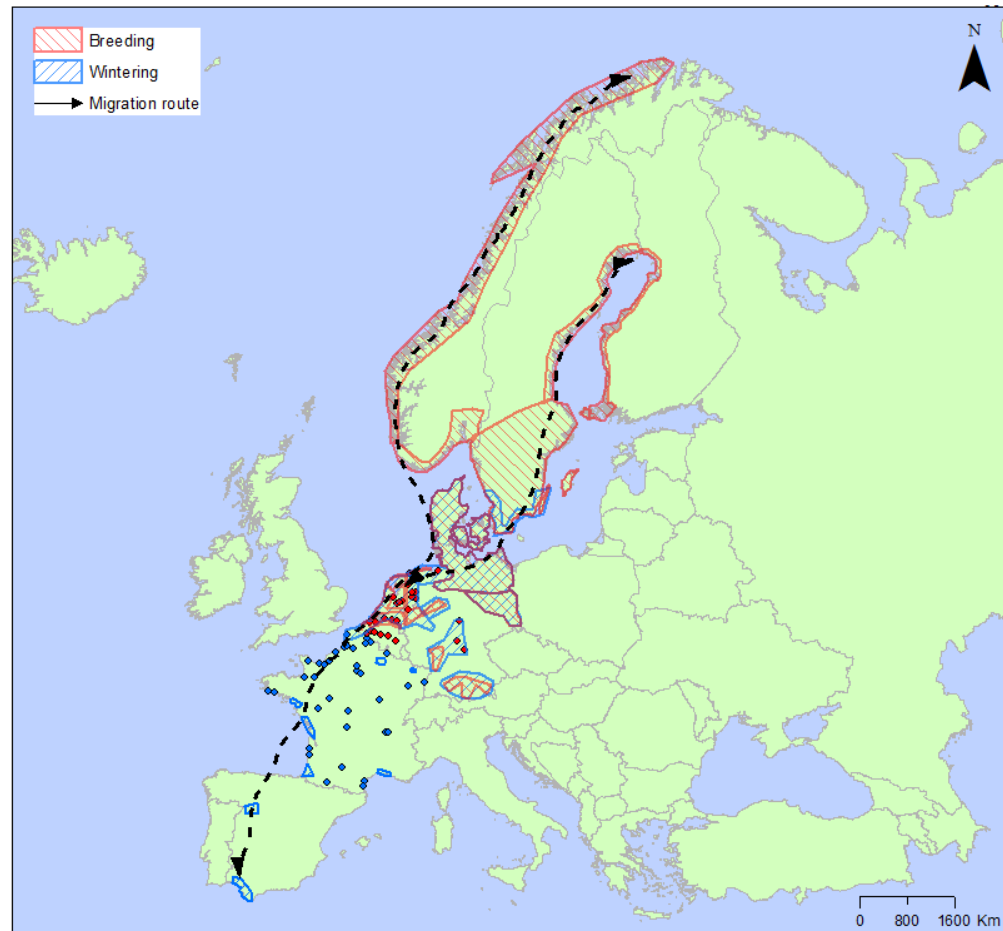


“Willingness to pay”

- “willingness to pay” for goose conservation on the Scottish island of Islay outweighed costs of damages to agriculture by a factor of 113–700
- Costs to tax-payers from implementing a compensation scheme (c. US\$1.2 million/annum) was entirely justified



Distribution and migration of the NW/SW European Greylag Goose population



Size and trend of the NW/SW European Greylag Goose population, January counts 1980 to 2012

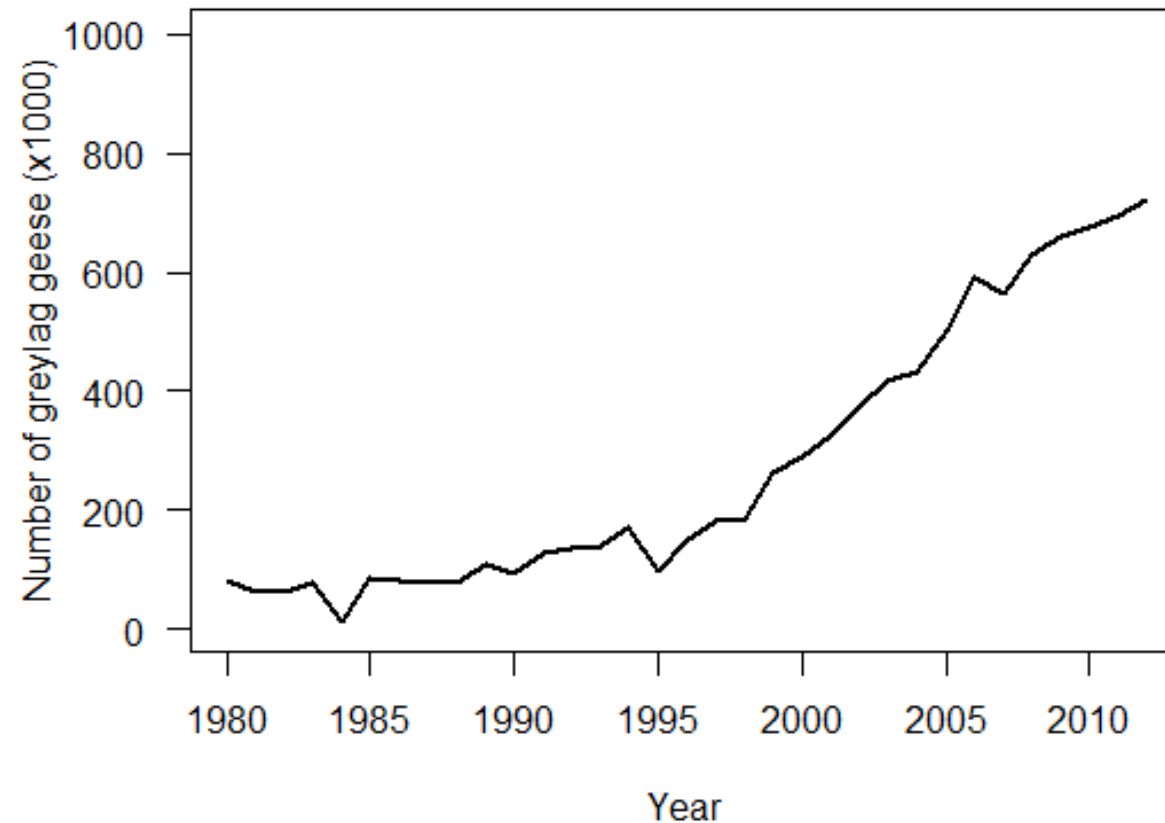


Table 1. Biological status of Greylag goose in the range states.

Range states	Resident individuals	Migratory individuals		
		reproduction	stop-over	wintering
Belgium	x	x	x	x
Denmark		x	x	x
Germany	x	x	x	x
Finland		x	?	
France	x	x	x	x
Netherlands	x	x	x	x
Norway		x	x	(x)
Spain	x	?	x	x
Sweden		x	x	x



January counts from 2010-2017

Year	Norway	Sweden	Denmark	Germany	Netherlands	Belgium	France	Spain
2010	NA	30260	71974	61597	365851	10130	20173	114642
2011	NA	12510	61353	65040	420771	13893	28284	93775
2012	NA	40033	133453	106083	353007	12941	19612	57532
2013	NA	19849	91185	NA	392091	14031	20081	NA
2014	NA	31382	87095	NA	353333	14530	15898	NA
2015	NA	37907	81268	NA	370117	13863	18755	NA
2016	NA	29749	106295	NA	NA	13100	17756	NA
2017	NA	33717	NA	NA	NA	NA	NA	NA

Annual increase (2010 -)

- 2 % 8 % 24 % 0.1 % 5 %

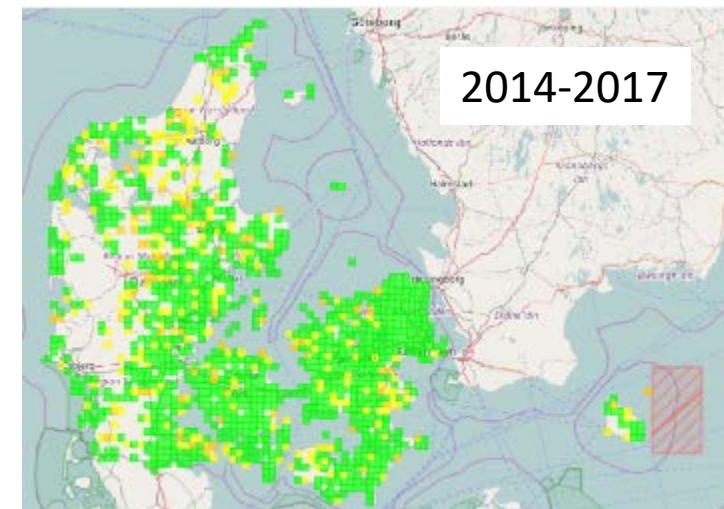
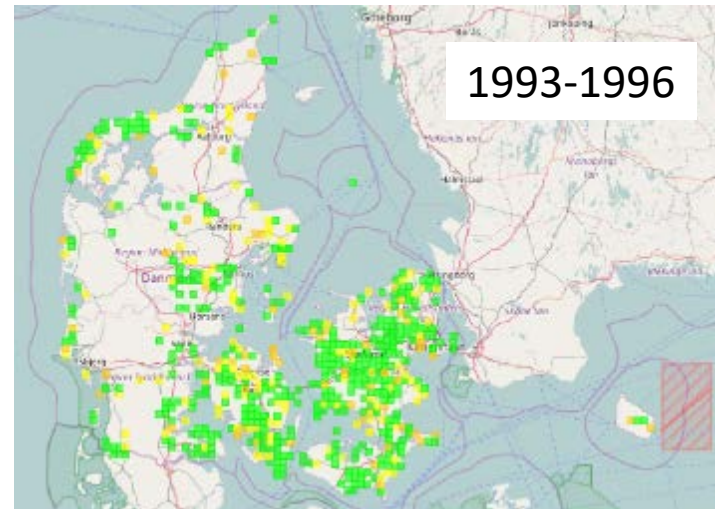
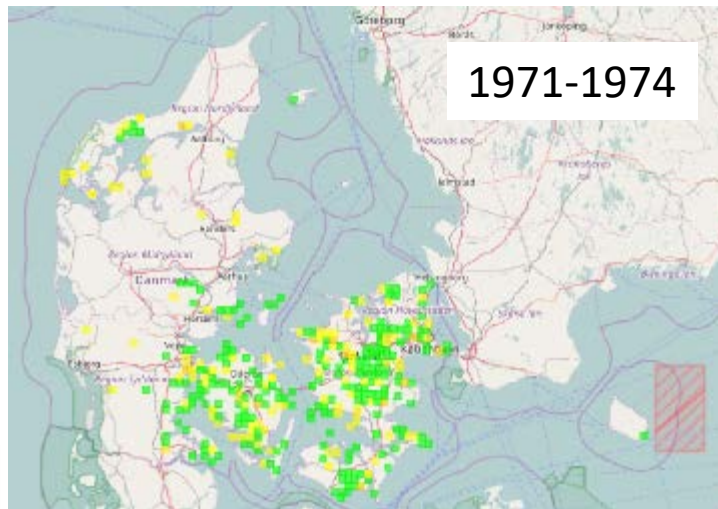
Annual increase (1987 - 2009)

- 37 % 33 % 14 % 13 % 13 % 19 % 4 %



Colonisation and dispersal processes

Example: Danish greylag goose breeding distribution
(in 5 km x 5 km grid)
(source: Danish Ornithological Society, ATLAS projects)



Damage to agricultural crops

Greylag goose population	Most affected	Other crops which are affected
NW/SW European	Grassland Permanent: Netherlands, Sweden New sown: Germany (RLP) Cereals Ripening: Denmark Spring: Norway Winter: Germany (SH, NRW, MW), Belgium	Vegetables, grass seed, beet



Management action	Norway	Sweden	Denmark	Germany	Belgium	Netherlands	France
Local scaring	X	X		X	X	X	
Economic compensation to affected farmers		(X)			X	X	
EU agro-environment subsidy schemes				X			
National subsidy scheme		X				Regional schemes	
Alternative goose foraging areas		X		X	X*	X	
Hunting	X	X	X	X	X		X
Derogation shooting	X	X	X	X	X	X	
Local population control	X	X		X	X	X	
Which means of control is used?	egg oiling/picking/shaking/collection, culling of adults						
Is there a national goose management strategy?	X						

* Not with the purpose to alleviate damage



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Table 7. Availability of bag statistics, derogation reports and recent bag sizes for the Greylag goose

Range state	Annual statutory bag statistics	Annual hunting bag size	Period/Latest estimate	Annual derogation size	Period/Latest estimate
Finland	Yes	6,500	2015	67	2015
Belgium	Yes	2,183	2015	111	2016
Denmark	Yes	64,400	2016	2,046	2014
France	No	10,614	2014	0	-
Germany LS, MV, NRW, SH, Bayern, RLP, Brandenburg	Yes	56,500 (17,551+1685+9933+16116+7750+922+2500)	2015	25 individuals; ~ 8,500 eggs	2015
Netherlands	Yes	0	-	237,941 individuals; 106,422 eggs; 15,995 nests	2015/2016
Norway	Yes	19,020	2015	~ 500	2016
Spain	NA	NA	NA	50	2013
Sweden	Yes	31,537	2015	3,435	2012
<i>Overall</i>		~ 190,000		251,604 individuals; 107,422 eggs; 15,995 nests	



Upcoming meetings and activities



Modelling Consortium: January 2018

Convening EGMP **Task Forces:** February 2018

IWG3 in June 2018 + 2nd Barnacle Goose Workshop (host country?)