



The Taiga Bean Goose – Population distribution and migration, status and trends, status of knowledge, scientific and monitoring efforts

Thomas Heinicke



AEWA Single Species Action Planning Workshop
for the Taiga Bean Goose (*Anser f. fabalis*)
12-14 November 2013, Tuusula, Finland



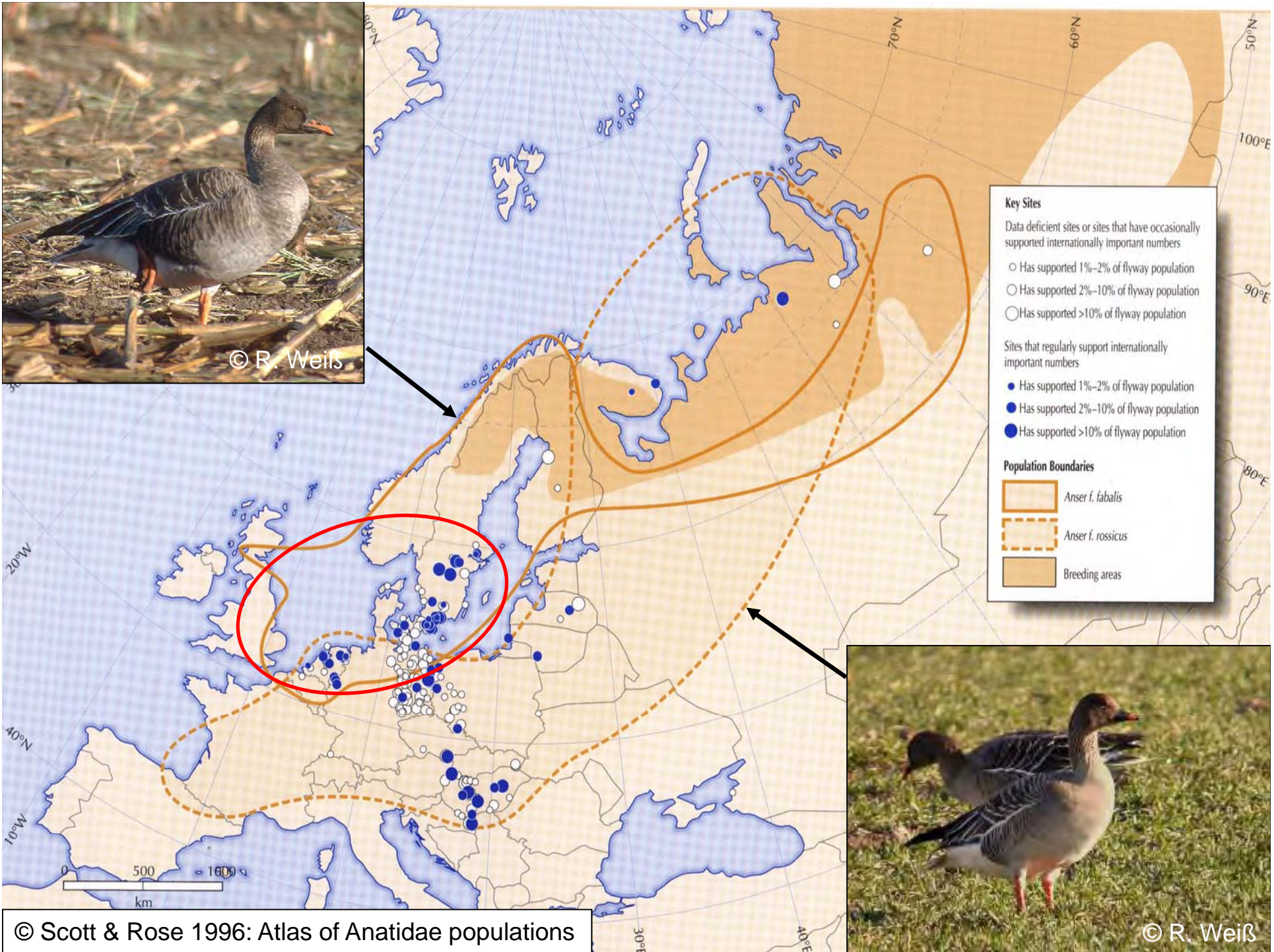
>> main topics

1. population distribution
2. status and trends
3. migration pattern of different population units
4. what we know and what we don't know





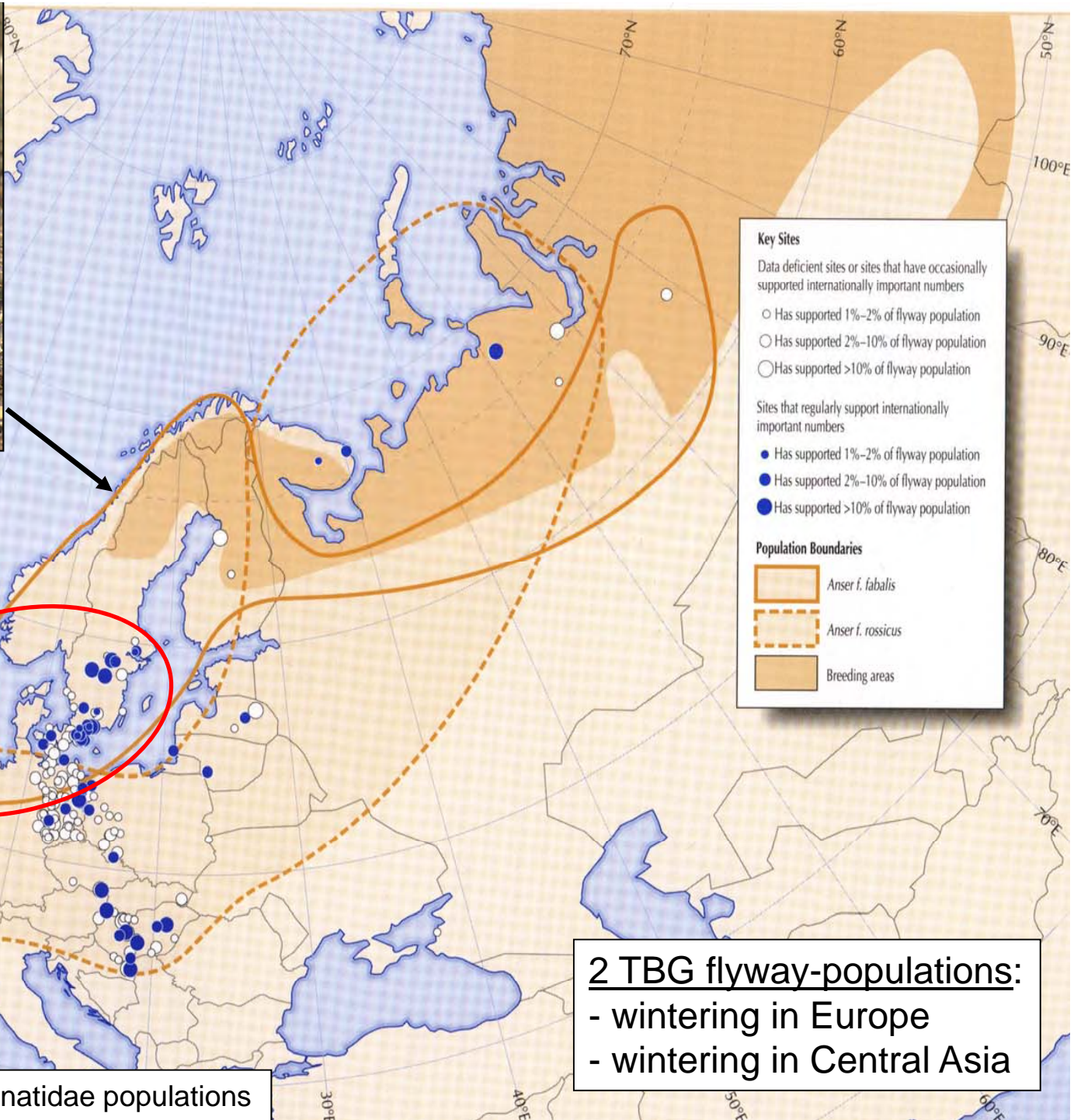
© R. Weiß



© Scott & Rose 1996: Atlas of Anatidae populations



© R. Weiß

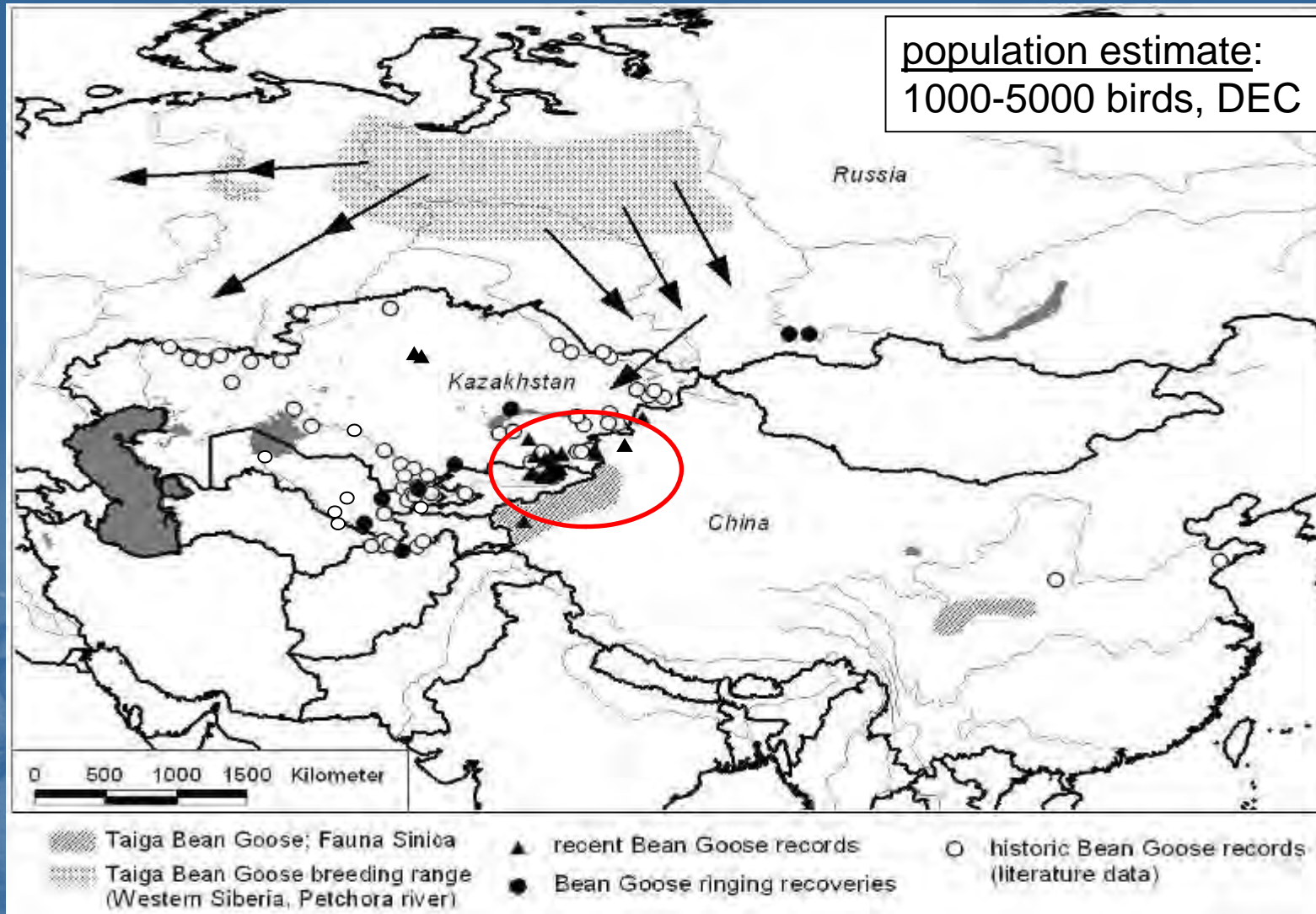


© Scott & Rose 1996: Atlas of Anatidae populations

2 TBG flyway-populations:
- wintering in Europe
- wintering in Central Asia



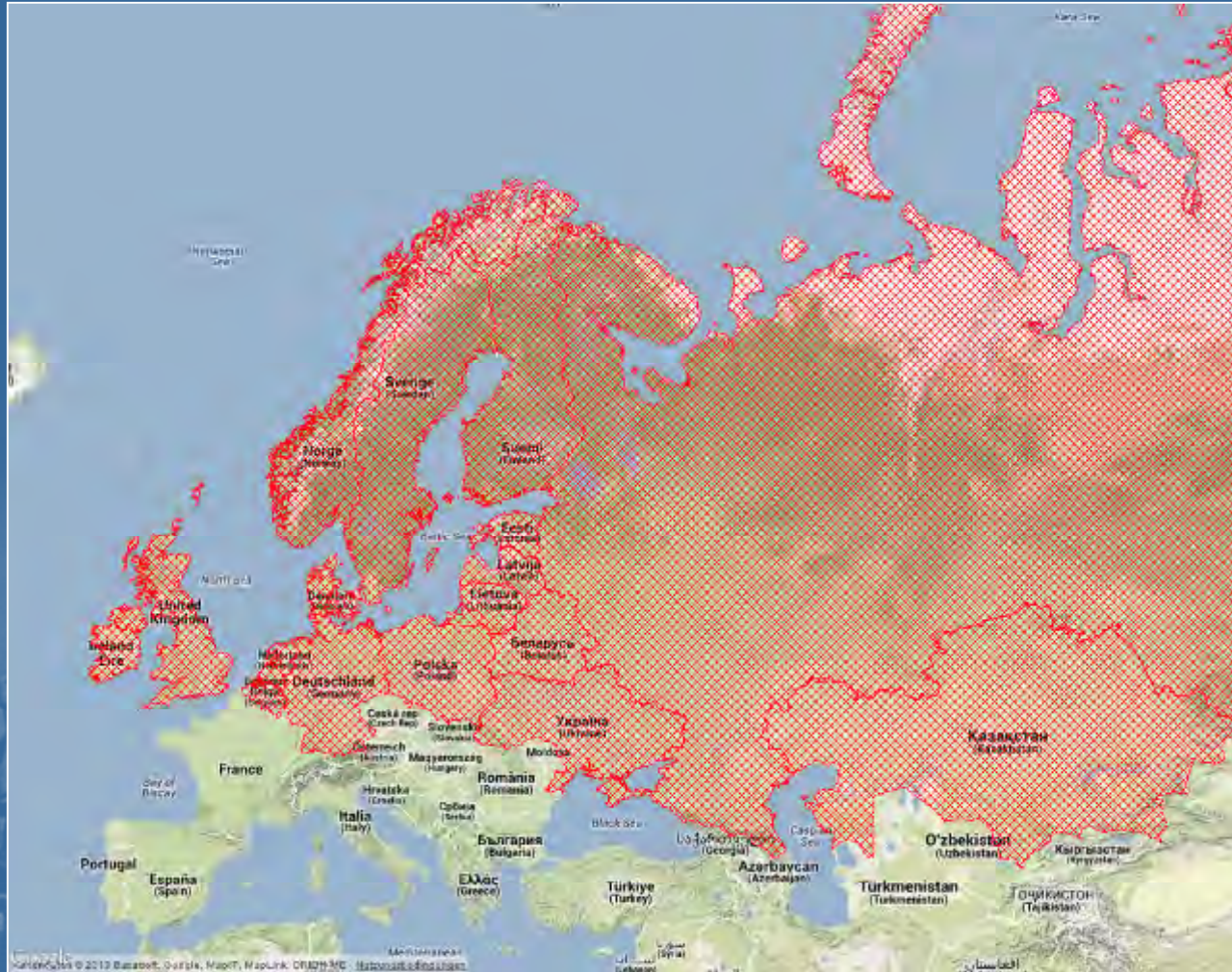
>> Taiga Bean Goose – eastern flyway





>> Taiga Bean Goose – western flyway

Countries with occurrence



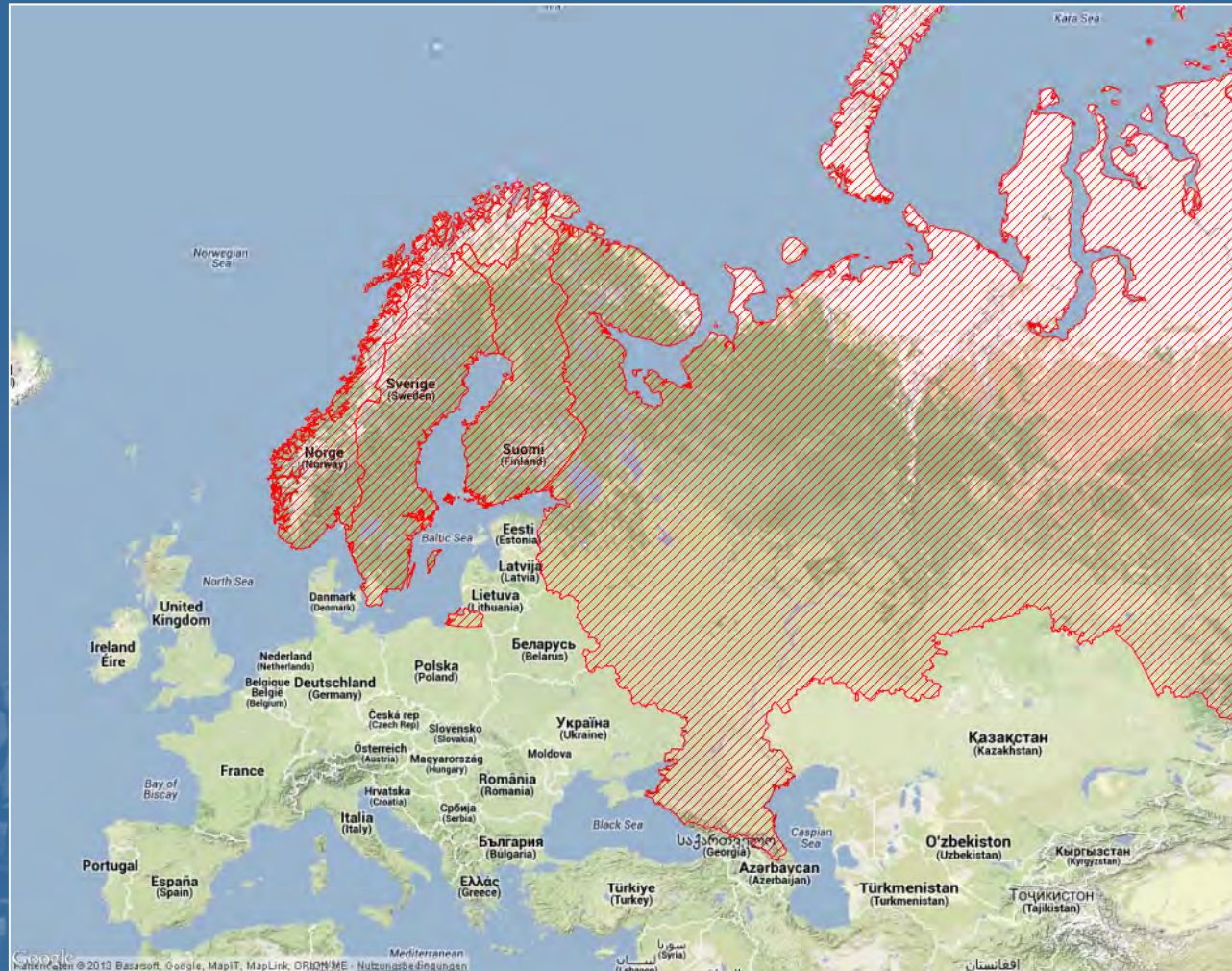
country	B	M	W
RUS			
FIN			
S			
N			
DK			
D			
PL			
UK			
EST			
LV			
LT			
BY			
UA			
KZ			
NL			
B			
IRL			

17 countries



>> Taiga Bean Goose – western flyway

Countries with occurrence of breeding Taiga Bean Geese



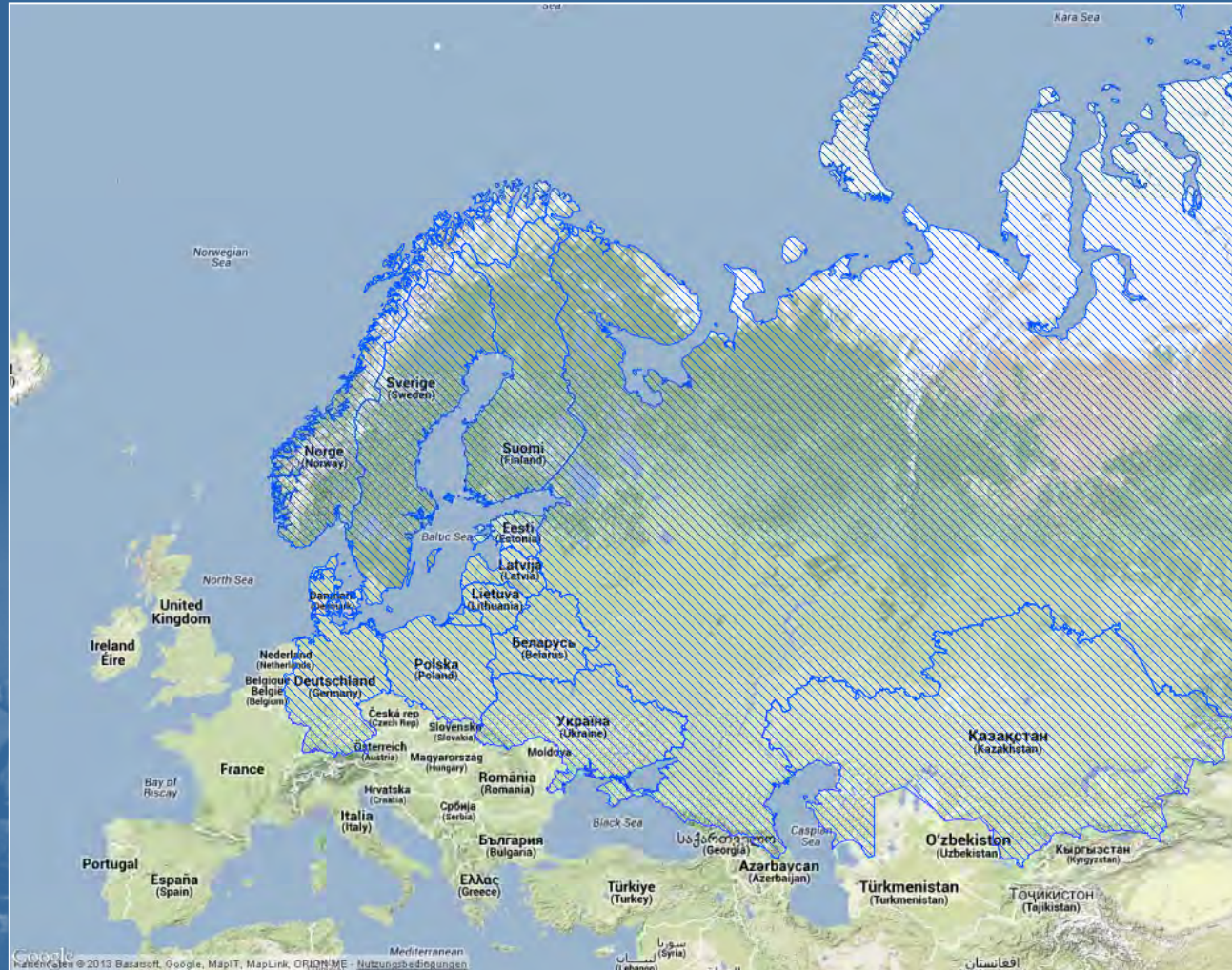
country	B	M	W
RUS	X		
FIN	X		
S	X		
N	x		
DK			
D			
PL			
UK			
EST			
LV			
LT			
BY			
UA			
KZ			
NL			
B			
IRL			

4 countries



>> Taiga Bean Goose – western flyway

Countries with occurrence of migrating/staging Taiga Bean Geese



country	B	M	W
RUS	X	X	
FIN	X	X	
S	X	X	
N	x	X	
DK		X	
D		X	
PL		X	
UK			
EST		X	
LV		X	
LT		X	
BY		X	
UA		X	
KZ		(x)	
NL			
B			
IRL			

13 countries



>> Taiga Bean Goose – western flyway

Countries with occurrence of wintering Taiga Bean Geese



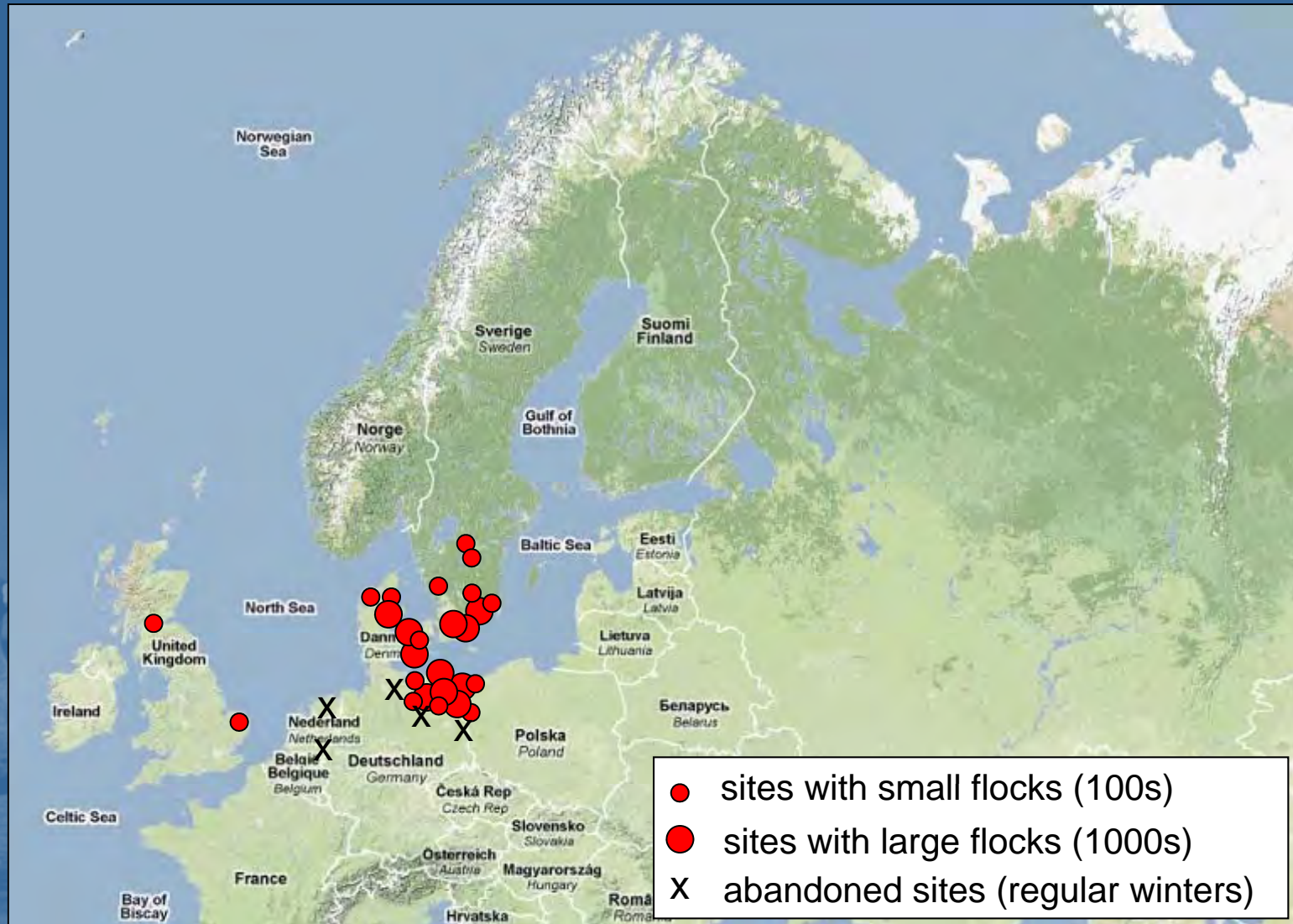
country	B	M	W
RUS	X	X	
FIN	X	X	
S	X	X	X
N	x	X	x
DK		X	X
D		X	X
PL		X	X
UK			X
EST		X	
LV		X	
LT		X	
BY		X	
UA		X	
KZ		(x)	
NL			x
B			(x)
IRL			(x)

7-9 countries



>> Taiga Bean Goose – western flyway

main wintering areas of Taiga Bean Geese in Europe





>> population monitoring - wintering areas

Availability and quality of recent monitoring data in Europe

- ☺ Data available, good quality
- ☹ Data available, fair quality
- ☹ Data available, poor quality
- ☹ No data available





>> population monitoring - wintering areas

Availability of monitoring data 1990-2013 per country (only January)

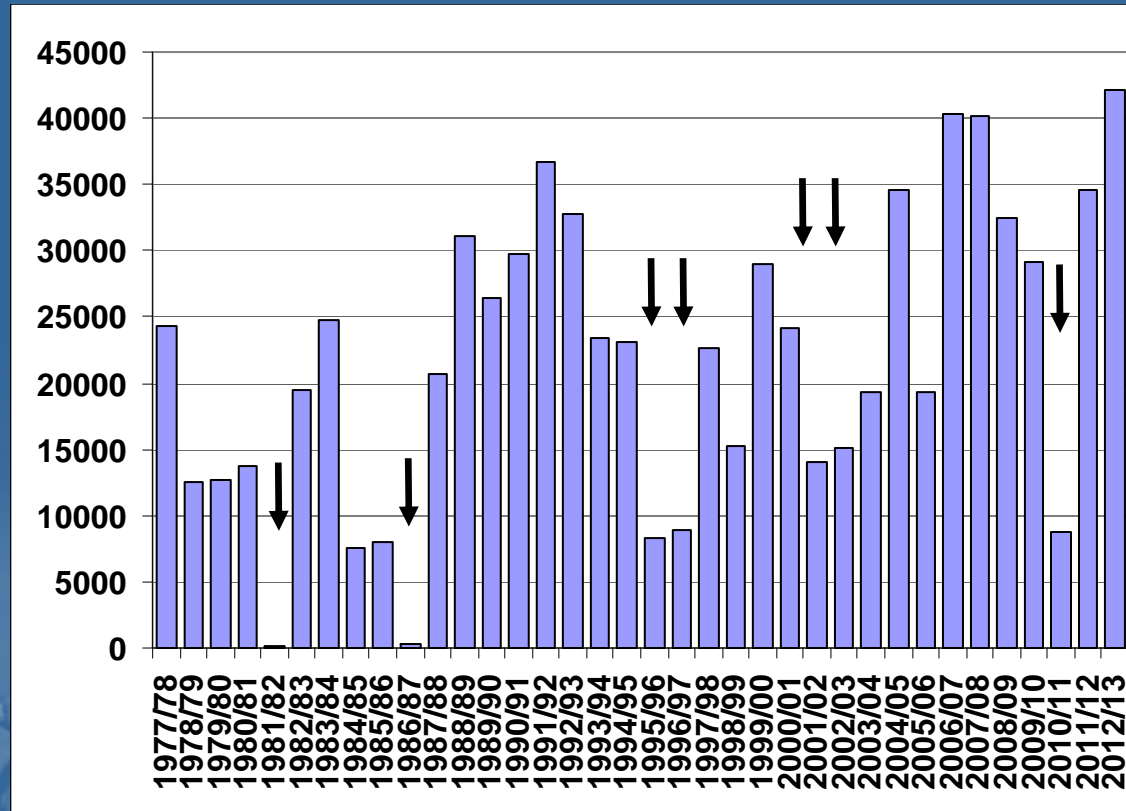
	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	source/remarks	
DK	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	S. Pihl/NERI; not fully separated by race	
S	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	L. Nilsson; no separation by race	
UK	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	available	C. Mitchell/WWT	
NL	available	available	available	available	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	available, but doubtful	K. Koffijberg/SOVON; separation by race doubtful in recent years
D	not available	not available	not available	not available	not available	not available	not available	not available	not available	not available	not available	not available	not available	available	available	available	not available	not available	available	not available	available	not available	not available	available	T. Heinicke; special counts in 2004-2006, 2009, 2011, 2013	
PL	not available	not available	not available	not available	not available	not available	not available	not available	not available	not available	available	available	available	available	not available	not available	not available	available	not available	available	not available	not available	available	not available	T. Heinicke (2005, 2009, 2011, 2013) & regional reports 2001-2004)	

available
 Available, but doubtful
 not available



>> monitoring results

Population development in Sweden (Jan)



results:

40,291 Jan 2007

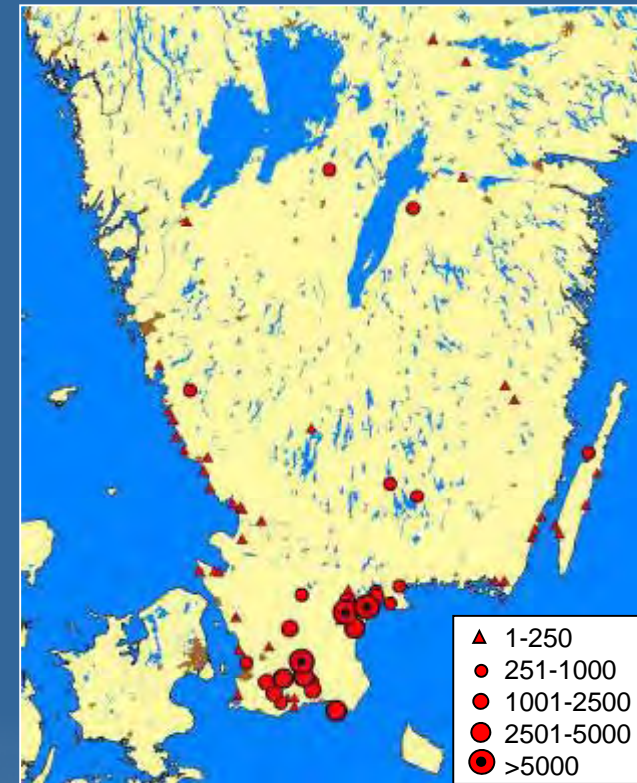
40,131 Jan 2008

32,500 Jan 2009

8,744 Jan 2011

42,103 Jan 2013

© L. Nilsson



© L. Nilsson

Main goose regions:

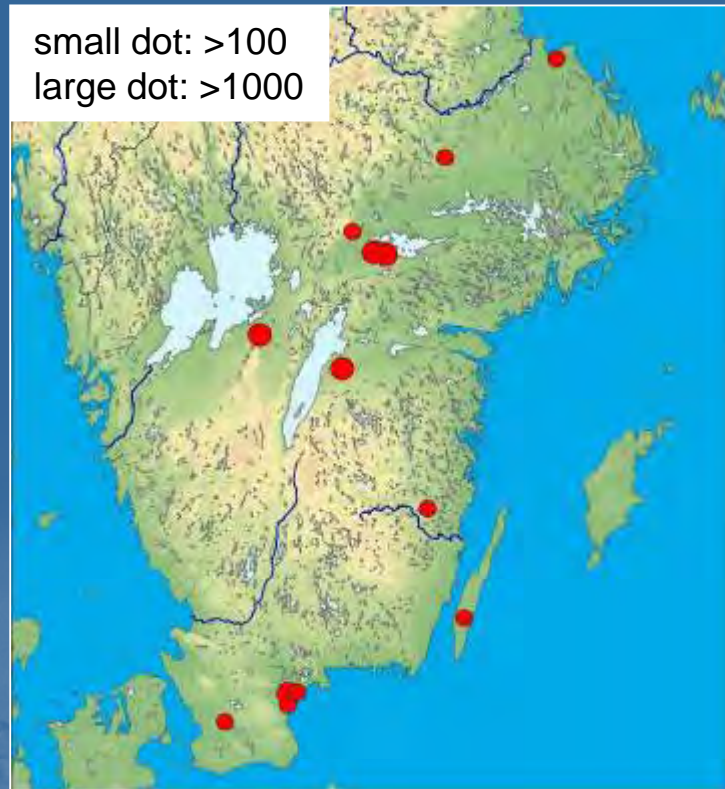
- Vomb-Krankesjön
- Hammarsjön
- Trolle-Ljungby
- Sörde
- Ringsjön
- Kabusa-Hammar

**including unknown numbers
of rossicus**



>> monitoring results

Tundra Bean Geese in Central & Southern Sweden (special counts)



© T. Heinicke, A. de Jong

*site maxima of rossicus in
central & southern Sweden
2009/10 – 2013/14*

	Sep	Oct	Nov
2009/10	>1620	9195	?
2010/11	1626	5763	5433
2011/12	104	7793	4455
2012/13	958	7785	7479
2013/14	960	5814	

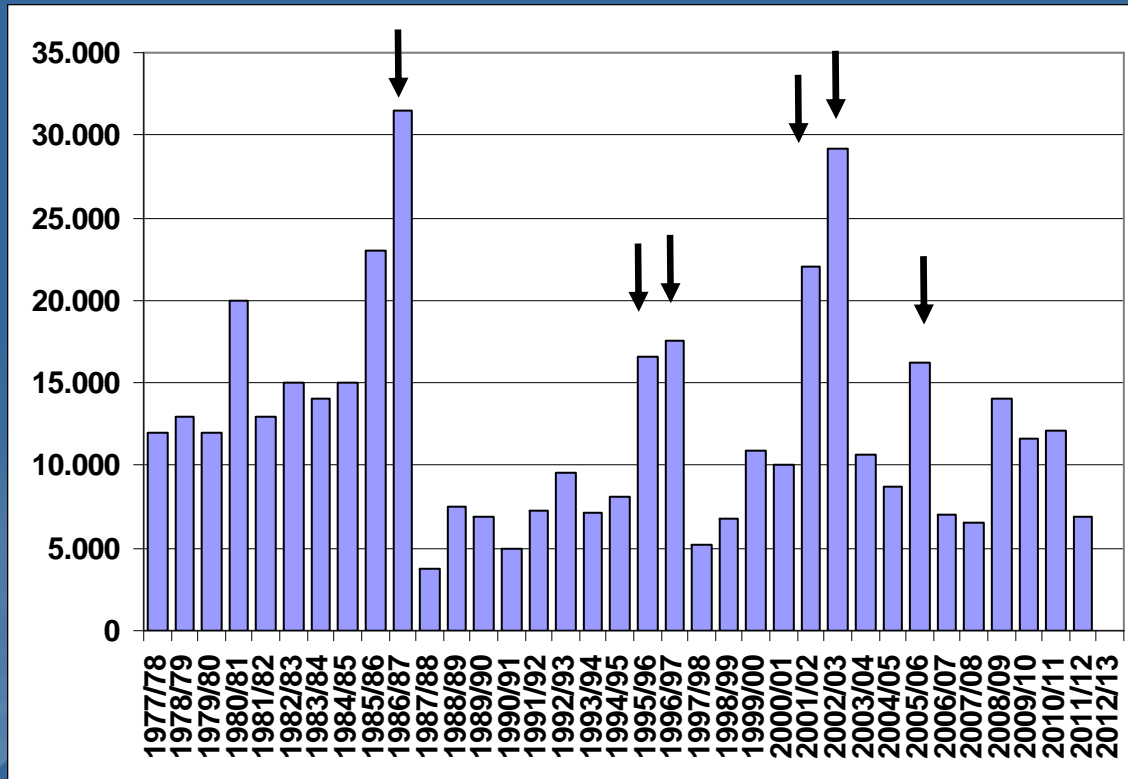
	Jan	Mch	Apr
2009/10	>1208	?	1145
2010/11	11	2722	2515
2011/12	5373	3745	2963
2012/13	>2500	?	1964

	Sep	Oct	Nov	(Nov)	Jan	Mch	Apr
Tåkern	1320	2340	185	525	-	500	612
Kvismaren	354	4090	0	1125	-	756	763
Östen	960	2732	6	4020	-	2244	1875
Hammarsjön	-	31	5042	1336	4988	2712	-



>> monitoring results

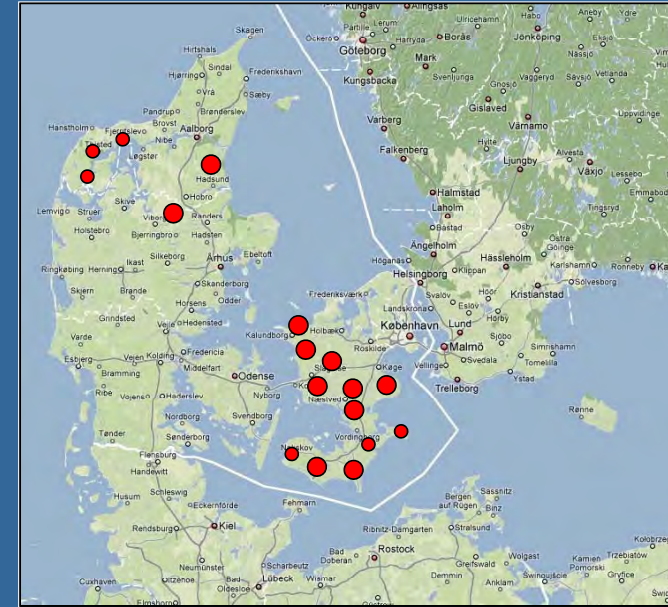
Population development in Denmark (Jan)



© S. Pih/NERI

results:

16,279 Jan 2006 (+1943 ross)
 7,080 Jan 2007 (+3943 ross)
 13,836 Jan 2009 (+3455 ross)
 ca. 15,000 Jan 2011 (+3901 ross)



© DOFbasen 2004-2013, Heinicke

Main goose regions:

- Thisted-Thy
- Lille Vildmose
- Nørreådal
- Sjælland
- Lolland
- Møn

including unknown numbers of rossicus (not fully separated)

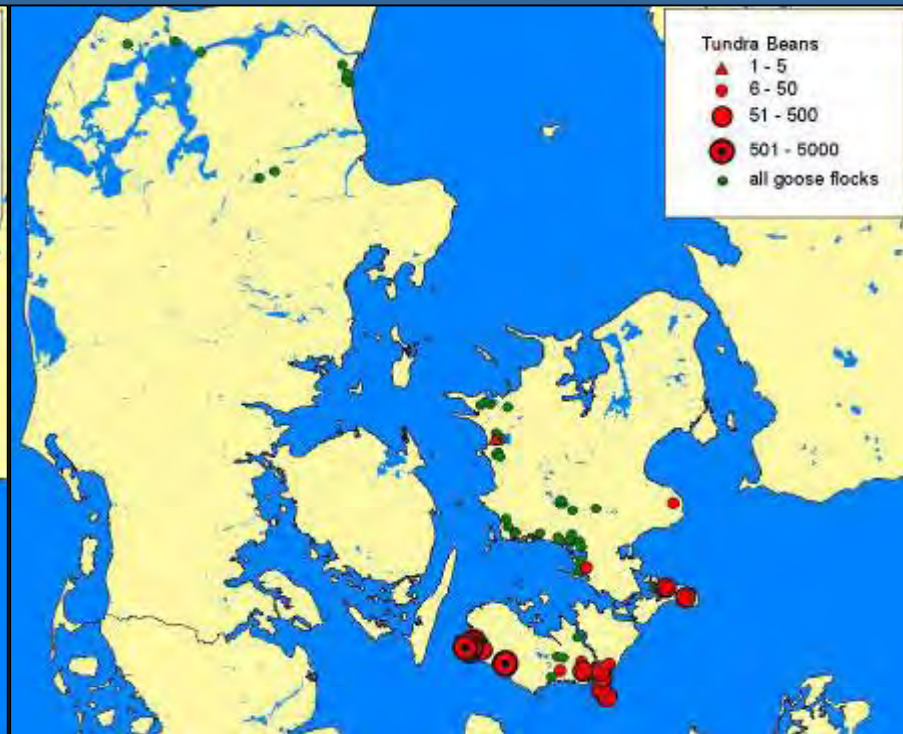
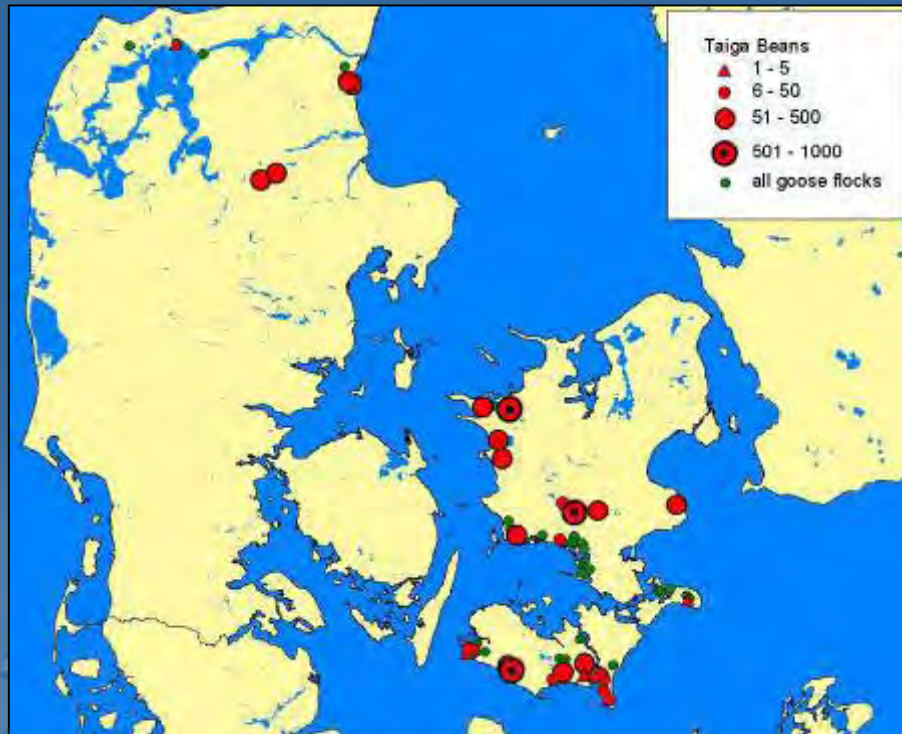


>> monitoring results

results of special Bean Goose counts in Denmark (late Dec 2009)

Taiga Bean Goose

Tundra Bean Goose



total: 4,616 *fabalis*

total: 6,016 *rossicus*

official January 2010-count: 11636 *fabalis*, 4063 *rossicus*, 7285 undet. (S. Pihl/NERI)



>> monitoring results

Population development in Germany

	2003/ 04	2004/ 05	2005/ 06	2008/ 09	2010/ 11	2012/ 13
Oct	1,000	6,500				
Nov	20,000	28,000				
Dec	30,000					
Jan	35,000	42,000	52,000	22,500	12,100	12,845
Feb	32,000					
Mch	8,000					

©: T. Heinicke/DDA

results: 42,000 Jan 2005 (normal winter)
 52,000 Jan 2006 (cold winter)
 22,500 Jan 2009 (normal winter)
 12,100 Jan 2011 (cold winter)
 12,845 Jan 2013 (normal winter)



©: T. Heinicke/DDA

Main goose regions:

- Lower Odra NP
- Pommerania coastal areas: Stralsund, Rügen, Greifswald, Anklam, Usedom
- Mecklenburg lake district

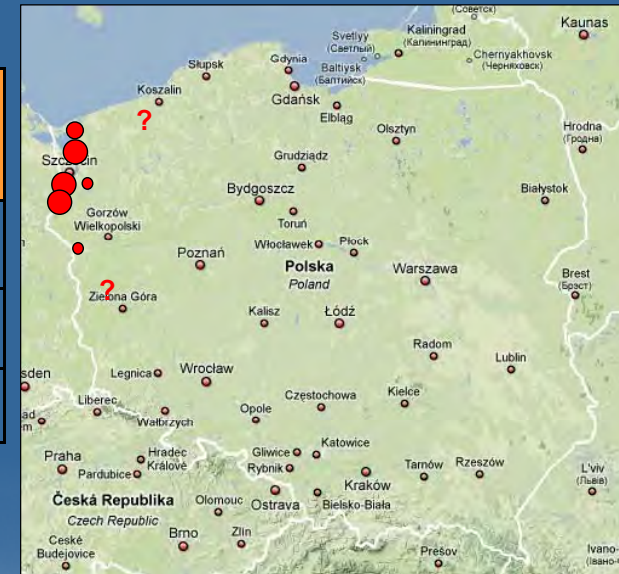


>> monitoring results

Population development in Poland

	2003/ 04	2004/ 05	2005/ 06	2008/ 09	2010/ 11	2012/ 13
Oct	(10,000)	(5,000)				
Nov	3,500	2,838				
Jan	3,800	490	(1500)	1500	1790	273

© T. Heinicke + regional reports NW Poland



© T. Heinicke

results: 3,800 Jan 2004
 490 Jan 2005
 1,500 Jan 2009
 1,790 Jan 2011
 273 Jan 2013

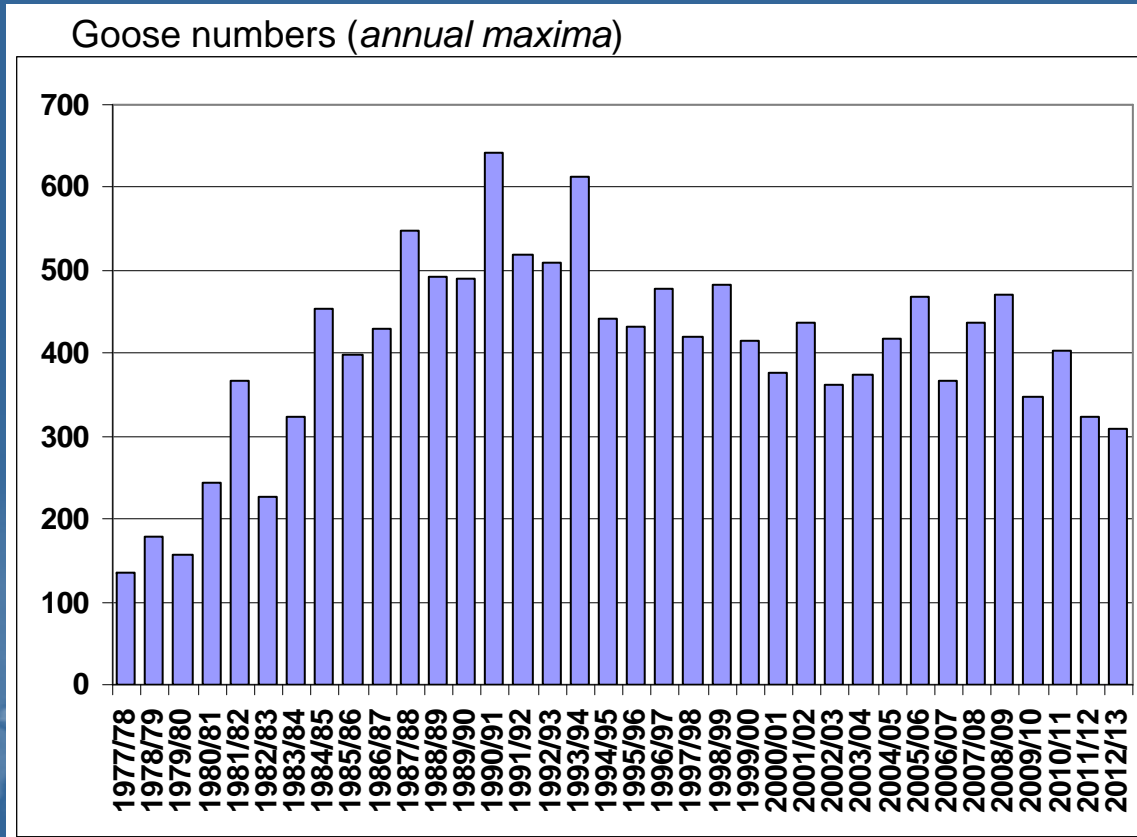
Main goose regions:

- Lower Odra NP (D+PL)
- coastal areas N Szczecin
- Warthe lowlands (D+PL)



>> monitoring results

Population development in the UK



© C. Mitchell in litt.

Main goose regions:

- Slammanan/Scotland
- Yare Marshes/Norfolk

results: 418 in winter 2004/05
 469 in winter 2005/06
 471 in winter 2008/09
 404 in winter 2010/11
 309 in winter 2012/13

© C. Mitchell/WWT



>> population estimates – western flyway

population development of Taiga Bean Geese wintering in Europe

period	S	DK	D	PL	UK	total	estimate
Jan 2004	19,326*	10,683*	>35,000	3,800	375	69,200	70,000-90,000
Jan 2005	34,560*	8,728*	42,000	490	418	86,200	
Jan 2006	19,289*	16,279*	52,000	1,500	469	89,500	
Jan 2009	32,500*	14,047	22,500	1,500	471	70,800 ¹	60,000-65,000
Jan 2011	8,744*	~15,000	12,100	1,790	404	38,100	40,000-45,000
Jan 2013	42,103*	?	12,845	273	309	? ²	?

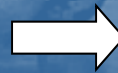
* data from S+DK include *rossicus*

¹ include about 5000 *rossicus* in Sweden + unknown numbers in Denmark

² include >10.000 *rossicus* in Sweden + Denmark

latest estimate: 40,000-45,000 (2011)

trend: decrease





>> population estimates – western flyway

population estimates and trends of Taiga Bean Geese wintering in Europe

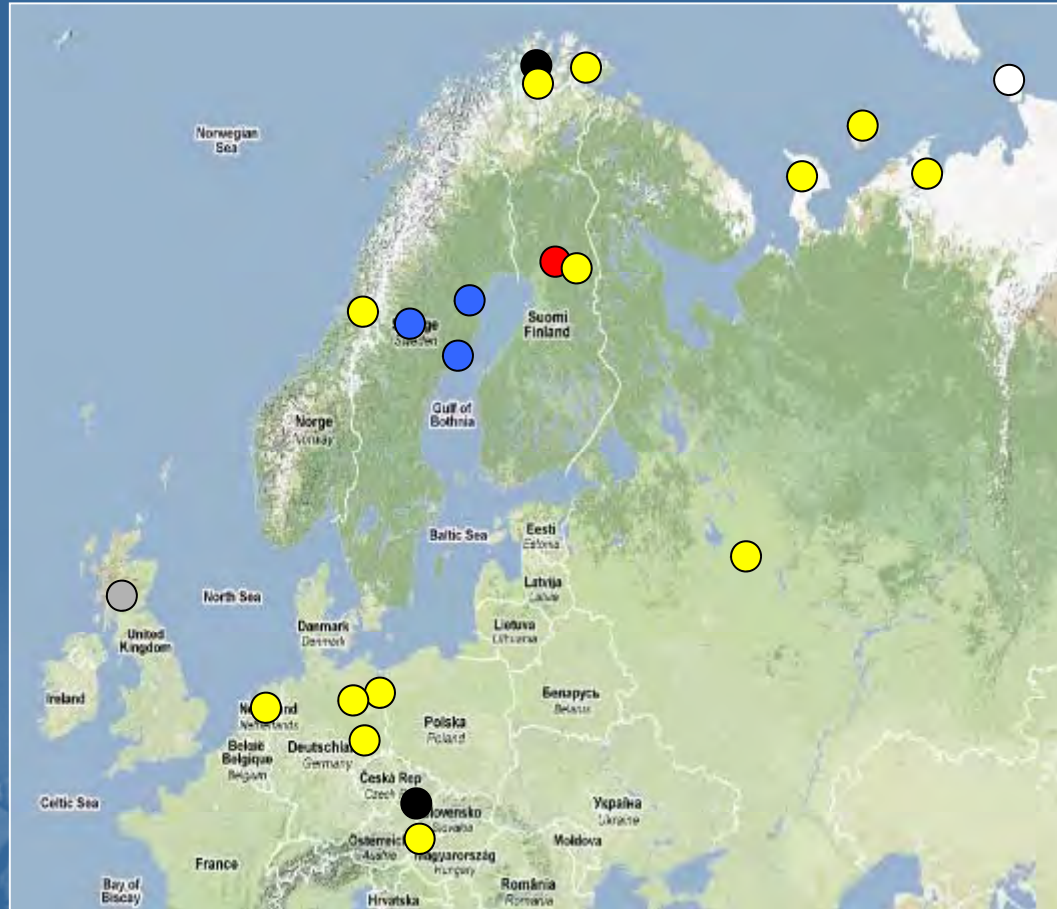
Year	population estimate	trend
1994 (WPE1)	80,000	increase
1997 (WPE2)	80,000	increase
2002 (WPE3)	100,000	stable
2006 (WPE4)	70,000-90,000	decrease
2009	60,000-65,000	decrease
2012 (WPE5)	40,000-45,000	decrease

trend: strong decrease (30-50 % within 10 years)
within two winters netto loss of 20,000 - 25,000 birds



>> Bean Goose ringing

Current banding projects in Europe



color of dots = color of neckbands

Σ >1.200 rossicus, >500 fabalis

Russia

- Vaygach 1996/97: 10 ross
- Kolguev 2006-2013: >50 ross, 1 fab
- Kanin 2010: 21 ross
- Pechora: 2008-2010: 23 ross
- Kostroma: 2009: 1 ross

Norway

- Valdak 2003-2010: 10 ross
- Varanger 2010+2012: 107 ross, 3 fab
- Trondelag 2010+2013: 4 fab
- Porsanger 2013: 3 ross

Finland

- 2001-2013: several 100 fab

Sweden

- Umea 2005-2012: 7 ross, 38 fab
- Lulea 2009: 30 ross, 7 fab
- Vilhelmina 2012+2013: 40 fab

Germany

- Lower Odra NP 2007: 21 ross, 38 fab
- Leipzig 2007+2008: 83 ross
- Gülpe 2006+2008: 89 ross

Czech Republic

- Nove Mlyny 2006: 2 ross

Netherlands

- several sites 2001-2013: >700 ross

Hungary

- lake Neusiedl 2010: 35 ross

UK

- Scotland 2011+2012: 21 fab



>> migration of Taiga Bean Geese

goose catching at Lower Odra NP/Germany (Oct 2007)



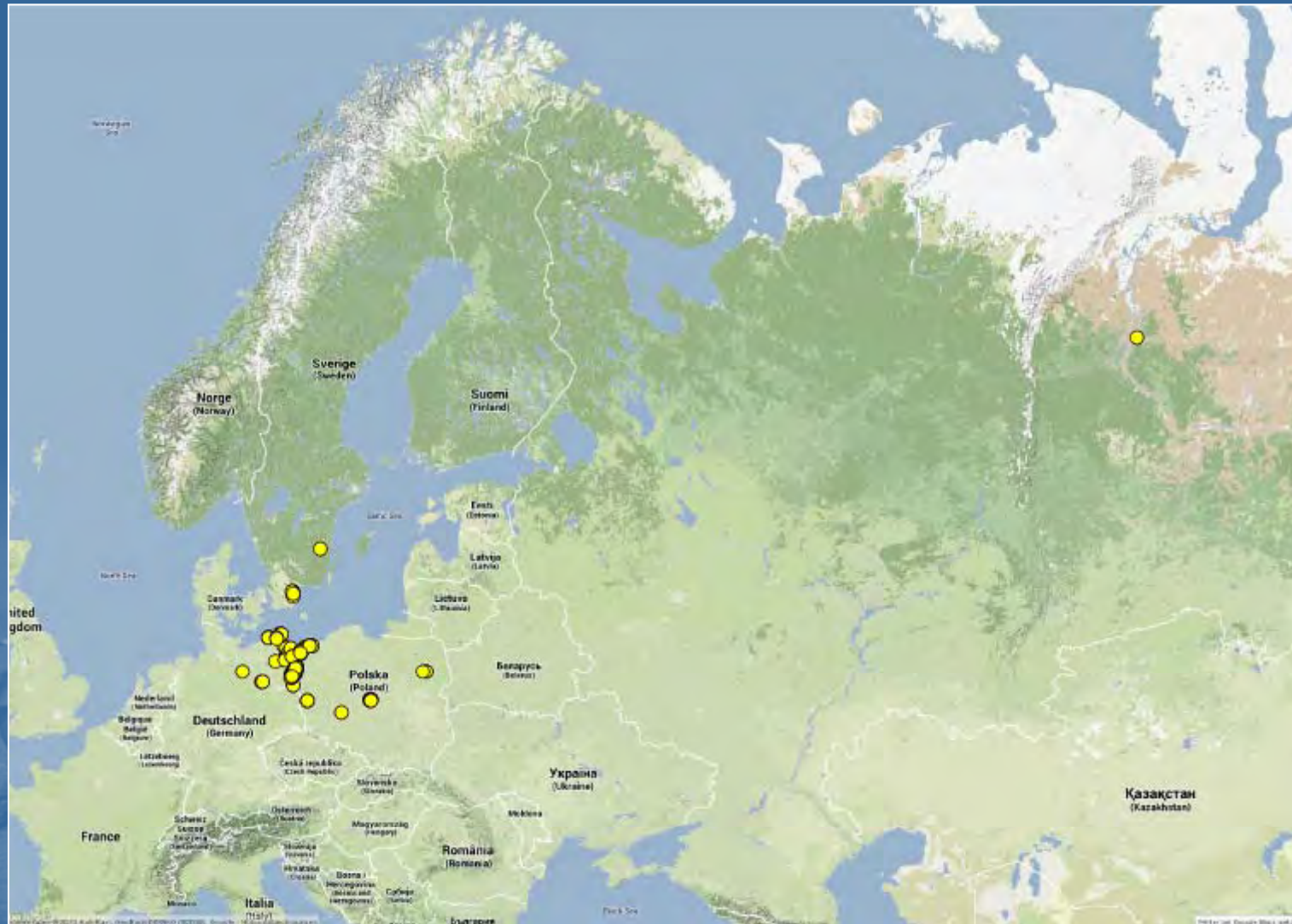
© T. Heinicke





>> migration of Taiga Bean Geese

reports of Taiga Beans ringed at Lower Odra NP





>> migration of Taiga Bean Geese

reports of Taiga Beans ringed at Lower Odra NP





>> migration of Taiga Bean Geese

goose catching in Northern Sweden (spring 2007-2012)





>> migration of Taiga Bean Geese

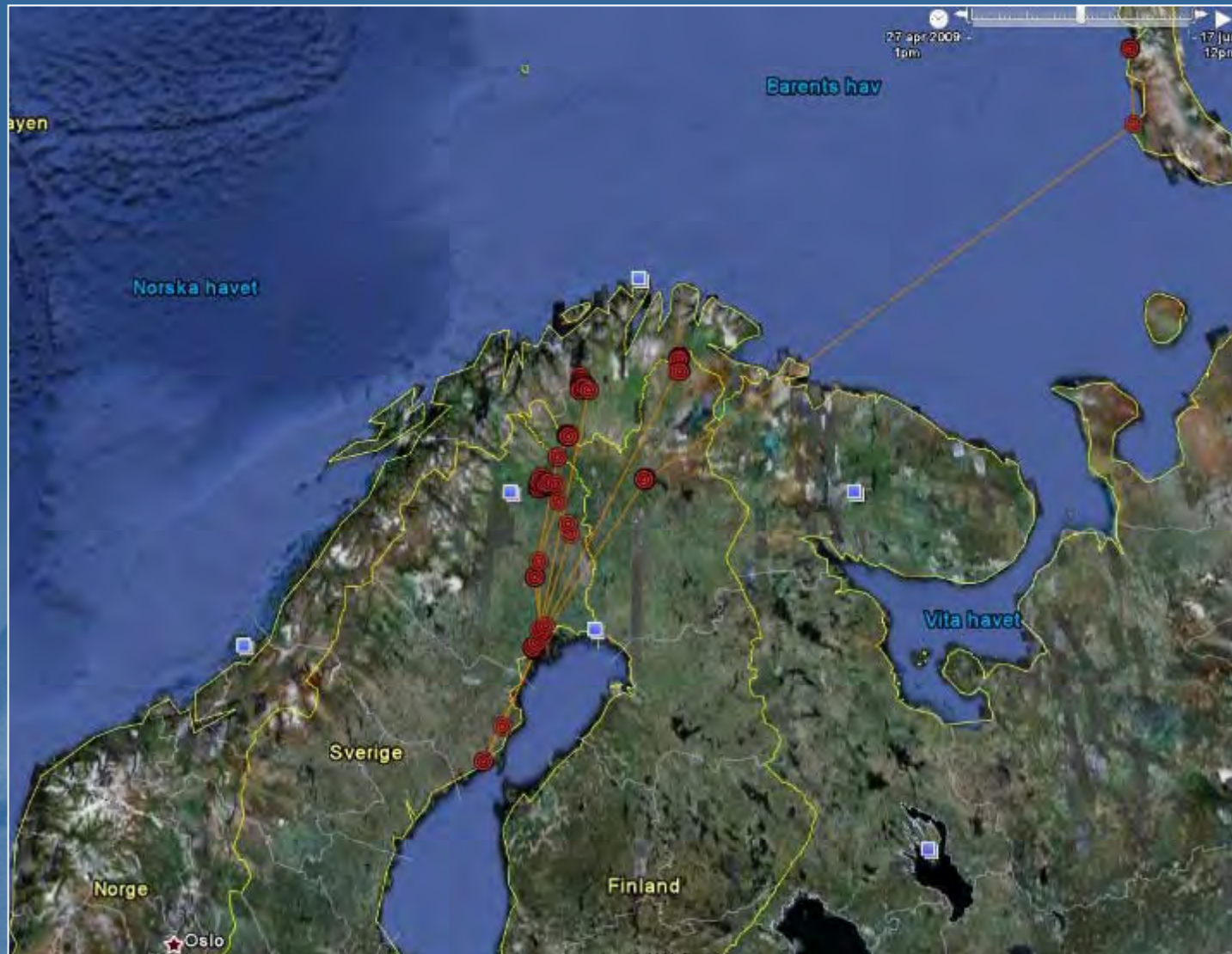
neckband reports of Taiga Beans ringed in Northern Sweden





>> migration of Taiga Bean Geese

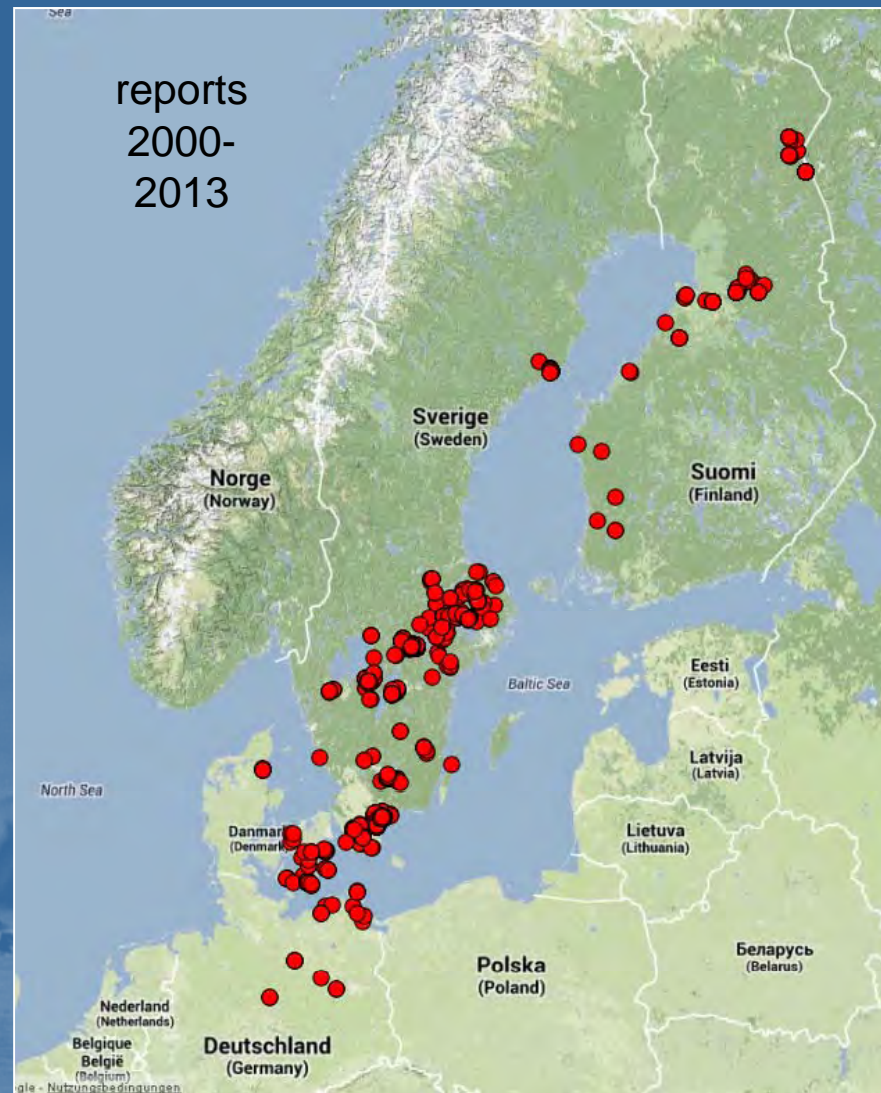
results of transmitter birds in Northern Sweden (2008-2009)





>> migration of Taiga Bean Geese

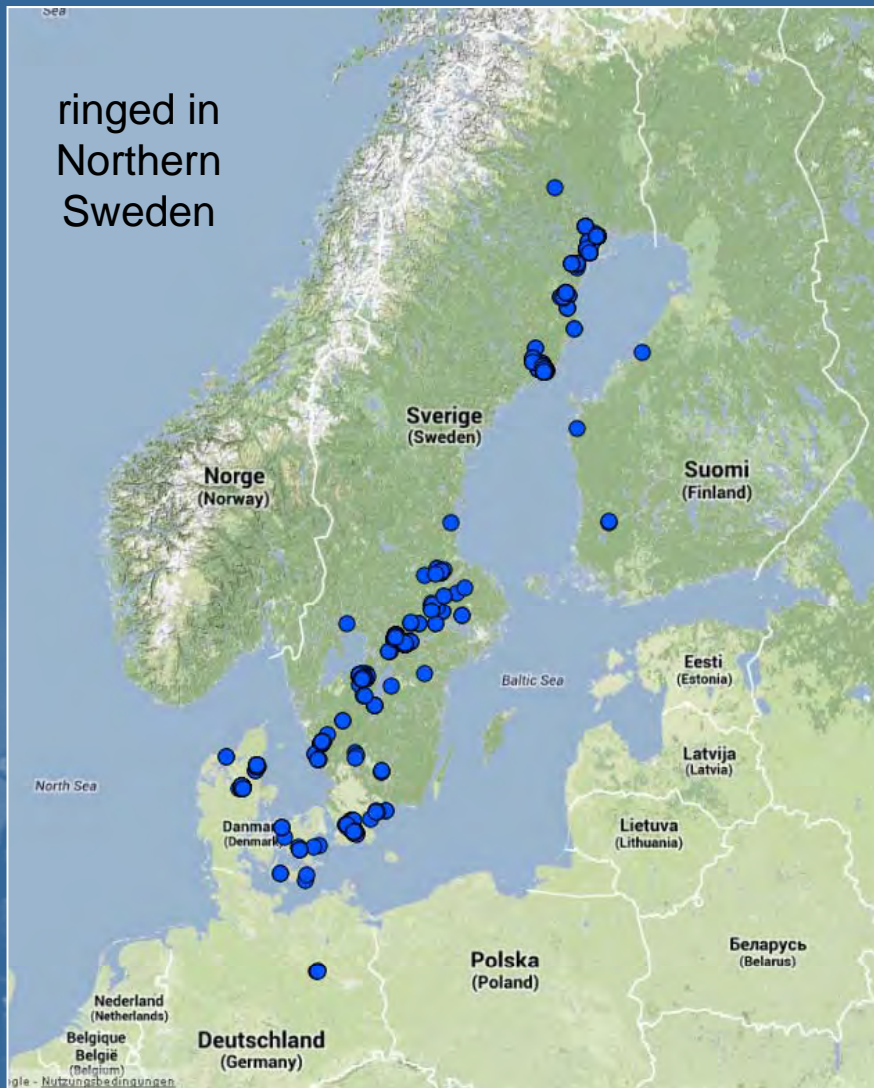
neckband reports of finnish ringed Taiga Beans





>> migration of Taiga Bean Geese

neckband observation from north swedish & finnish Taiga Beans





>> migration of Taiga Bean Geese

moult catches in southern Swedish Lapland (2012-2013)





>> migration of Taiga Bean Geese

migration of Taiga Beans from southern Swedish Lapland





>> migration of Taiga Bean Geese

Bean goose catches in Scotland (2011-2012)

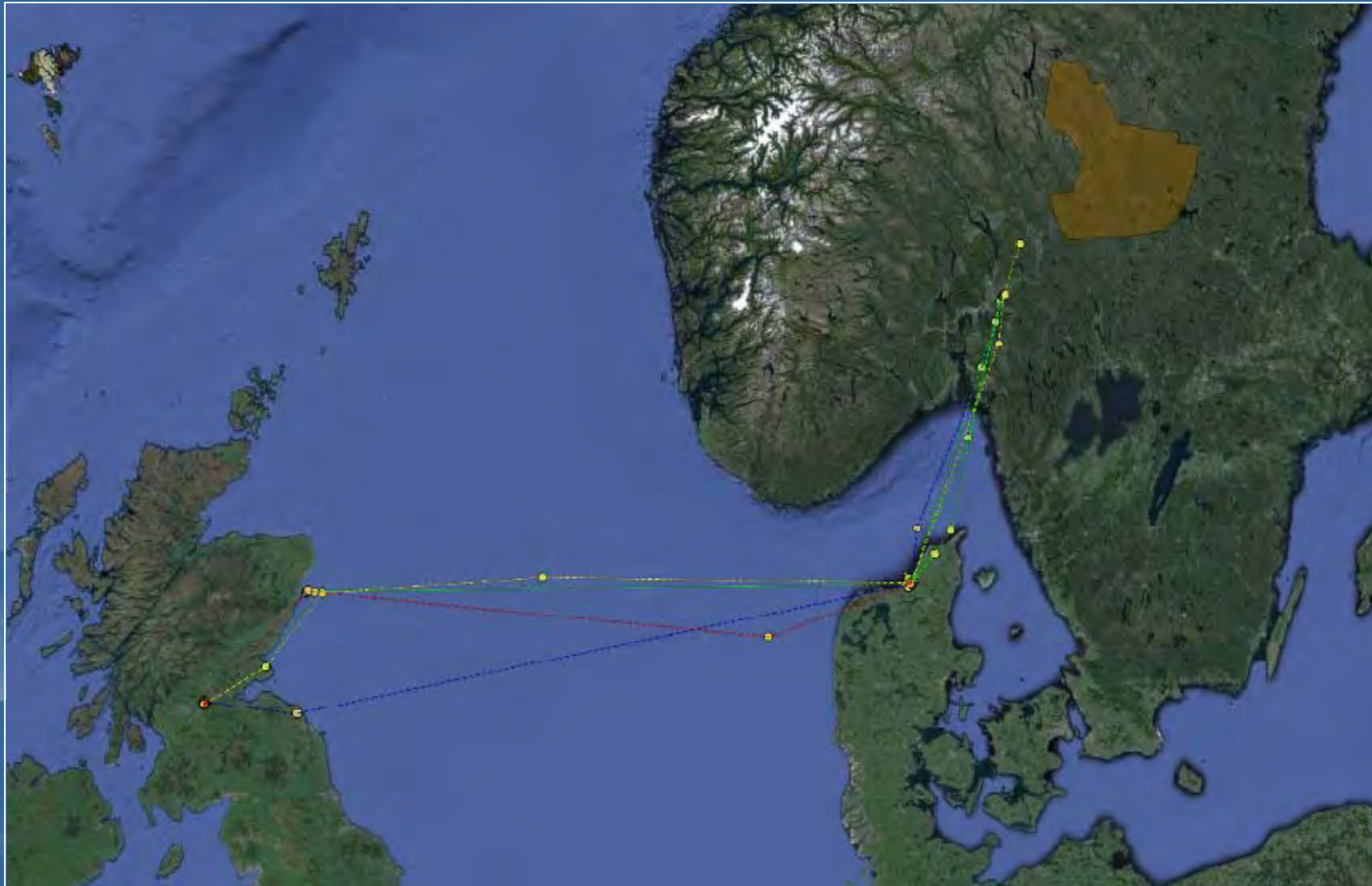


© C. Mitchell/WWT



>> migration of Taiga Bean Geese

spring migration of scottish Taiga Beans





>> migration of Taiga Bean Geese

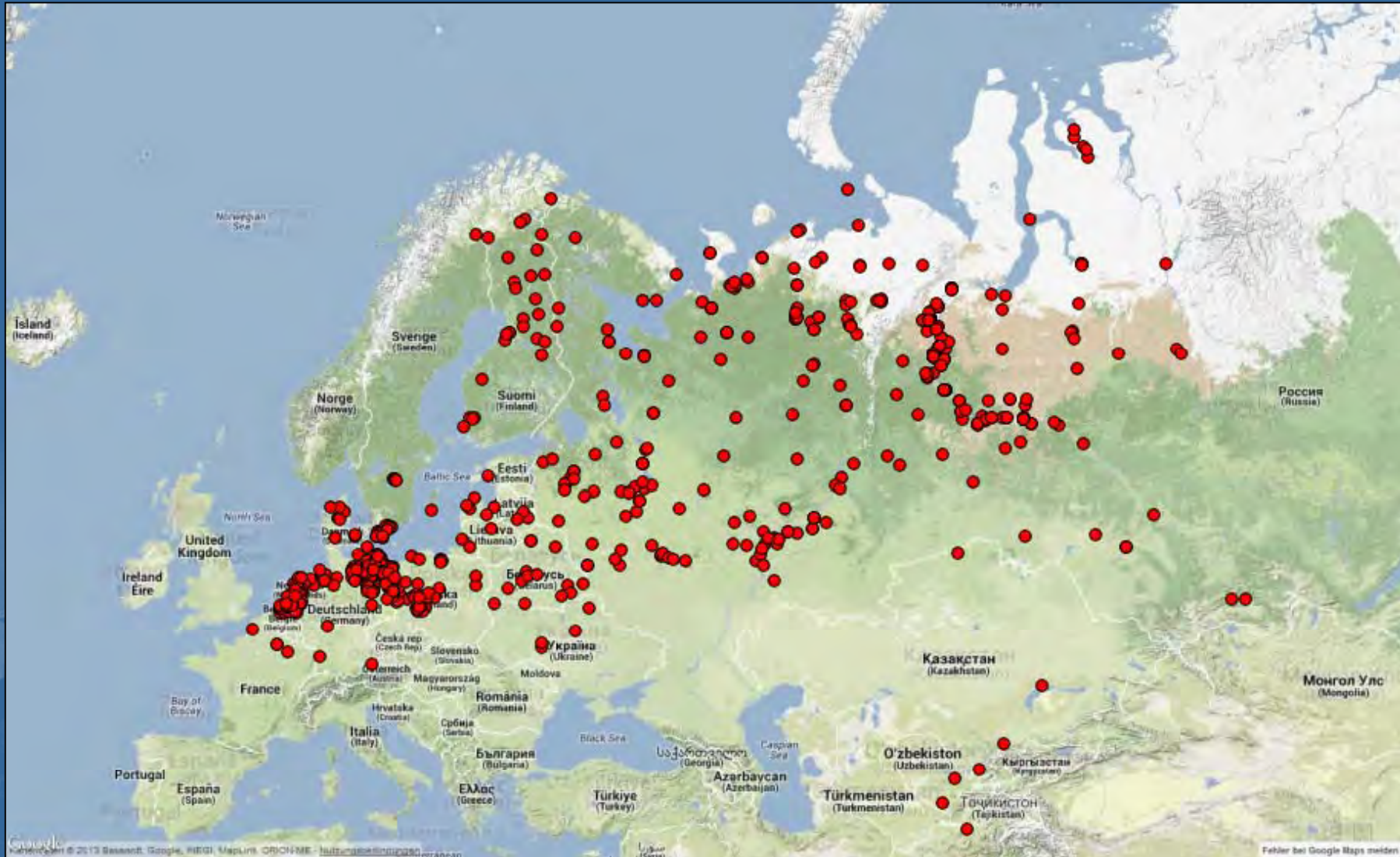
autumn migration of scottish Taiga Beans





>> migration of Taiga Bean Geese

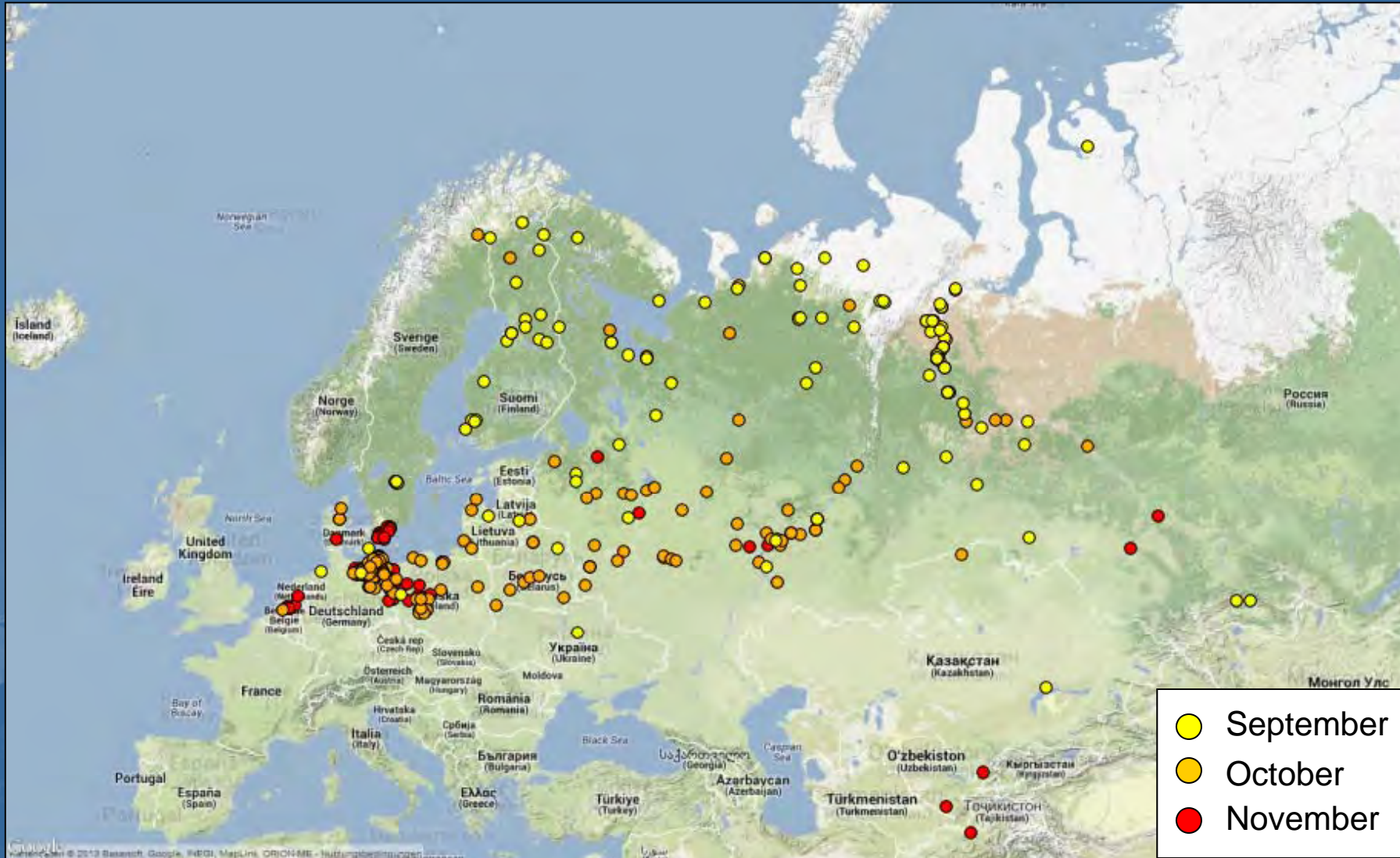
Recoveries of Taiga Beans ringed in the Netherlands (1957-1987)





>> migration of Taiga Bean Geese

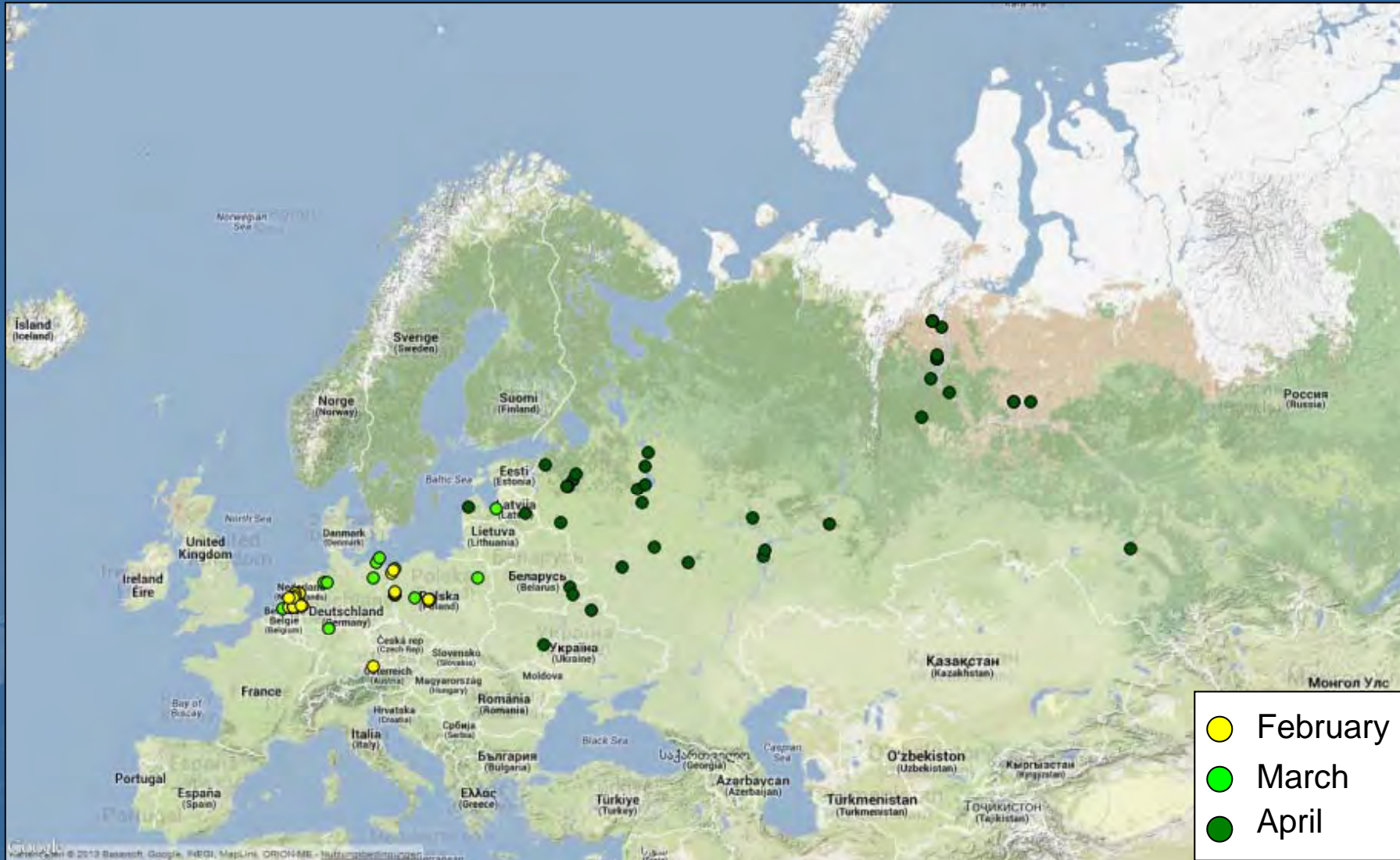
Autumn recoveries of Taiga Beans ringed in the Netherlands





>> migration of Taiga Bean Geese

Spring recoveries of Taiga Beans ringed in the Netherlands



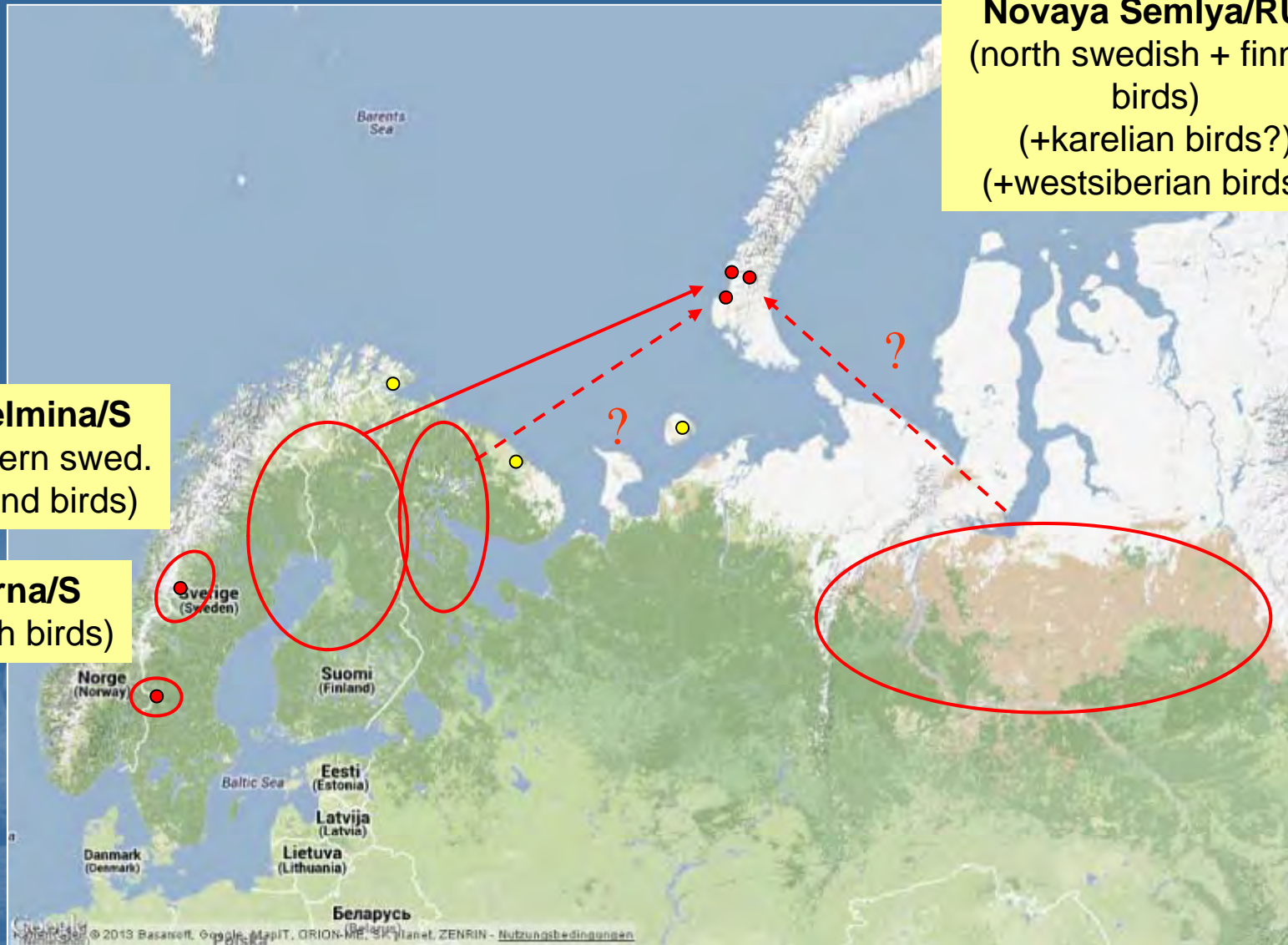


>> moult migration of Taiga Bean Geese

Novaya Semlya/RUS
(north swedish + finnish
birds)
(+karelian birds?)
(+westsiberian birds?)

Vilhelmina/S
(southern swed.
Lapland birds)

Dalarna/S
(scottish birds)





>> population units of Taiga Bean Geese

	unit	breeding	migrating	wintering
Western	„Scottish“ birds	Dalarna/S	Akershus/N, N Jylland, DK	Scotland/UK
	Southern Swedish Lapland birds	Southern Swedish Lapland	Lake Östen/S	NW Jylland/DK, Norfolk/UK
	Nord-Trøndelag birds	Nord-Trøndelag	???	NW Jylland/DK
Central	North Swedish birds	Northern Swedish Lapland	Central Sweden (esp. lake Östen) in autumn, coastal northern Sweden (spring)	South Sweden, SE Denmark (Lolland, Sjaelland), E Jylland
	Finnish birds	Central & Northern Finland	Central Sweden (Hjälstäviken, Kvismaren), Uppland (spring), coastal western FIN	South Sweden, SE Denmark (Lolland, Sjaelland)
	Karelian birds	Northern Karelia, Kola peninsula	???	???
East 1	Westsiberian birds (wintering in Europe)	Taiga belt of westsiberian lowlands, upper Pechora region	<u>autumn</u> : RUS, Baltic states, PL, D, (Sweden?) <u>spring</u> : PL, Baltic states, BY, UA, RUS	NE Germany, NW Poland, (southern Sweden?)
East 2	Westsiberian birds (wintering in Central Asia)	Taiga belt of westsiberian lowlands	Autumn: RUS, KZ Spring: KZ, RUS	NW China, SE Kazakhstan, E Kyrgyzstan



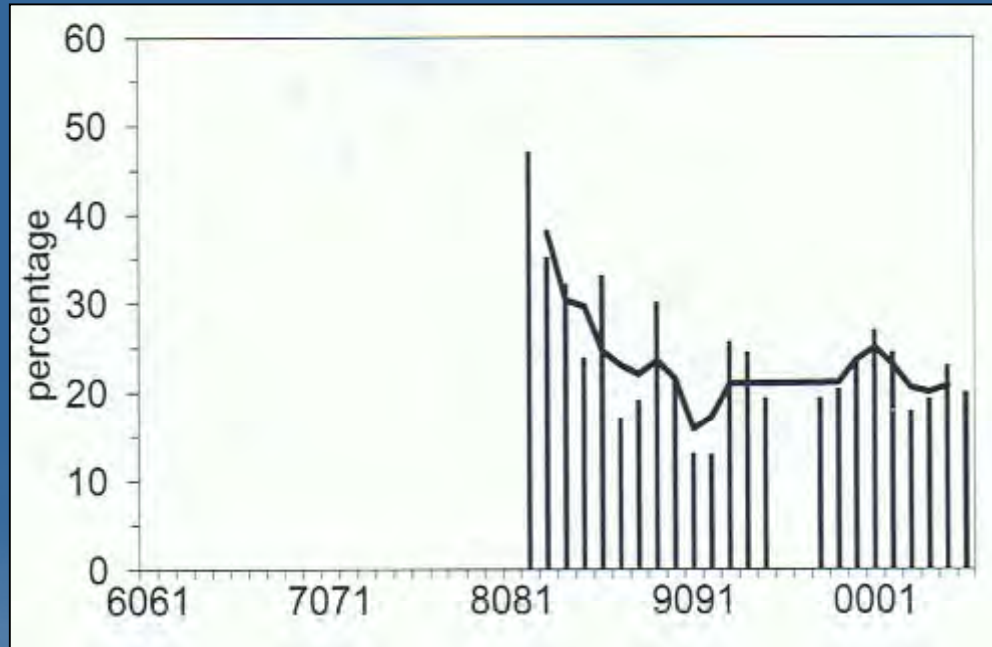
>> population units of Taiga Bean Geese





>> reasons for a population decline?

reproduction of Taiga Bean Geese wintering in Europe



© van Roomen et al. 2007

remarks:

- data from UK, but probably not representative (special population unit)
- most data from NL
- problems with correct race identification (NL)
- problems with correct adult-juvenile ID (juveniles moult quickly in autumn and are not fully separable from November onwards (NL))
- lack of representative data from Sweden and Germany/Poland



Start of special juvenile counts in Sweden:



>> reasons for a population decline?

Reproduction

results of special juvenile counts in Central & Southern Sweden

season	Sep	n	Oct	n	Nov	n
2009/10	22.9	6,710	20.0	3,727	?	?
2010/11	26.1	4,202	17.2	1,538	7.7	2,521
2011/12	36.9	2,691	29.3	2,676	14.2	757
2012/13	31.0	2,270	22.4	3,938	11.2	3,565
2013/14	29.6	1,999				

season	broodsize	n
2009/10	2.56	209
2010/11	2.49	160
2011/12	2.68	100
2012/13	2.19	63
2013/14	2,61	112

© T. Heinicke, A. de Jong

in early autumn quite high juvenile percentages, larger than in arctic geese

in late autumn obviously lower juvenile percentages:

- differences in migration pattern of successful and unsuccessful breeders ?
- involvement of different subpopulations ? (in Sep+Oct large proportion of scandinavian breeders)



>> reasons for a population decline?

Mortality

Neckbanding in Northern Sweden



Year of ringing	n	2006/07	2007/08	2008/09	2009/10	2010/11
spring 2007	1	100	100	100	100	100
spring 2008	27		100	85.2	77.8	51.9
spring 2009	11			100	72.7	45.5
Survival rate				85.7 (24/28)	85.7 (30/35)	66.7 (20/30)
Mortality rate				14.3	14.3	33.3



Neckbanding in Germany (Lower Odra NP)

Year of ringing	n	2007/08	2008/09	2009/10	2010/11
October 2007	33	100	57.6	33.3	12.1
Survival rate			57.6 (19/33)	57.9 (11/19)	36.4 (4/11)
Mortality rate			42.4	42.1	63.6

strongly different mortality rates in Scandinavian and Eastgerman birds
(different breeding areas and different hunting pressure)



>> reasons for a population decline?

Influence of hunting - hunting pressure

x-raying of wild geese in Germany



© IZW Berlin



>> reasons for a population decline?

Influence of hunting - hunting pressure

x-raying of wild geese in Germany

Species	Age class	No lead pellets	With lead pellets	n	% with lead pellets
Greylag Goose	Juvenile	1	0	1	0
	Adult	58	14	72	19.4
	Total	59	14	73	19.2
Greater White-fronted Goose	Juvenile	35	0	35	0
	Adult	73	20	93	21.5
	Total	108	20	128	15.6
Tundra Bean Goose	Juvenile	30	0	30	0
	Adult	44	24	68	35.3
	Total	74	24	98	24.5
Taiga Bean Goose	Juvenile	4	0	4	0
	Adult	13	11	24	45.8
	Total	17	11	28	39.3
n		258	69	327	21.1

© IZW Berlin

October



highest rates of birds with lead pellets in adult Taiga Bean Geese



>> reasons for a population decline?

Influence of hunting - hunting bags

country	Hunting bag	Year	remarks
N	0		No hunting on Bean Geese
FIN	7,900	2009	High proportion <i>fabalis</i>
S	3,450	2005/06	Mostly <i>fabalis</i> , 3105/y (1995-2010)
DK	886	2005/06	Mostly <i>fabalis</i>
D	4,255	2005/06	Mostly <i>rossicus</i> (300-500 <i>fabalis</i>)
PL	13,812	2005/06	Mostly <i>rossicus</i> (a few hundred <i>fabalis</i>)
Baltic states	1,127	2005/06	Mostly <i>rossicus</i> (100-200 <i>fabalis</i> ?)
BY + UA	???		Probably a few hundred <i>fabalis</i>
RUS	5,000-10,000		Minimum estimate

Hunting bag statistics not precise enough (no species separation), but probably annual bag of 15,000 to 20,000 Taiga Beans (ca. 50 % European Union)



>> Data gaps

Which data/information do we need?



1. Taxonomy

- Taxonomic status of Taiga Bean Goose: species or subspecies?
- Are there separable subpopulations (Fennoscandian versus Russian birds)?

2. Migration & migration pattern

- Joint analysis of ringing recoveries in Europe
- Need of further research into migration routes and moulting migration
- New ringing efforts & satellite tracking
- Exchange between wintering populations in Europe & Central Asia?
- publication of data



>> Data gaps

Which data/information do we need?



3. Distribution, numbers, monitoring

- Need of further research on breeding, moulting, staging and wintering areas
- Need for more information from Eastern Europe, Finland & Russia
- Enforce goose monitoring in Eastern Europe (e.g. Poland)
- Correct separation of Taiga & Tundra Bean Geese in Europe
- Proving the population estimates
- Reliable age ratio assessments
- Exact information on the recent breeding distribution in Fennoscandia and Russia
- publication of data



>> Data gaps

Which data/information do we need?



4. Conservation status

- Exact trends for different (sub)populations and regions
- Study the impact of hunting & habitat loss on Taiga Bean Goose (sub)populations
- Evaluation of mortality rates
- Is the Taiga Bean Goose globally threatened?





Many thanks for your attention...

