Trends of breeding waterbird populations in Europe based on the Pan-European Common Bird Monitoring Scheme data, 2020

Photo: Szabolcs Nagy

Pan-European Common Bird Monitoring Scheme and Wetlands International

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Prepared by

Szabolcs Nagy[1], Eva Silarova[2], Jana Škorpilová[2], Norbert Teufelbauer[3], Benjamin Seaman[3], Antoine Derouaux[4], Iordan Hristov[5], Christina Ieronymidou[6], Jiří Reif[7], Daniel Palm Eskildsen[8], Aleksi Lehikoinen[9], Benoit Fontaine[10], Frédéric Jiguet[10], Sven Trautmann[11], Danae Portolou[12], Lesley Lewis[13], Ainars Aunins[14], Petras Kurlavičius[15], Cindy Redel[16], Chris van Turnhout[17], Ingar Jostein Øien[18], John Atle Kålås[18], Tomasz Chodkiewicz[19], Hany Alonso[20], Zoltán Benkő[21], Jozef Ridzoň[22],
Primož Kmecl[23], Blas Molina[24], Åke Lindström[25], Hans Schmid[26], Nicolas Strebel[26], David Noble[27]

1 Wetlands International
2 Pan-European Common Bird Monitoring Scheme Central Coordination Unit
3 BirdLife Austria
4 Aves - Natagora
5 Bulgarian Society for the Protection of Birds (BSPB)
6 BirdLife Cyprus
7 Institute for Environmental Studies, Charles University in Prague, Faculty of Science
8 DOF/BirdLife Denmark
9 Zoological Museum, Finnish Museum of Natural History
10 Centre d'Écologie et des Sciences de la Conservation (UMR 7204) - Muséum national d'Histoire naturelle
11 Dachverband Deutscher Avifaunisten
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15 Lithuanian Ornithological Society
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19 OTOP/BirdLife Poland (The Polish Society for the Protection of Birds)
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24 SEO/BirdLife
25 Dept. of Biology, Lund University
26 Swiss Ornithological Institute
27 British Trust for Ornithology

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Introduction

In every three years, the Conservation Status Report for the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) assesses the sizes and trends of the populations listed in Table 1 in Annex 3 of the Agreement. Based on this assessment, the Meeting of the Parties amends the classification in Table 1.

The Pan-European Common Bird Monitoring Scheme (PECBMS) commenced in 2002 as a joint initiative of the European Bird Census Council (EBCC) and BirdLife International and produces annual European indices at species level. Besides of the International Waterbird Census (IWC) as well as the reporting under the Article 12 of the EU Birds Directive and the complementary data collected by BirdLife International for the European Red List of Birds, the PECBMS is one of the main information sources for assessing the trends of European waterbird populations listed in Table 1 of AEWA.

Producing this special report was necessary to produce trends that reflect more closely the AEWA criteria to classify populations in Table 1, namely: (i) separate trends for each population, (ii) the long-term trend covers 10 years or 3 generations, whichever one is the longer.

Materials and methods

The national time totals and covariance matrices submitted to the PECBMS Secretariat by national PECBMS coordinators from Austria (AT), Wallonia (Belgium, BE), Bulgaria (BG), Czech Republic (CZ), Denmark (DK), Finland (FI), France (FR), Germany (DE), Greece (GR), Latvia (LV), Lithuania (LT), Luxembourg (LU), the Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Republic of Ireland (IE), Romania (HU), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE), Switzerland (CH) and the United Kingdom (GB) were used in the trend calculations. No data were received from Estonia and Hungary. Data was available from Italy, but the national coordinators indicated that this should be not used because of the methods are not suitable for waterbirds. Implications of missing data are specifically discussed in the trend assessments where relevant. Countries were allocated to populations following the population definitions in Table 1 of the AEWA Action Plan as presented on the Critical Site Network Tool 2.0 (BirdLife International & Wetlands International, 2018).

Population trends were calculated aggregating national population trends using the rtrim package version 2.1.1 (Bogaart, van der Loo, & Pannekoek, 2018) applying linear trend with automatic changepoint selection and overdispersion. Serial autocorrelation was low and therefore disabled. Weights were calculated using the population estimates from the European Red List of Birds (BirdLife International, 2015) again following the PECBMS' method (van Strien, Pannekoek, & Gibbons, 2001). As national monitoring schemes started in different years, trends were only estimated from the year when at least 30% of the population total was based on national monitoring data (the rest was imputed).

Population trends were calculated for three time periods:

- Overall trend: from the first year with suitable data up to 2017. Conceptually, equivalent to the long-term trend used in PECBMS.
- 3.generations trend: for the time period equal to the length of three generations up to 2017. Generation lengths were obtained from Bird *et al.* (2020) and these are always longer than 10 years for the species analysed in this report.
- Short-term trend: for the 10-year period of 2008 – 2017.

Data presentation

Each population account contains the following information:

- Trend graph: annual indices with standard error (SE). The first year of the three-generation period is marked with a dotted line and the first year of the short-term trend with a dot-dash line.
- Trend table: presenting the time periods, multiplicative population growth rates and standard errors (SE) for the log-linear overall, long- and short-term trends as well as the assessment of each trend following the standard classifications(Soldaat, Visser, van Roomen, & van Strien, 2007).
- Generation length applied for the population.
- List of countries included into the trend calculations.
- Map showing the countries allocated to the breeding range of the flyway population (grey shading), countries where data was used in the analysis (red)[1].
- Comments concerning the representativity of the calculated trend for the population as a whole.
- It is also highlighted if the population decline has exceeded the threshold for long-term decline (i.e. >10% over 3 generations) or rapid short-term decline (i.e. a rate of decline in the last 10 years that is equivalent to >30% decline over 3 generations).

Acknowledgements

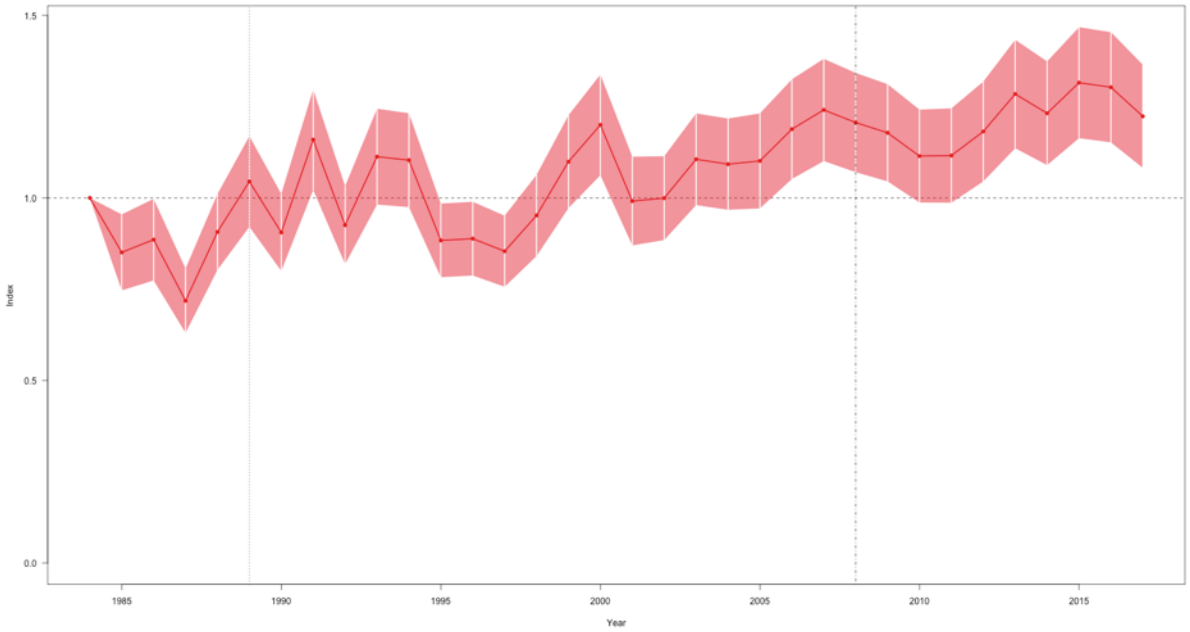
Our special thanks to all volunteers participating in the national monitoring schemes contributing to the PECBMS.

Wetlands International gratefully acknowledges the financial contribution of the Swiss Federal Office to the Environment, the Norwegian Environmental Protection Agency and the Croatian Ministry of Environmental Protection and Energy to the 8th edition of the AEWA Conservation Status Report through the UNEP-AEWA Secretariat.

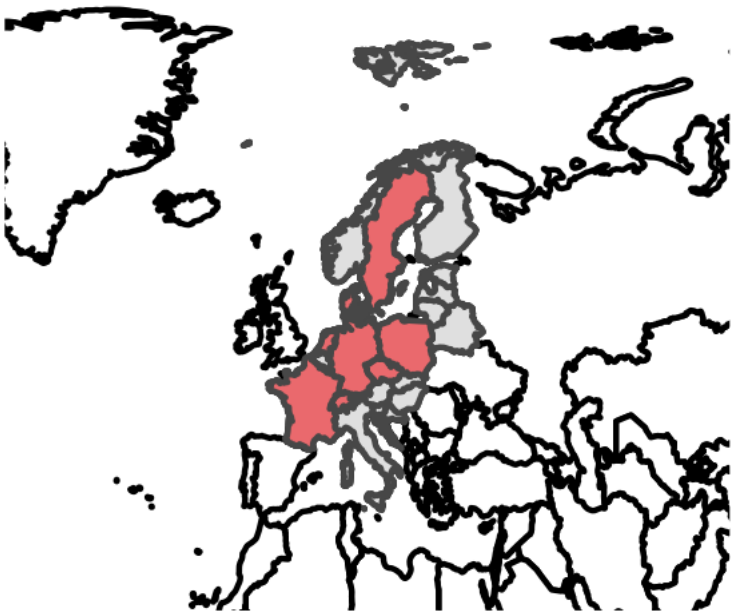
[1] In a few cases Germany and Russia does not show as a range state or country contributing to the trend calculation when the country is allocated to multiple populations. However, this is always mentioned in the text.

Population trend accounts

Mute Swan *Cygnus olor*, North-west Mainland & Central Europe



Trend	Period	Slope	SE	Assessment
Overall	1983-2017	1.0129	0.0020	Moderate increase (p<0.01)
3-generations	1989-2017	1.0104	0.0020	Moderate increase (p<0.01)
Short-term	2008-2017	1.0115	0.0051	Stable

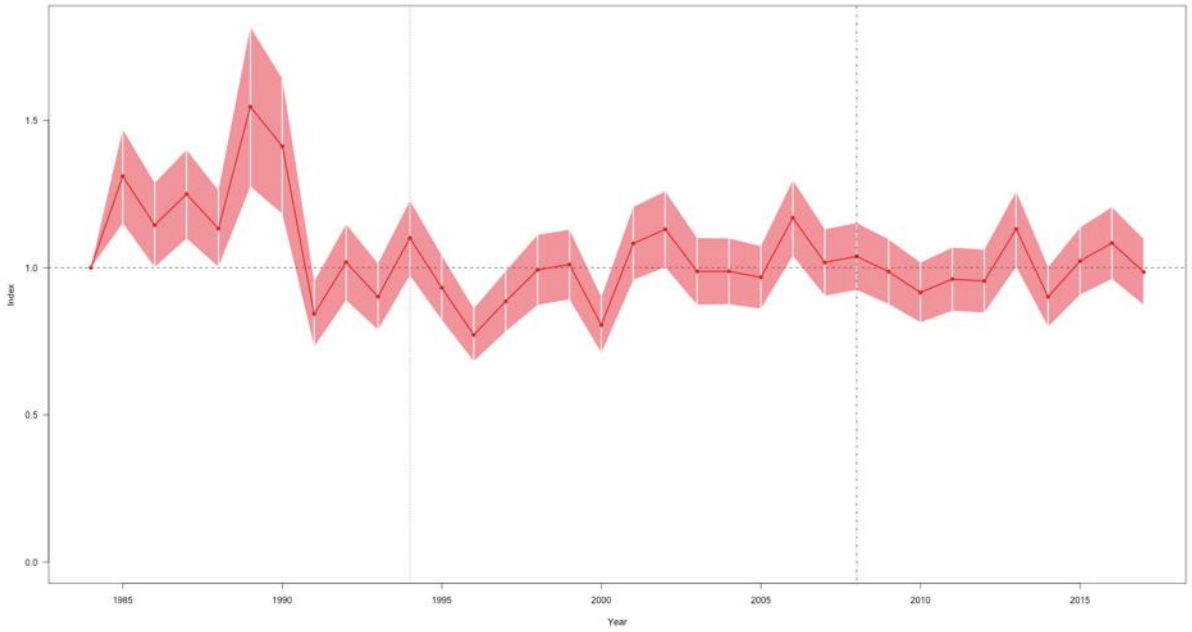


Generation length: 9.8 years

Countries used for the trend calculation: CH, CZ, DE, DK, FR, NL, PL and SE

Comments: The population trend is calculated based on data from 8 of 23 range states including all countries with large populations except FI and the Baltic States.

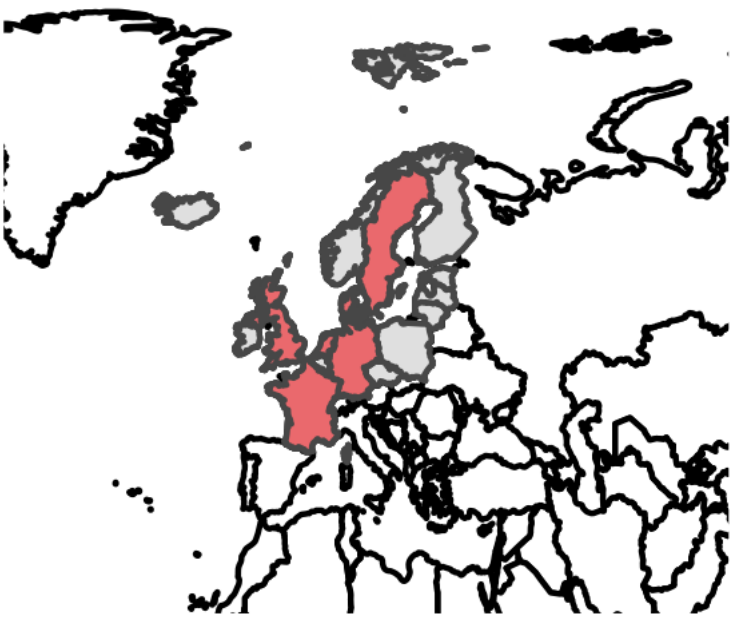
Common Shelduck *Tadorna tadorna*, North-west Europe



Trend	Period	Slope	SE	Assessment
Overall	1984-2017	0.9955	0.0023	Stable
3-generations	1994-2017	1.0033	0.0024	Stable
Short-term	2008-2017	1.0043	0.0048	Stable

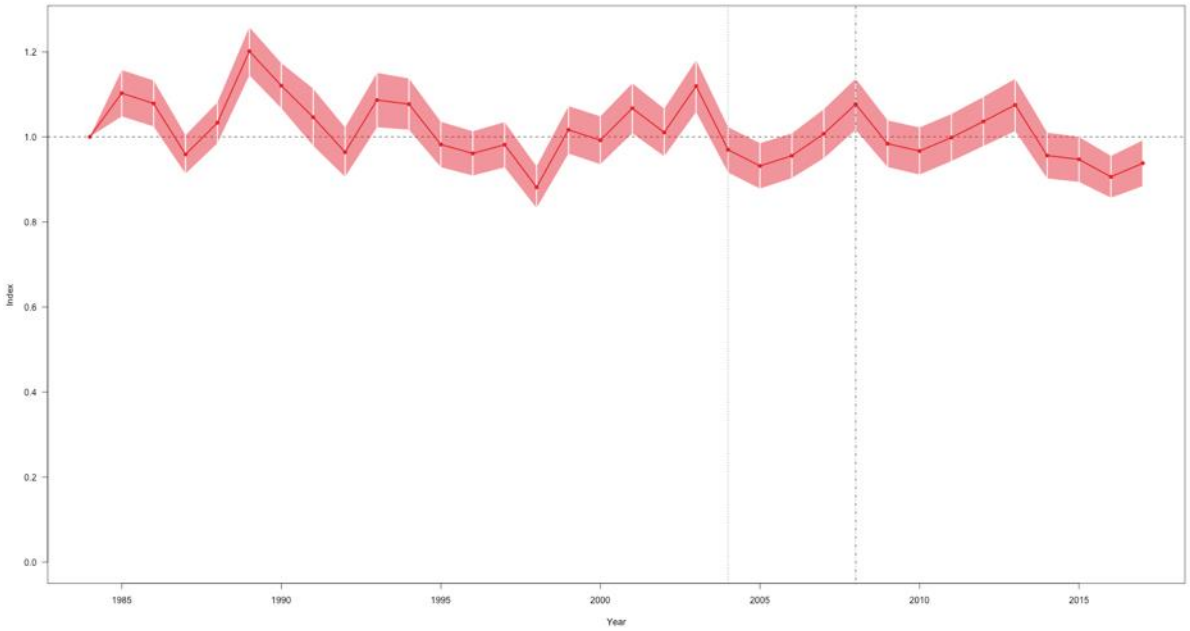
Generation length: 8.1 years

Countries used for the trend calculation: DE, DK, FR, GB, NL and SE.

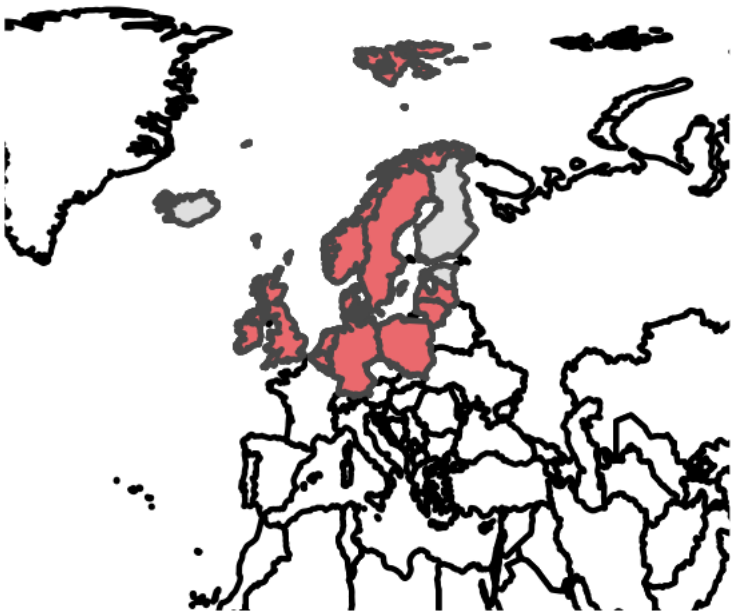


Comments: The population trend is calculated based on data from 6 of 16 range states including all countries with larger populations. The trend up to the mid-1990s is based on data from DK, SE and NL.

Mallard *Anas platyrhynchos*, North-west Europe



Trend	Period	Slope	SE	Assessment
Overall	1984-2017	0.9972	0.0011	Moderate decrease (p<0.05)
3-generations	2004-2017	0.9978	0.0022	Stable
Short-term	2008-2017	0.9879	0.0029	Moderate decrease (p<0.05)

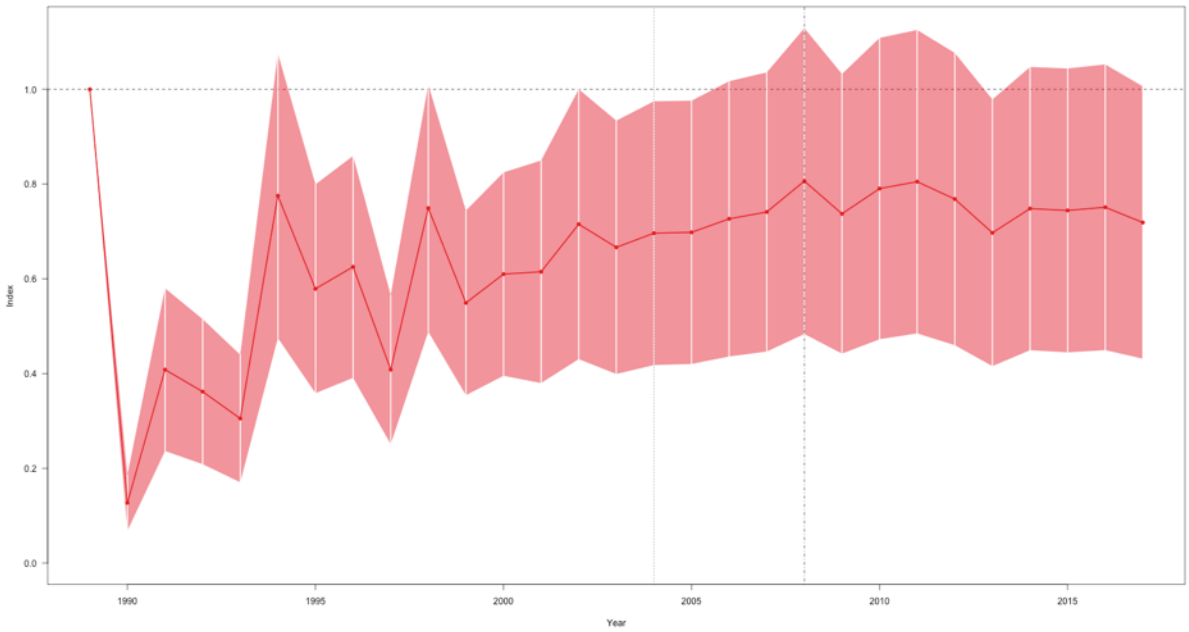


Generation length: 4.8 years

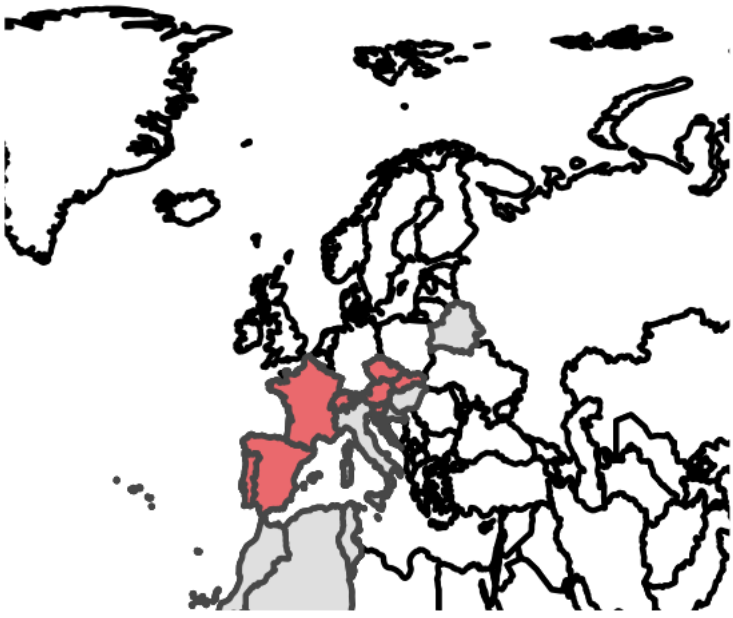
Countries used for the trend calculation: BE, DE, DK, GB, IE, LV, LT, LU, NL, NO, PL and SE.

Comments: The population trend is calculated based on data from 12 of 17 range states including all countries but FI with larger populations.

Mallard *Anas platyrhynchos*, Northern Europe/West Mediterranean



Trend	Period	Slope	SE	Assessment
Overall	1989-2017	1.0259	0.0123	Moderate increase (p<0.05)
3-generations	2004-2017	1.0020	0.0026	Stable
Short-term	2008-2017	0.9908	0.0036	Moderate decrease (p<0.05)

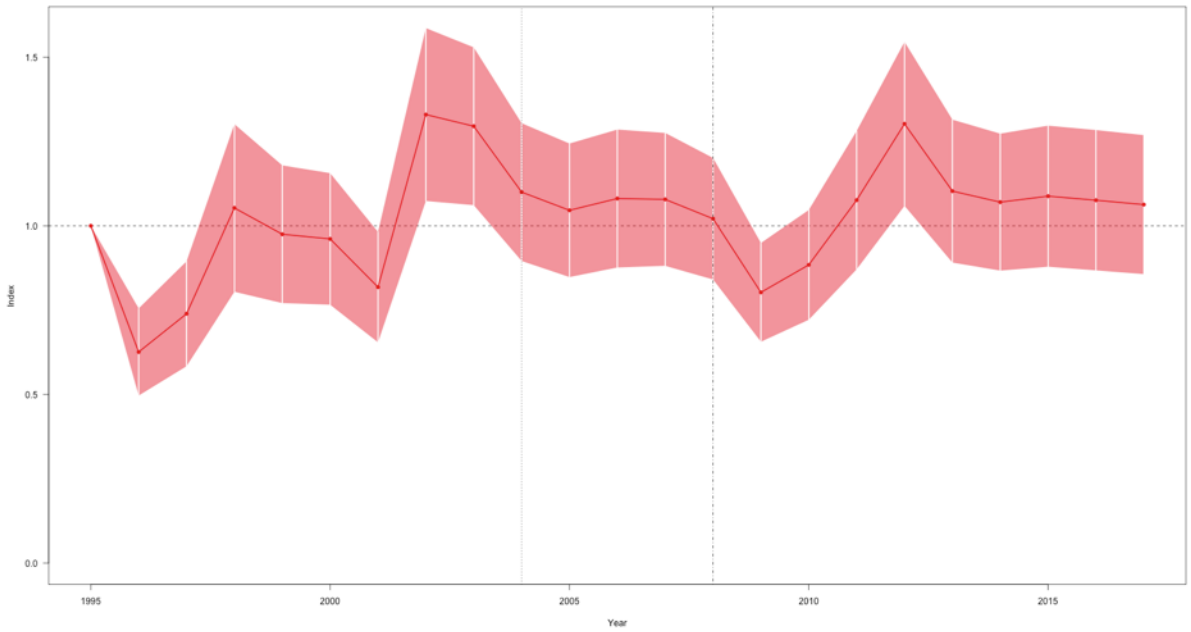


Generation length: 4.8 years

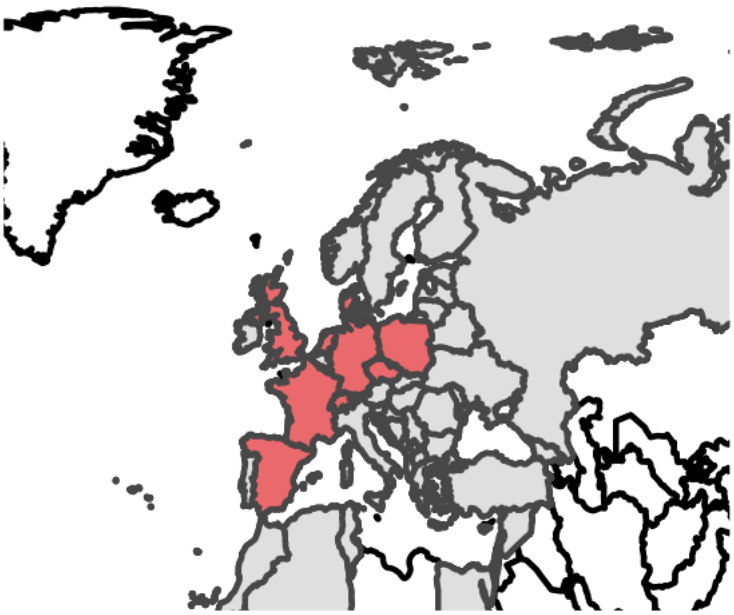
Countries used for the trend calculation: AT, CH, CZ, ES, FR, PT, SI and SK.

Comments: The population trend is calculated based on data from 8 of 16 range states.

Little Grebe *Tachybaptus ruficollis*, Europe & North-west Africa



Trend	Period	Slope	SE	Assessment
Overall	1995-2017	1.0105	0.0064	Stable
3-generations	2004-2017	1.0042	0.0086	Stable
Short-term	2008-2017	1.0200	0.0119	Stable

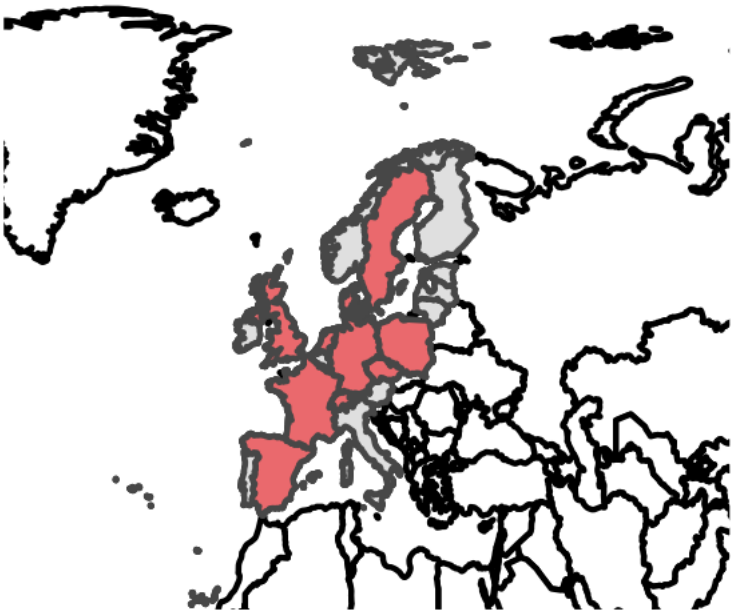


Generation length: 4.7 years

Countries used for the trend calculation: .

Comments: The population trend is calculated based on data from 9 of 51 breeding range states. The results are likely to be representative for Central and Western Europe but not for the whole population.

Great Crested Grebe *Podiceps cristatus*, North-west & Western Europe

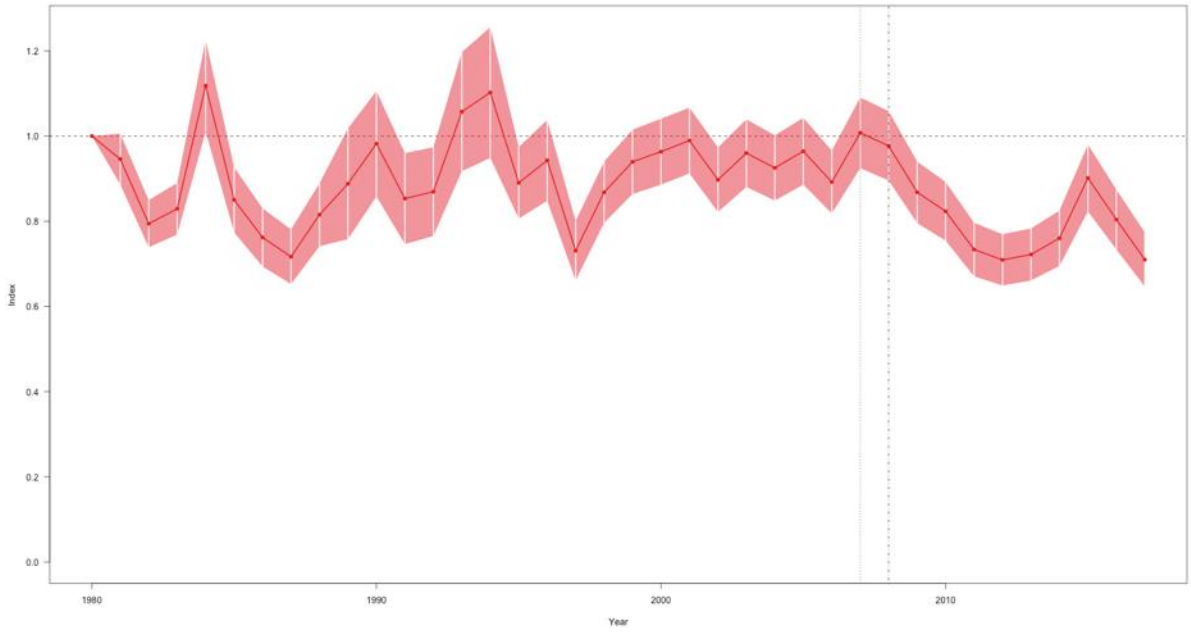
Trend	Period	Slope	SE	Asses
Overall	1989-2017	0.9926	0.0023	Mode
3-generations	 2002-2017	0.9947	0.0052	Stabl
Short-term	2008-2017	1.0049	0.0080	Stabl

Generation length: 5.5 years

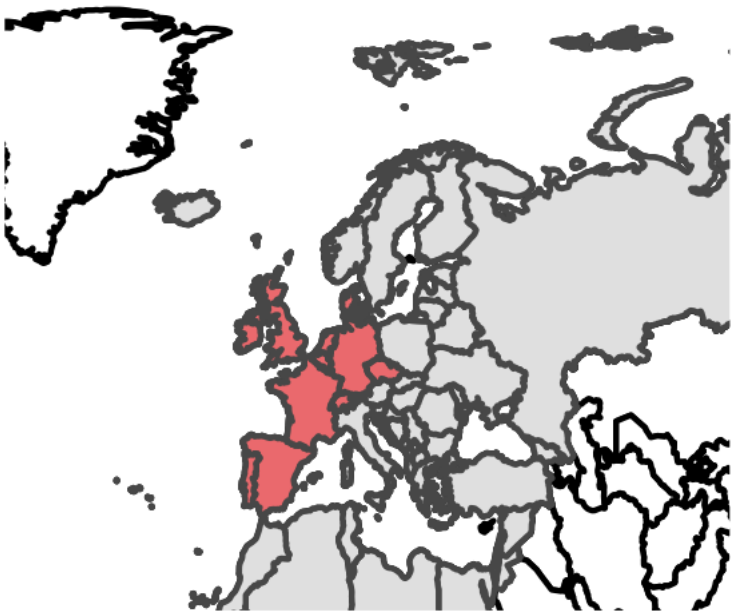
Countries used for the trend calculation: CH, CZ, DE, DK, ES, FR, GB, NL, PL and SE.

Comments: The population trend is calculated based on data from 10 of 21 breeding range states including all the countries but FI with larger populations.

Common Moorhen *Gallinula chloropus*, Europe & North Africa



Trend	Period	Slope	SE	Assessment
Overall	1980-2017	0.9969	0.0024	Stable
3-generations	2007-2017	0.9767	0.0034	Moderate decrease (p<0.01)
Short-term	2008-2017	0.9830	0.0040	Moderate decrease (p<0.05)



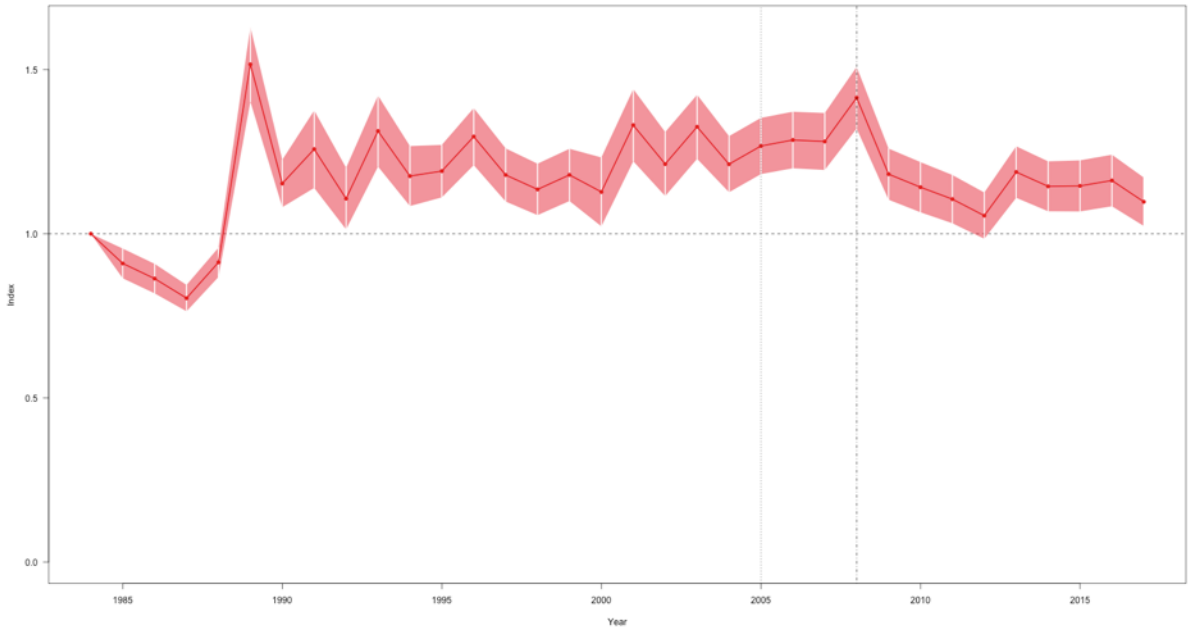
Generation length: 3.6 years

Countries used for the trend calculation: BE, CH, CZ, DE, DK, ES, FR, GB, IE, NL, PL and PT.

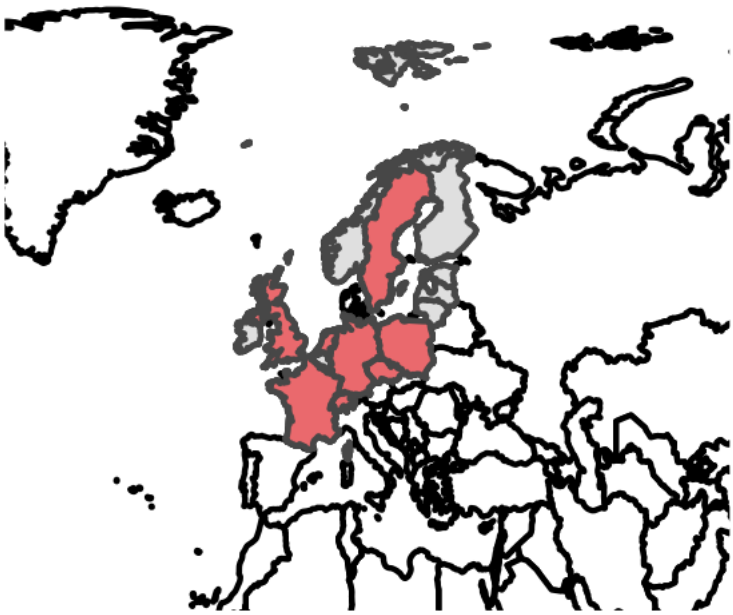
Comments: The population trend is calculated based on data from 11 of 59 breeding range states. The results are likely to be representative for Central and Western Europe but not for the whole population.

Based on the PECBMS data, this population has declined by 15-22% over 3 generations.

Common Coot *Fulica atra*, North-west Europe (win)



Trend	Period	Slope	SE	Assessment
Overall	1984-2017	1.0045	0.0016	Moderate increase (p<0.05)
3-generations	2005-2017	0.9863	0.0027	Moderate decrease (p<0.01)
Short-term	2008-2017	0.9870	0.0036	Moderate decrease (p<0.05)



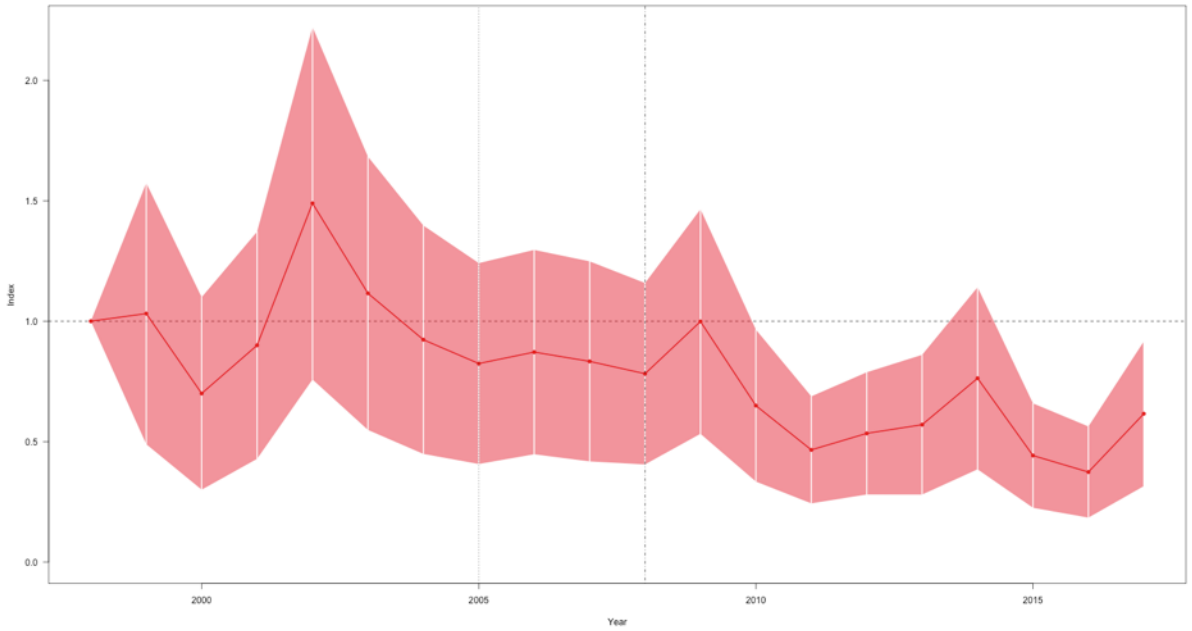
Generation length: 4.2 years

Countries used for the trend calculation: CH, CZ, DE, FR, GB, NL, PL and SE.

Comments: The population trend is calculated based on data from 8 of 16 breeding range states including all the countries but LT with larger populations.

Based on the PECBMS data, this population has declined by 9-20% over 3 generations.

Common Coot *Fulica atra*, Black Sea & Mediterranean (win)



Trend	Period	Slope	SE	Assessment
Overall	1998-2017	0.9571	0.0132	Moderate decrease (p<0.05)
3-generations	2005-2017	0.9470	0.0192	Moderate decrease (p<0.05)
Short-term	2008-2017	0.9446	0.0232	Moderate decrease (p<0.05)

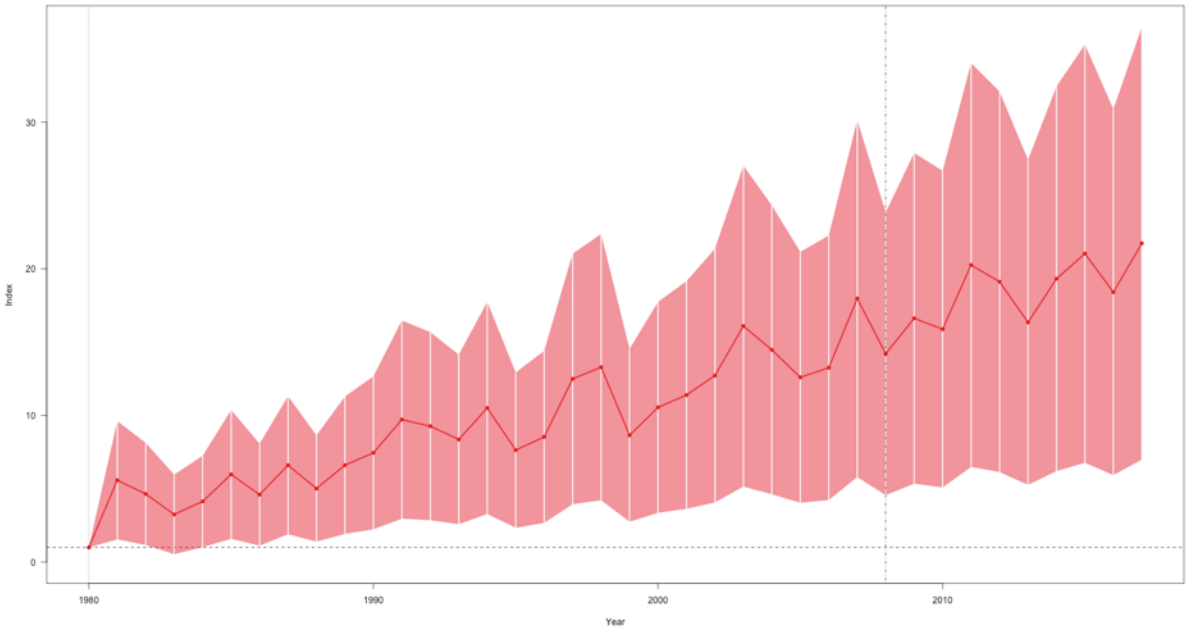
Generation length: 4.2 years

Countries used for the trend calculation: AT and PT.

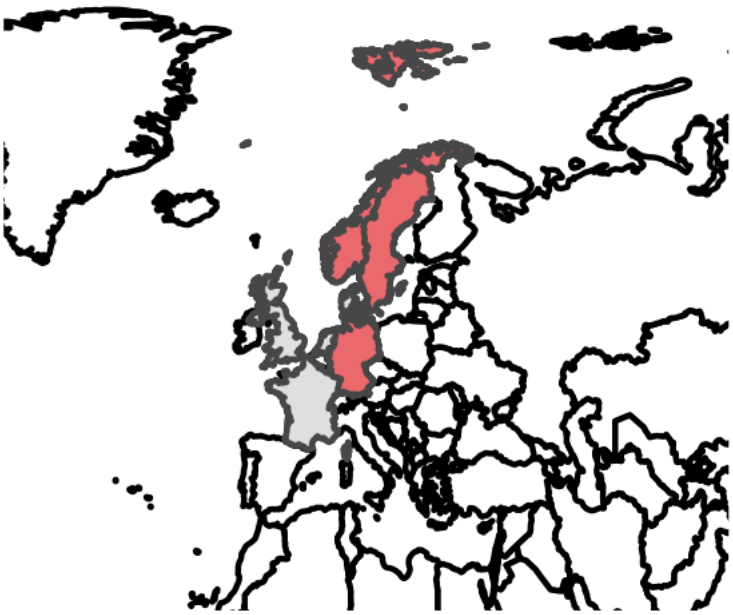
Comments: The population trend is calculated based on data from only 2 of 22 breeding range states. Therefore, this trend is not representative for the whole population.

Based on the PECBMS data, this population has declined by 16-67% over 3 generations.

Common Crane *Grus grus*, North-west Europe/Iberia & Morocco



Trend	Period	Slope	SE	Assessment
Overall	1980-2017	1.0524	0.0058	Moderate increase (p<0.01)
3-generations	1980-2017	1.0524	0.0058	Moderate increase (p<0.01)
Short-term	2008-2017	1.0348	0.0045	Moderate increase (p<0.01)

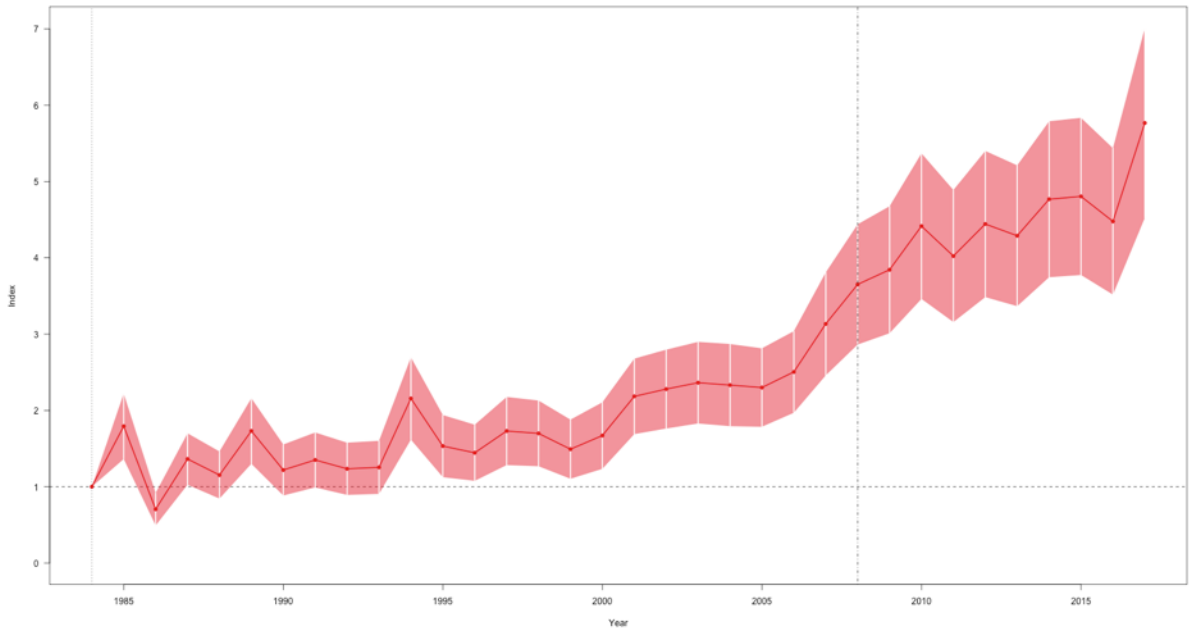


Generation length: 17.0 years

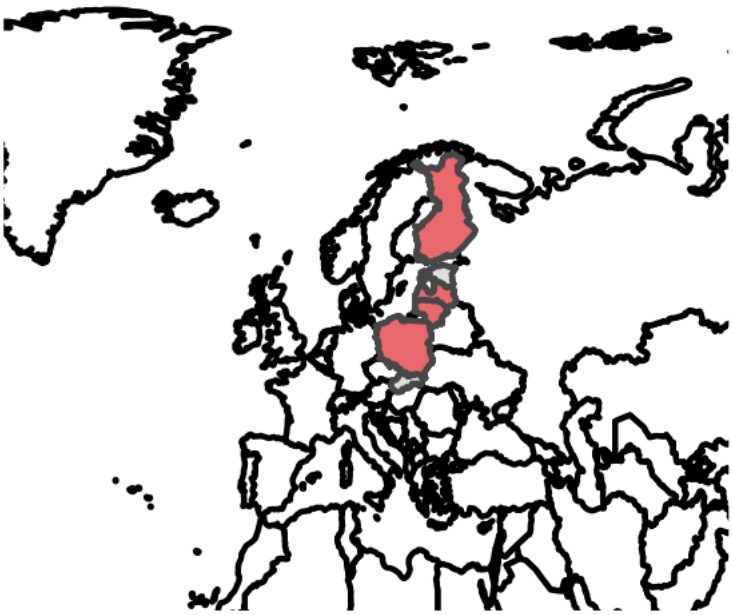
Countries used for the trend calculation: DE, NO and SE.

Comments: The population trend is calculated based on data from 3 of 7 breeding range states including all countries with larger populations. The 3 generations period started before the assessment period.

Common Crane *Grus grus*, North-east & Central Europe/North Africa



Trend	Period	Slope	SE	Assessment
Overall	1980-2017	1.0524	0.0058	Moderate increase (p<0.01)
3-generations	1980-2017	1.0524	0.0058	Moderate increase (p<0.01)
Short-term	2008-2017	1.0348	0.0045	Moderate increase (p<0.01)

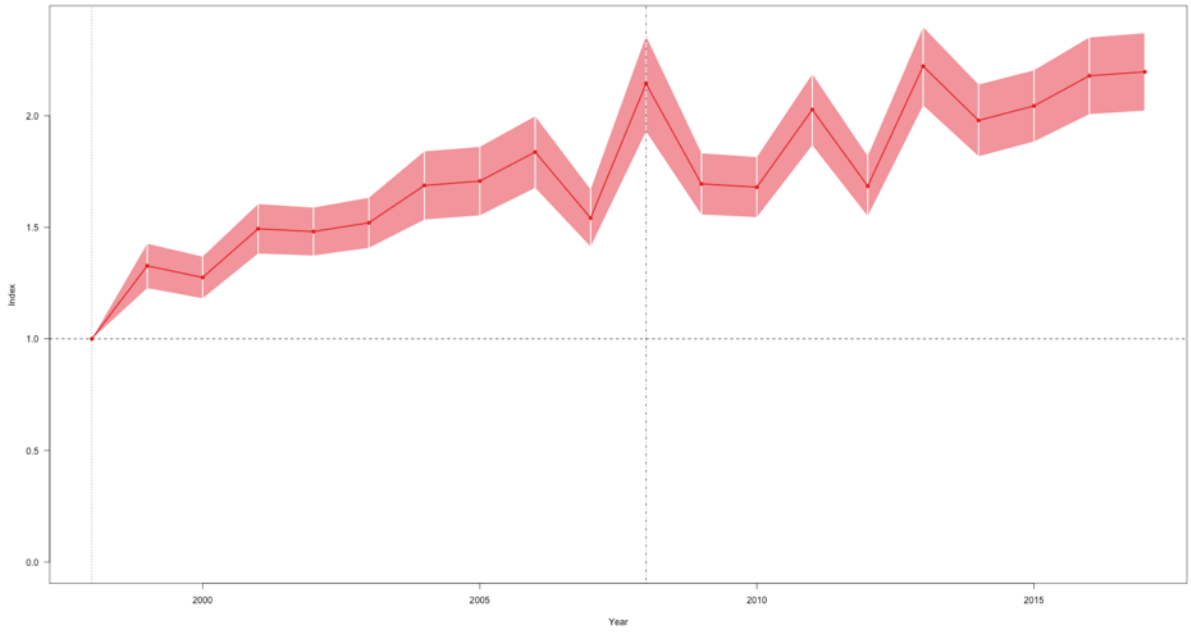


Generation length: 17.0 years

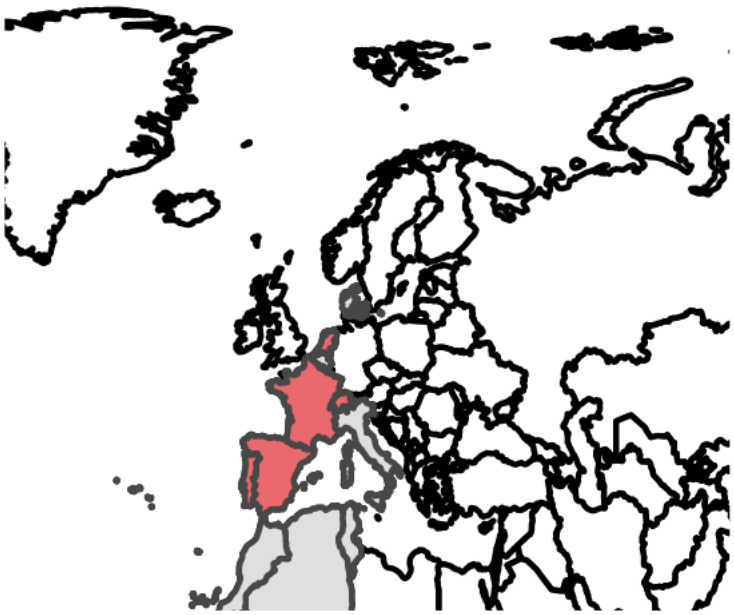
Countries used for the trend calculation: FI, LT, LV and PL.

Comments: The population trend is calculated based on data from 4 of 6 breeding range states including all countries with larger populations. The 3 generations period started before the assessment period.

White Stork *Ciconia ciconia*, W Europe & North-west Africa/Sub-Saharan Africa



Trend	Period	Slope	SE	Assessment
Overall	1998-2017	1.0311	0.0028	Moderate increase (p<0.01)
3-generations	1998-2017	1.0311	0.0028	Moderate increase (p<0.01)
Short	2008-2017	1.0194	0.0064	Moderate increase (p<0.05)

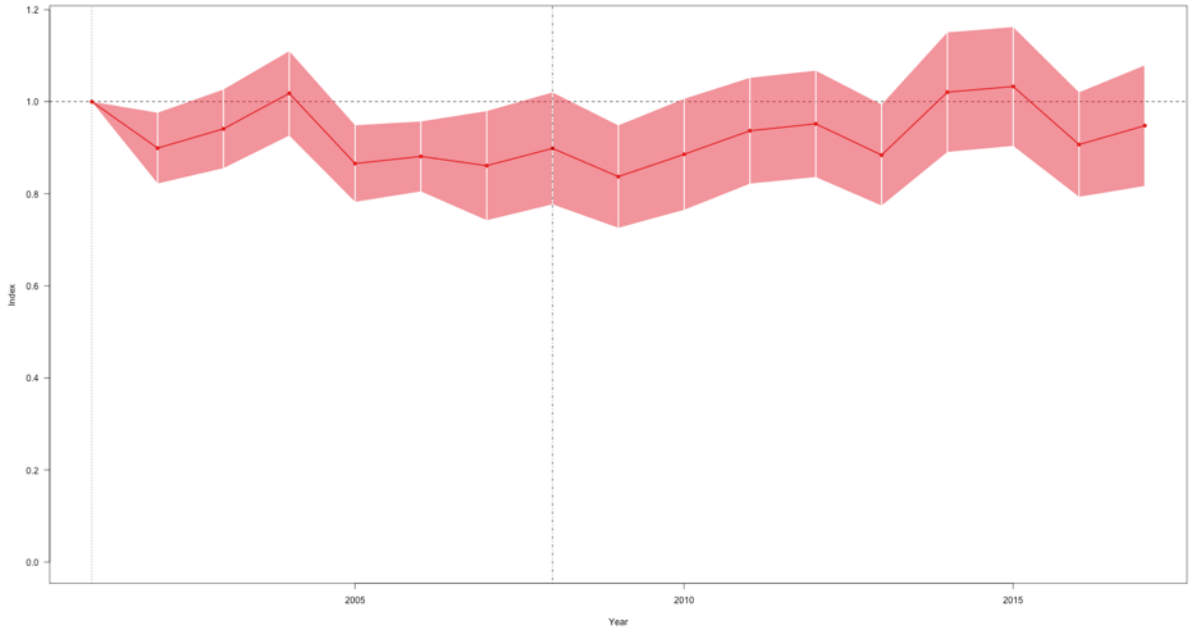


Generation length: 12.5 years

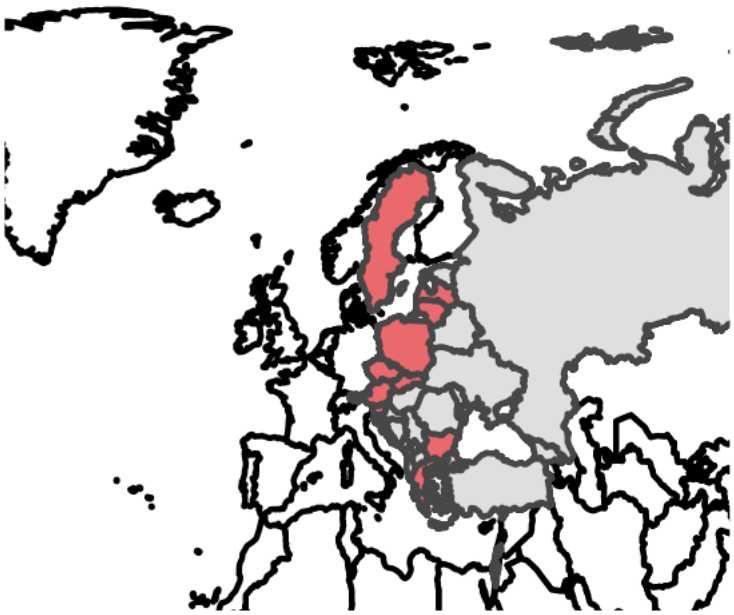
Countries used for the trend calculation: CH, DE-W, ES, FR, NL and PT.

Comments: The population trend is calculated based on data from only 6 of 12 breeding range states including all countries with larger populations. The 3 generations period started before the assessment period.

White Stork *Ciconia ciconia*, Central & Eastern Europe/Sub-Saharan Africa



Trend	Period	Slope	SE	Assessment
Overall	2001-2017	1.0005	0.0066	Stable
3-generations	2001-2017	1.0005	0.0066	Stable
Short	2008-2017	1.0111	0.0069	Stable

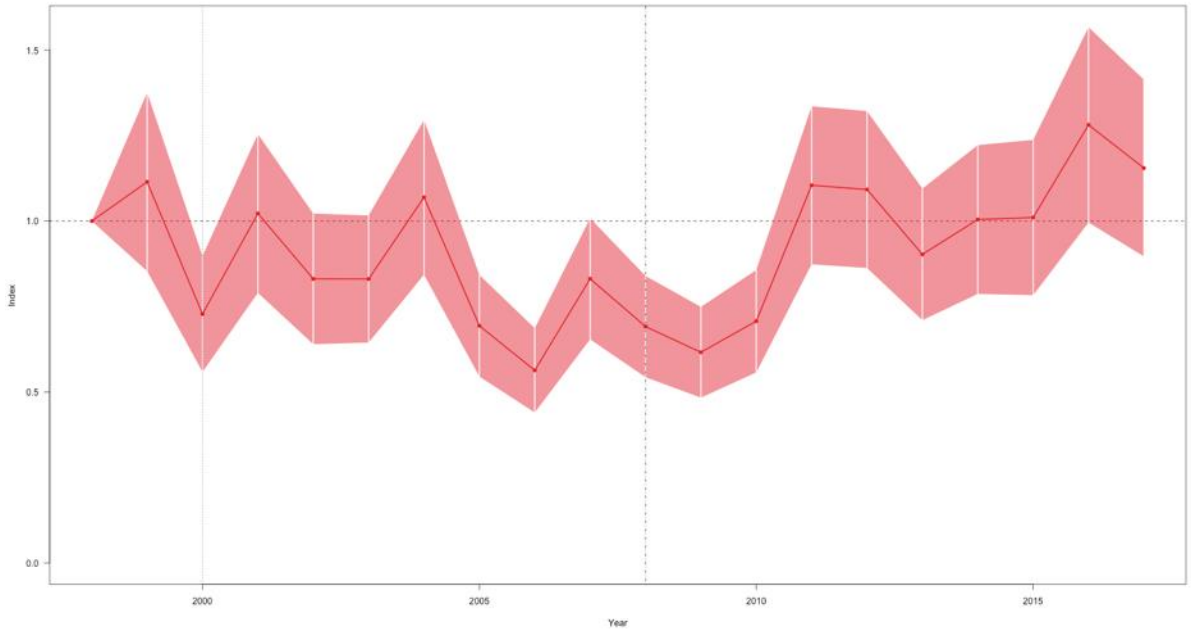


Generation length: 12.5 years

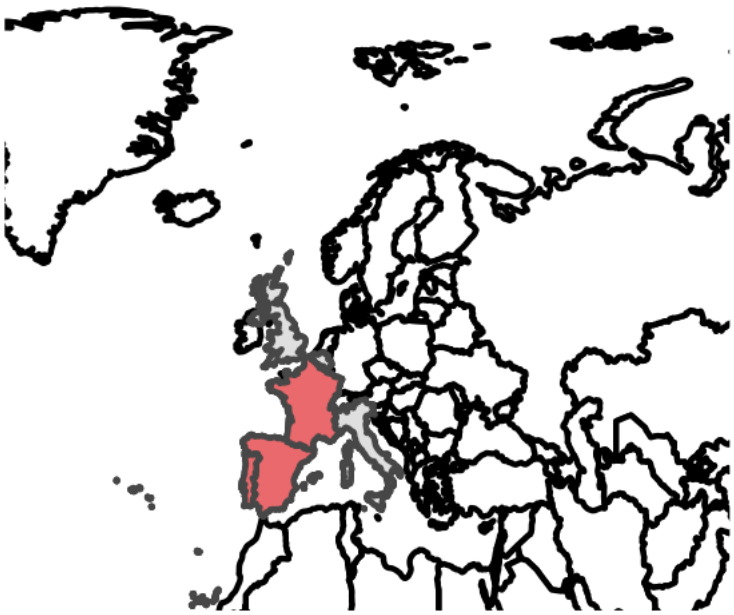
Countries used for the trend calculation: BG, CZ, DE-E, GR, LT, LV, SK and PL.

Comments: The population trend is calculated based on data from only 8 of 28 breeding range states not including BY, EE, HU, RO, TR, UA with large breeding populations. The 3 generations period started before the assessment period.

Cattle Egret *Bubulcus ibis*, South-west Europe



Trend	Period	Slope	SE	Assessment
Overall	1998-2017	1.0103	0.0069	Stable
3-generations	2000-2017	1.0212	0.0071	Moderate increase (p<0.05)
Short-term	2008-2017	1.0693	0.0131	Moderate increase (p<0.01)

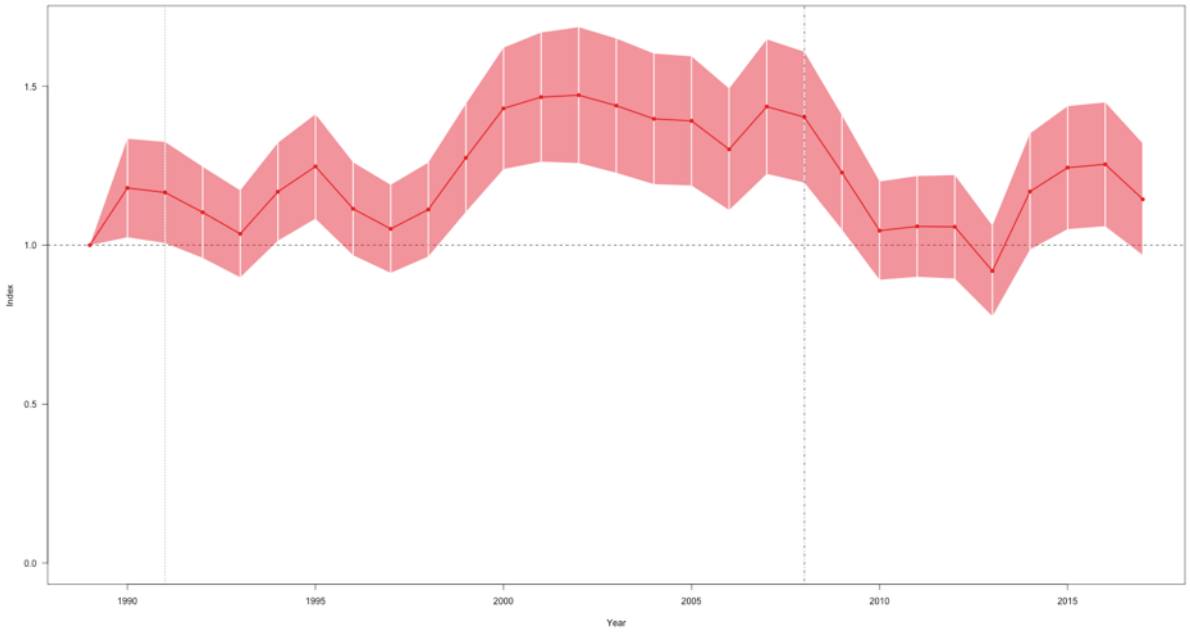


Generation length: 6.1 years

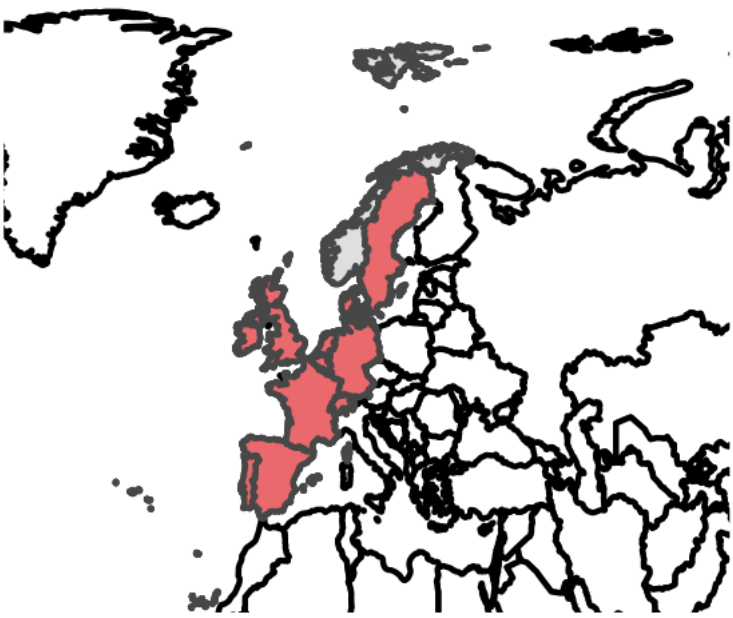
Countries used for the trend calculation: ES, FR and PT.

Comments: The population trend is calculated based on data from 3 of 6 breeding range states including all countries but IT with large breeding populations.

Grey Heron *Ardea cinerea*, Northern & Western Europe



Trend	Period	Slope	SE	Assessment
Overall	1989-2017	1.0012	0.0033	Stable
3-generations	1991-2017	0.9995	0.0031	Stable
Short-term	2008-2017	0.9960	0.0034	Stable

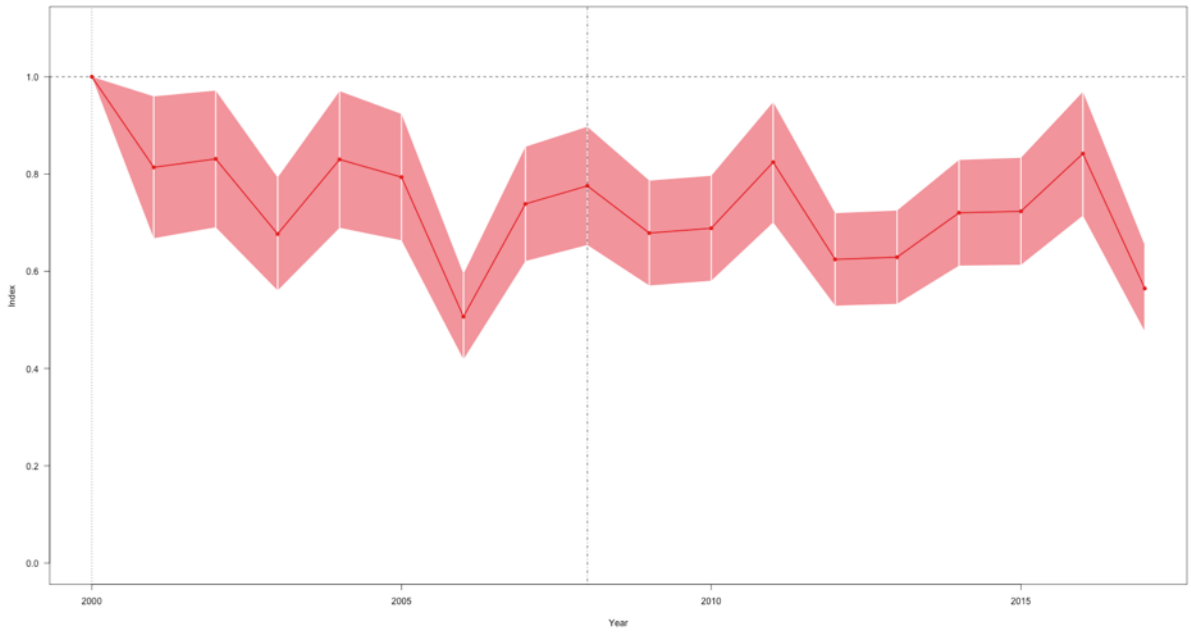


Generation length: 8.9 years

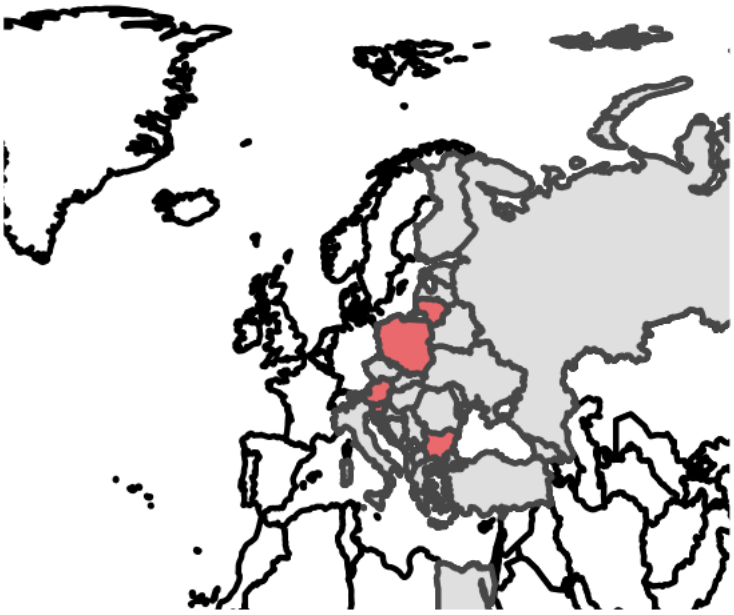
Countries used for the trend calculation: BE, CH, DE, DK, ES, FR, GB, IE, NL, PT and SE.

Comments: The population trend is calculated based on data from 11 of 13 breeding range states including all countries with large breeding populations.

Grey Heron *Ardea cinerea*, Central & Eastern Europe



Trend	Period	Slope	SE	Assessment
Overall	2000-2017	0.9873	0.0047	Moderate decrease (p<0.05)
3-generations	2000-2017	0.9873	0.0047	Moderate decrease (p<0.05)
Short-term	2008-2017	0.9910	0.0079	Stable



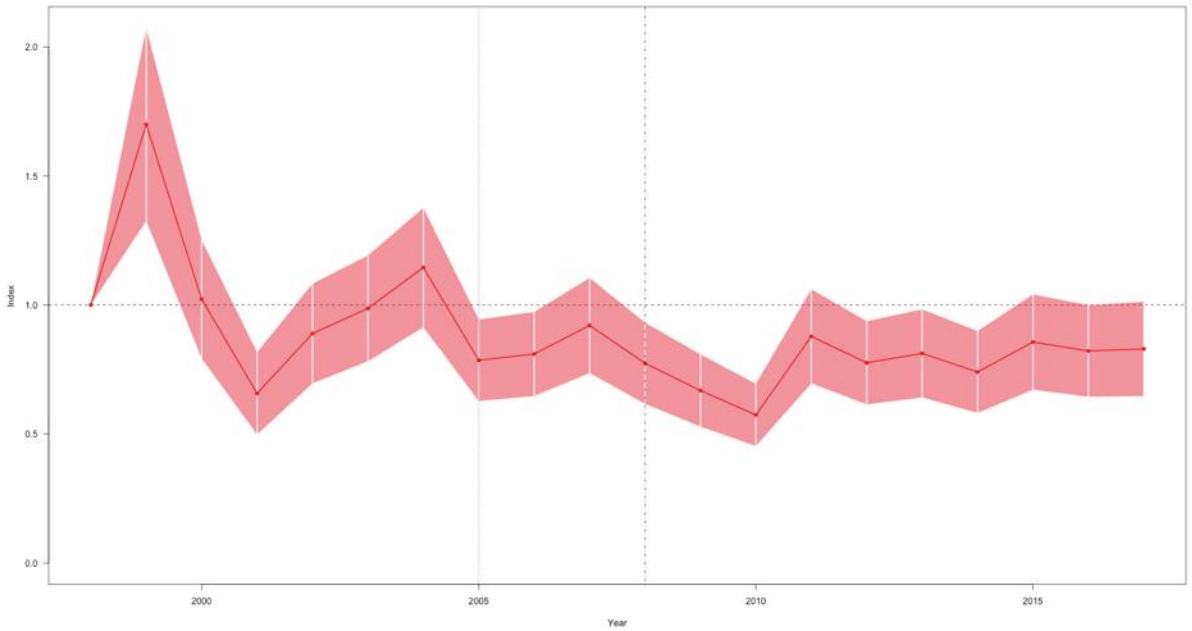
Generation length: 8.9 years

Countries used for the trend calculation: AT, BG, LT, PL and SI.

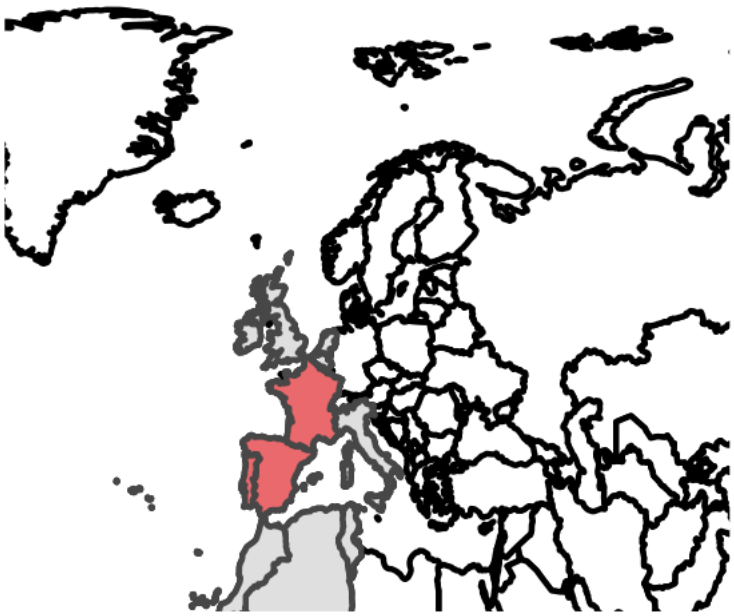
Comments: The population trend is calculated based on data from 5 of 28 breeding range states not including all countries with large breeding populations (BY, CZ, HU, HR, RO, RU, TR, UA). The trend is therefore unlikely to be representative for the whole population. The 3 generations period started before the assessment period.

Based on the PECBMS data, this population has declined by 8-44% over 3 generations.

Little Egret *Egretta garzetta*, Western Europe, NW Africa



Trend	Period	Slope	SE	Assessment
Overall	1998-2017	0.9819	0.0071	Moderate decrease (p<0.05)
3-generations	2005-2017	1.0037	0.0088	Stable
Short-term	2008-2017	1.0221	0.0127	Uncertain

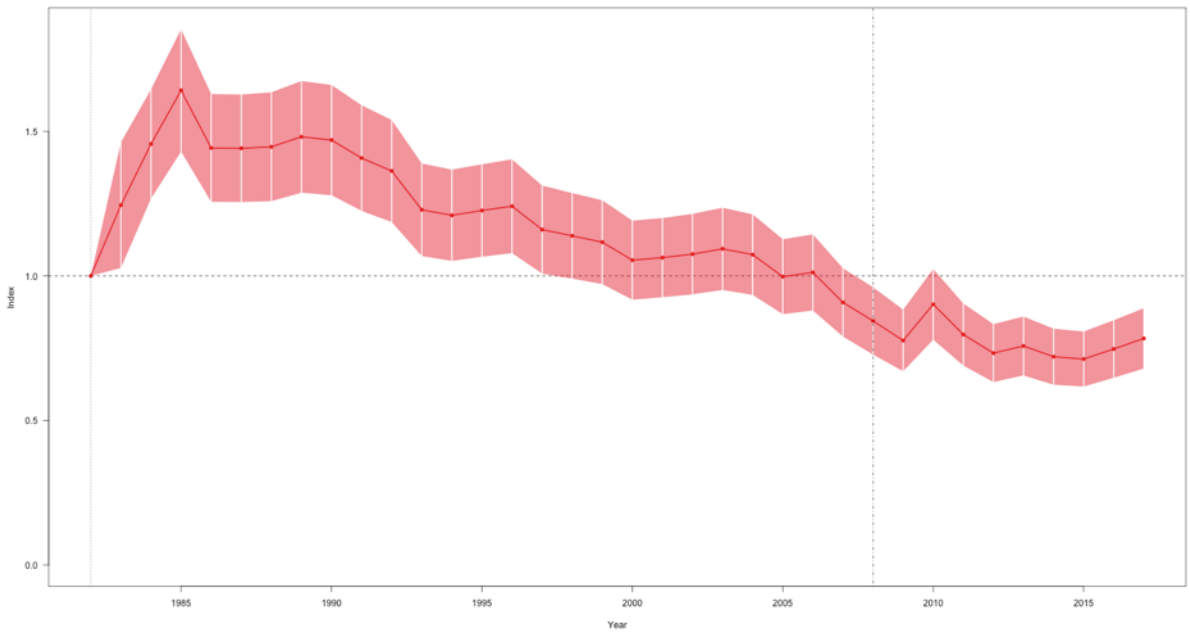


Generation length: 4.2 years

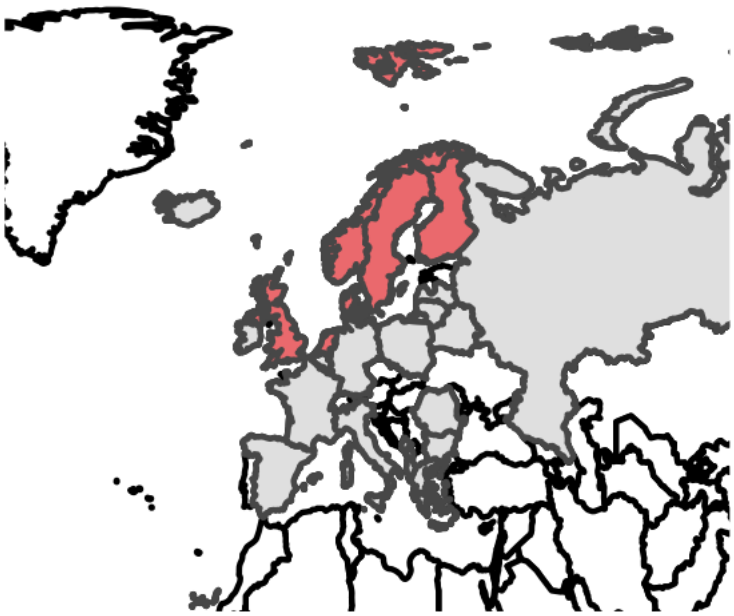
Countries used for the trend calculation: ES, FR and PT.

Comments: The population trend is calculated based on data from 3 of 11 breeding range states not including IT and the North African countries.

Eurasian Oystercatcher *Haematopus ostralegus*, Europe/South & West Europe & NW Africa



Trend	Period	Slope	SE	Assessment
Overall	1982-2017	0.9791	0.0014	Moderate decrease (p<0.01)
3-generations	1982-2017	0.9791	0.0014	Moderate decrease (p<0.01)
Short-term	2008-2017	0.9856	0.0049	Moderate decrease (p<0.05)



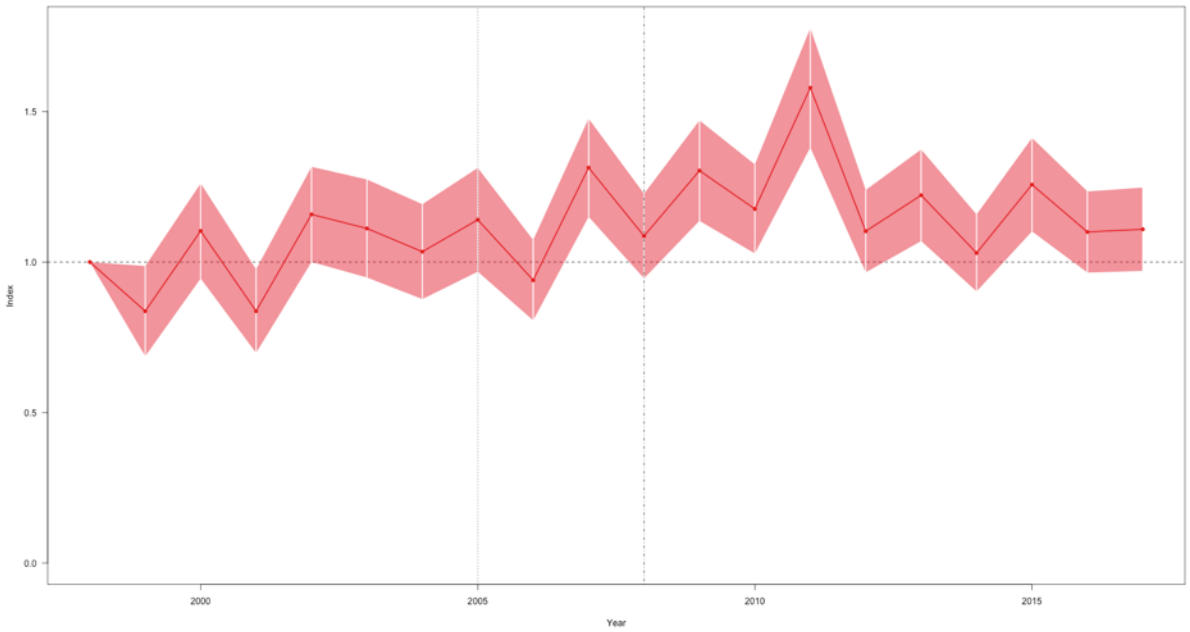
Generation length: 13.3 years

Countries used for the trend calculation: DK, FI, GB, NL, NO and SE.

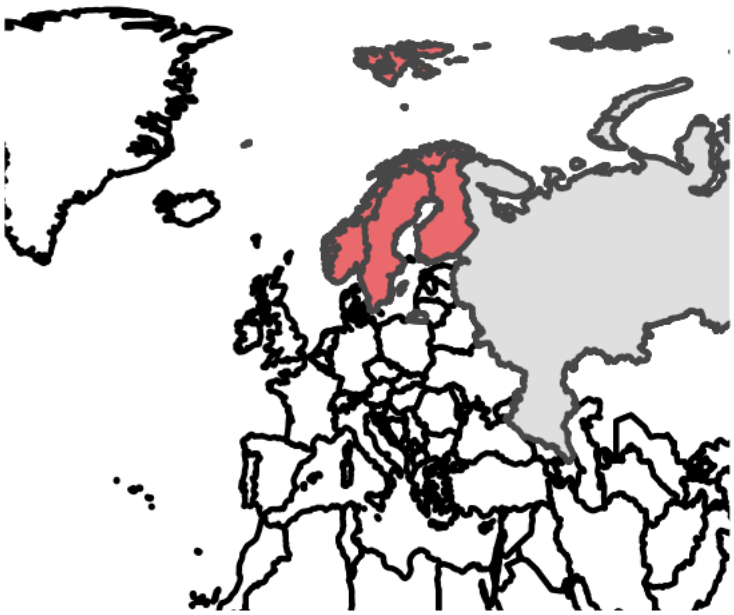
Comments: The population trend is calculated based on data from 6 of 24 breeding range states including most of the countries with large breeding populations except DE. The 3 generations period started before the assessment period.

Based on the PECBMS data, this population has declined by 51-61% over 3 generations.

Eurasian Golden Plover *Pluvialis apricaria altifrons*, Northern Europe/Western Europe & NW Africa



Trend	Period	Slope	SE	Assessment
Overall	1998-2017	1.0119	0.0041	Moderate increase (p<0.05)
3-generations	2005-2017	1.0005	0.0049	Stable
Short-term	2008-2017	0.9888	0.0048	Moderate decrease (p<0.05)

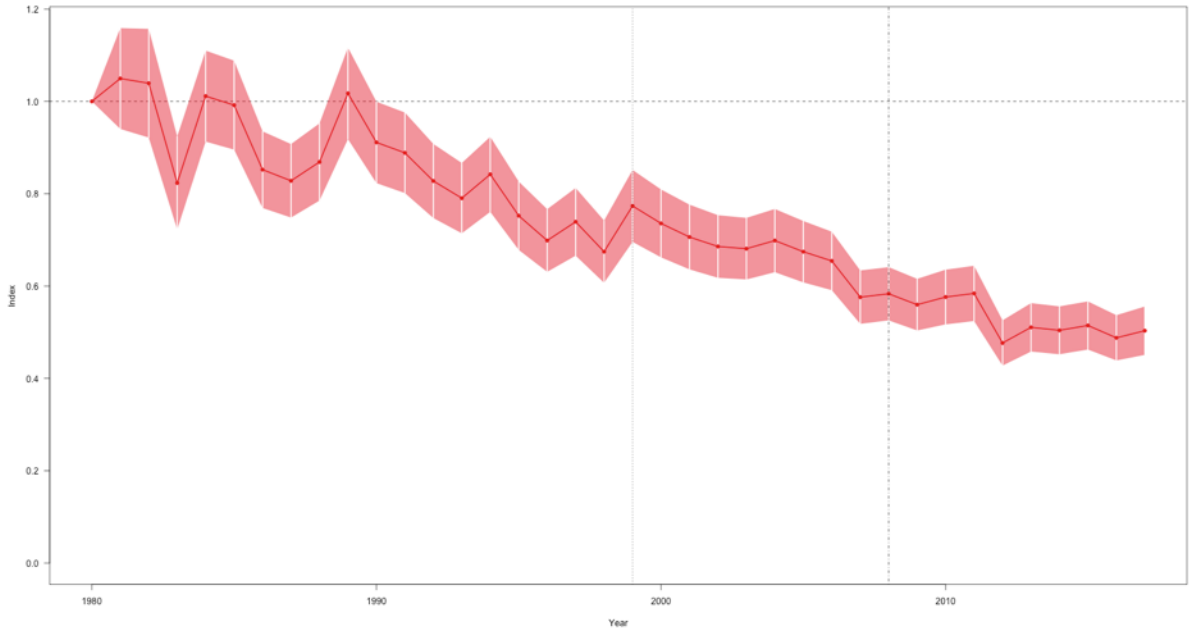


Generation length: 4.5 years

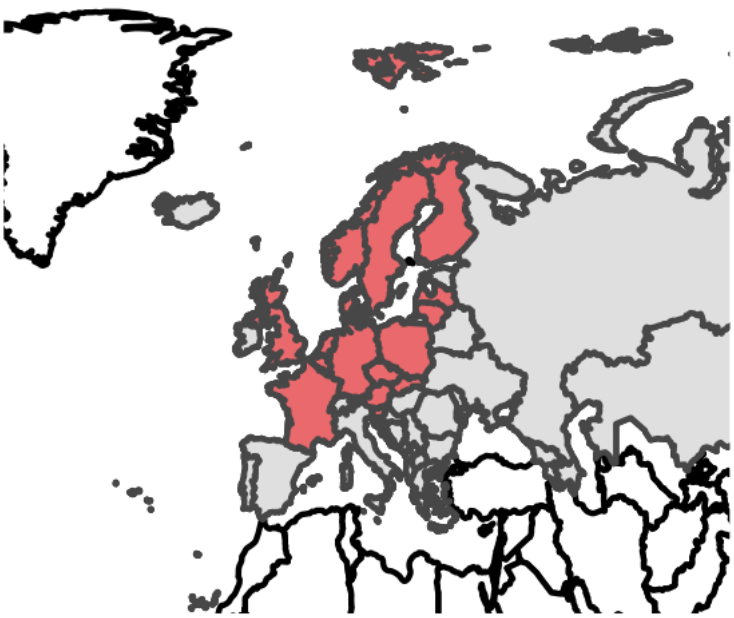
Countries used for the trend calculation: FI, NO and SE.

Comments: The population trend is calculated based on data from 3 of 4 breeding range states including most of the countries with large breeding populations except RU.

Northern Lapwing *Vanellus vanellus*, Europe, W Asia/Europe, N Africa & SW Asia



Trend	Period	Slope	SE	Assessment
Overall	1980-2017	0.9798	0.0015	Moderate decrease (p<0.01)
3-generations	1999-2017	0.9742	0.0032	Moderate decrease (p<0.01)
Short-term	2008-2017	0.9806	0.0040	Moderate decrease (p<0.05)



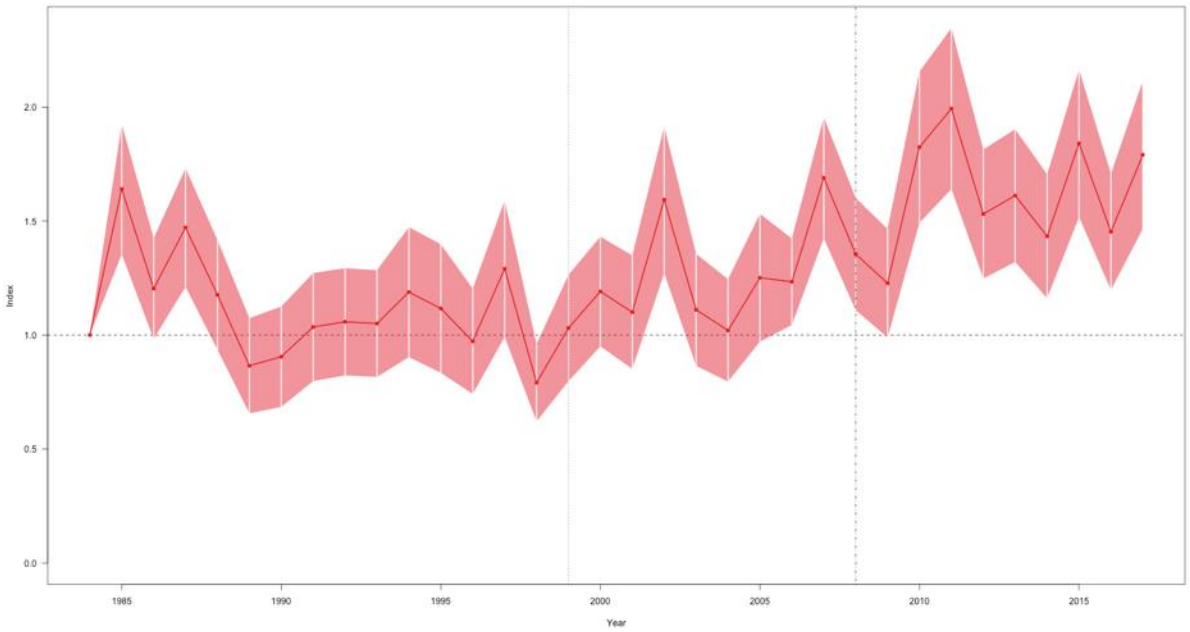
Generation length: 4.5 years

Countries used for the trend calculation: AT, BE, CZ, DK, DE, GB, FR, LT, LV, NL, NO, PL, SE, SI and SK.

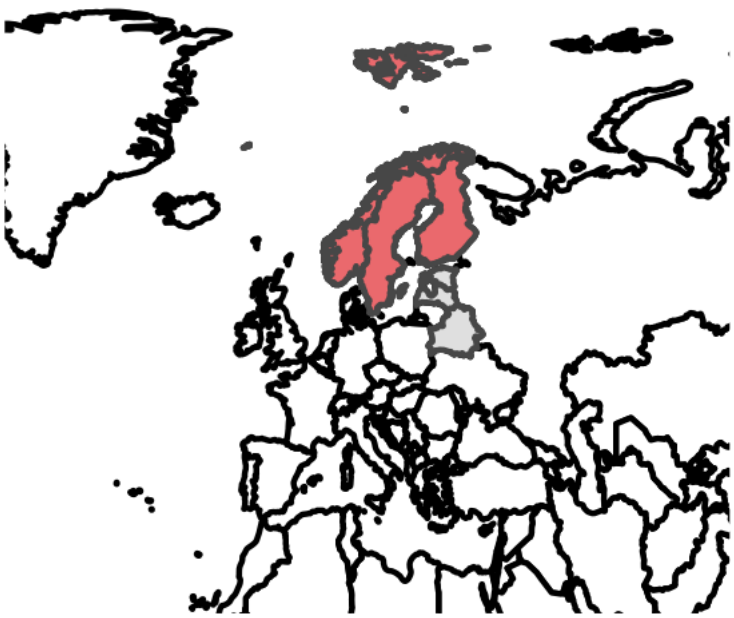
Comments: The population trend is calculated based on data from only 16 of 49 breeding range states. The trend is representative for Western and Central Europe but not for the whole population.

Based on the PECBMS data, this population has declined by 29-44% over 3 generations.

Whimbrel *Numenius phaeopus*, Northern Europe/West Africa



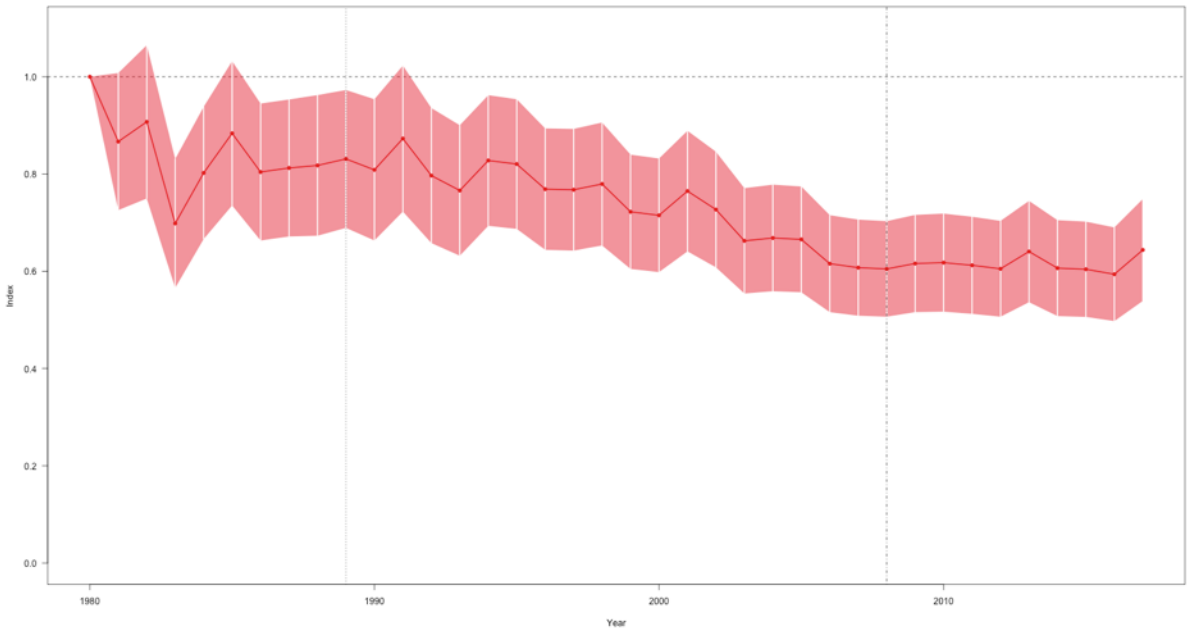
Trend	Period	Slope	SE	Assessment
Overall	1984-2017	1.0140	0.0045	Moderate increase (p<0.05)
3-generations	1999-2017	1.0264	0.0083	Moderate increase (p<0.05)
Short-term	2008-2017	1.0171	0.0111	Stable



Generation length: 6.5 years

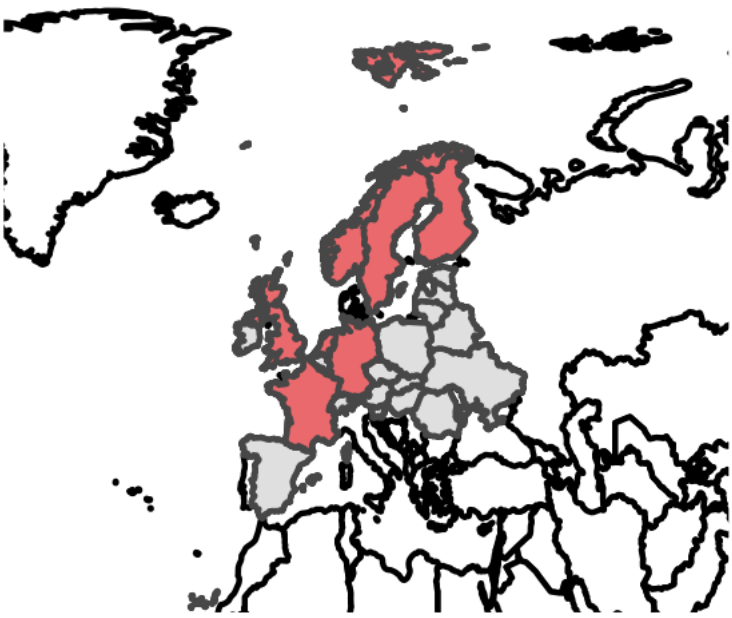
Countries used for the trend calculation: FI, NO and SE.

Comments: The population trend is calculated based on data from 3 of 7 breeding range states including most of the countries with large breeding population except RU.



Eurasian Curlew *Numenius arquata*, Europe/Europe, North & West Africa

Trend	Period	Slope	SE	Assessment
Overall	1980-2017	0.9884	0.0029	Moderate decrease (p<0.01)



3-generations	1989-2017	0.9865	0.0022	Moderate decrease (p<0.01)
Short-term	2008-2017	1.0014	0.0030	Stable

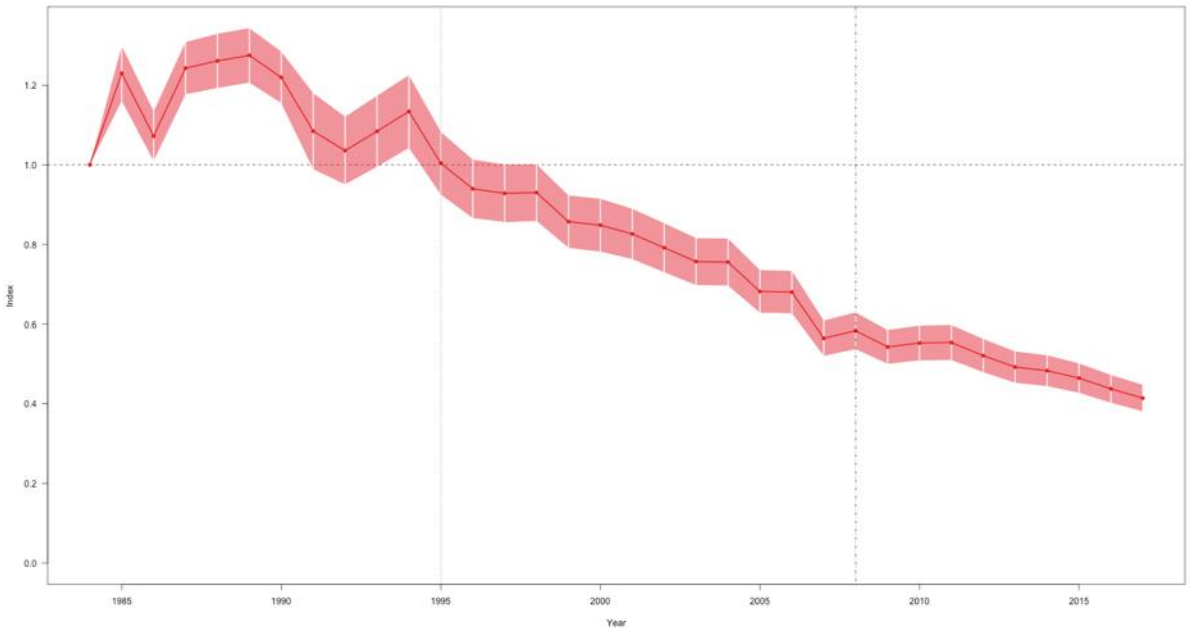
Generation length: 9.5 years

Countries used for the trend calculation: DE, FI, FR, GB, NL, NO and SE.

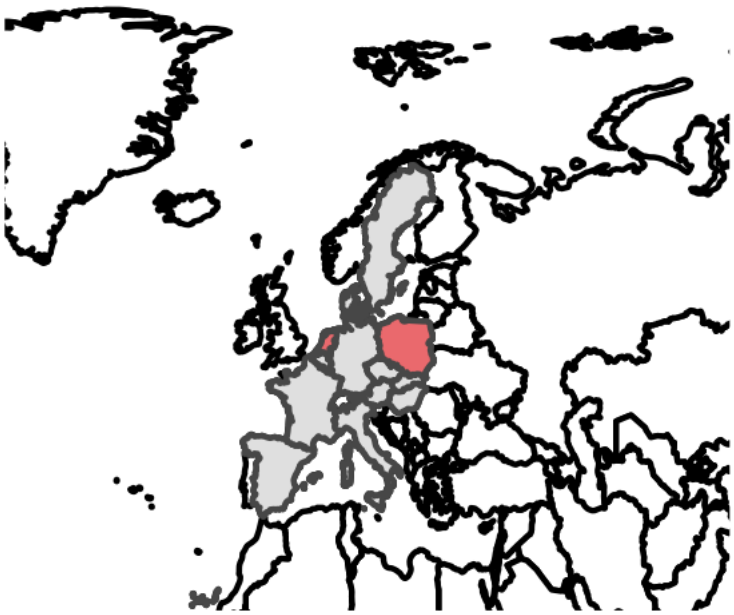
Comments: The population trend is calculated based on data from 7 of 25 breeding range states including most of the countries with large breeding populations except RU.

Based on the PECBMS data, this population has declined by 22-39% over 3 generations.

Black-tailed Godwit *Limosa limosa limosa*, Western Europe/NW & West Africa



Trend	Period	Slope	SE	Assessment
Overall	1984-2017	0.9664	0.0018	Moderate decrease (p<0.01)
3-generations	1995-2017	0.9605	0.0015	Moderate decrease (p<0.01)
Short-term	2008-2017	0.9647	0.0041	Moderate decrease (p<0.01)



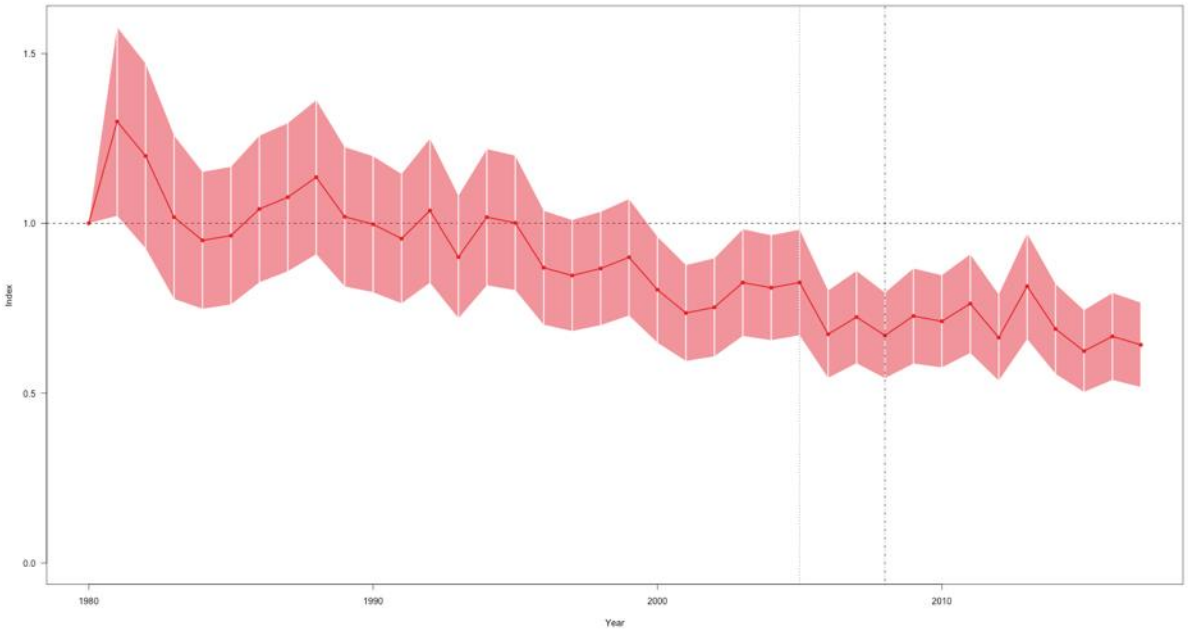
Generation length: 7.7 years

Countries used for the trend calculation: NL and PL.

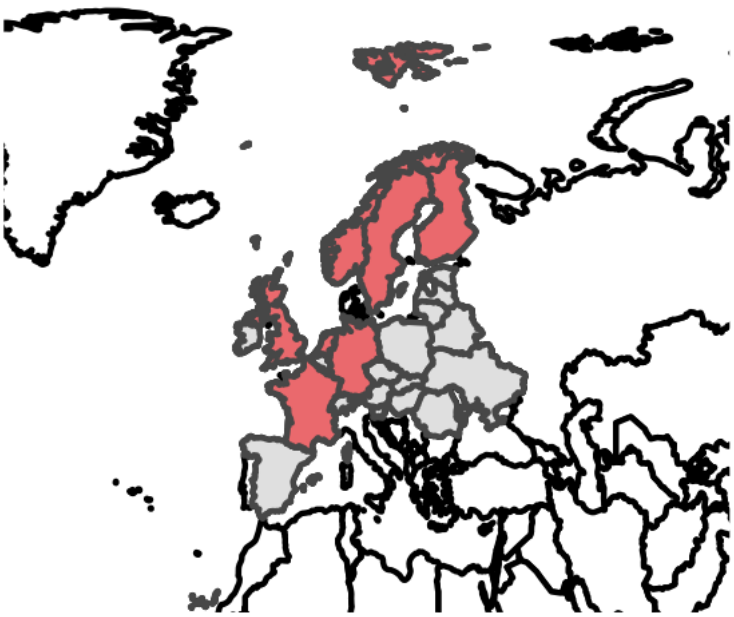
Comments: The population trend is calculated based on data from only 2 of 13 breeding range states. The trend is predominantly based on data from the NL, but 85% of this population breeds in that country.

Based on the PECBMS data, this population has declined by 56-61% over 3 generations and the short-term decline is equivalent to a decline of 45-62% over 3 generations.

Common Sandpiper *Actitis hypoleucos*, West & Central Europe/West Africa



Trend	Period	Slope	SE	Assessment
Overall	1980-2017	0.9846	0.0027	Moderate decrease (p<0.01)
3-generations	2005-2017	0.9896	0.0059	Stable
Short-term	2008-2017	0.9895	0.0072	Stable

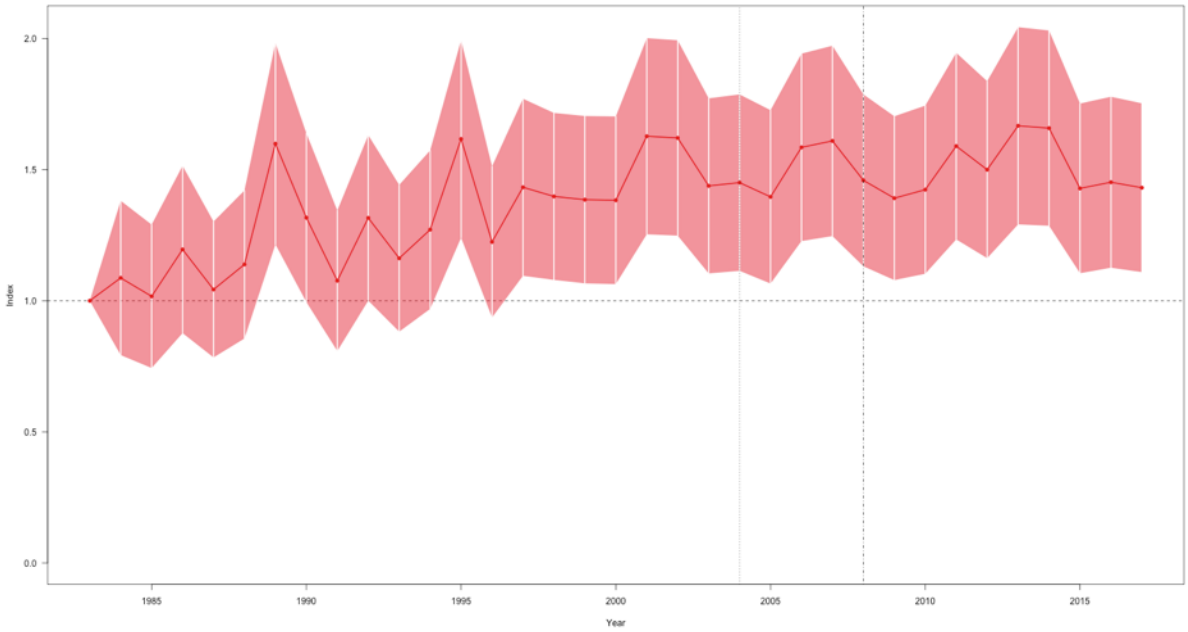


Generation length: 7.7 years

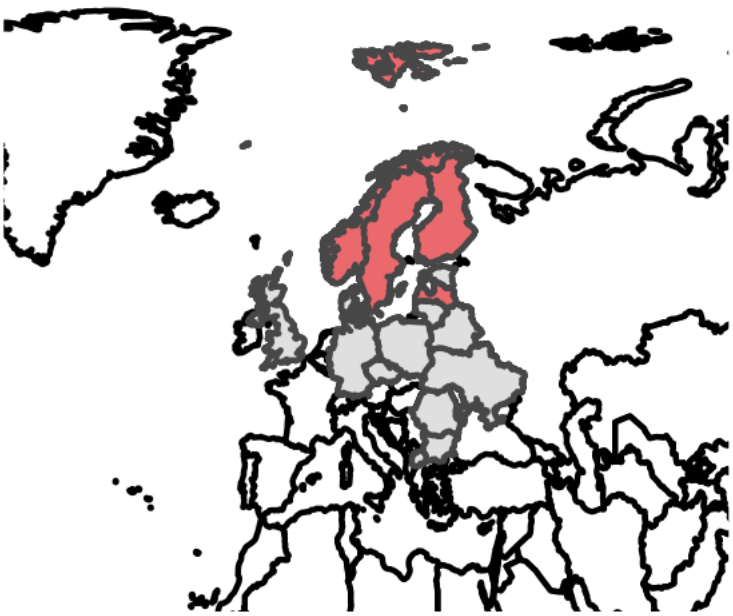
Countries used for the trend calculation: CZ, ES, FI, FR, GB, NO, PL, PT and SE.

Comments: The population trend is calculated based on data from 9 of 34 breeding range states including most of the countries with large breeding population except of BY. Hence, it might be not fully representative of the trend of the whole population.

Green Sandpiper *Tringa ochropus*, Northern Europe/S & W Europe, West Africa



Trend	Period	Slope	SE	Assessment
Overall	1983-2017	1.0106	0.0028	Moderate increase (p<0.01)
3-generations	2004-2017	1.0012	0.0047	Stable
Short-term	2008-2017	1.0023	0.0056	Stable

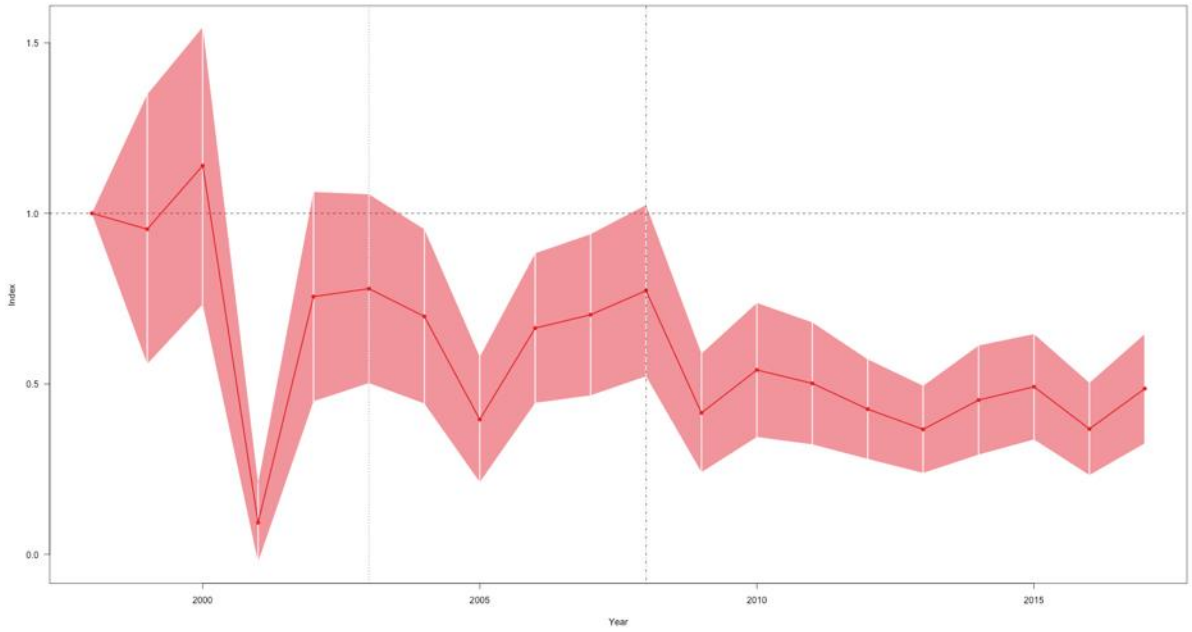


Generation length: 7.7 years

Countries used for the trend calculation: FI, LV, NO and SE.

Comments: The population trend is calculated based on data from 4 of 17 breeding range states including most of the countries with large breeding population except of BY, PL and RU. It is therefore not fully representative of the trend of the whole population.

Spotted Redshank *Tringa erythropus*, N Europe/Southern Europe, North & West Africa



Trend	Period	Slope	SE	Assessment
Overall	1998-2017	0.9723	0.0147	Uncertain
3-generations	2003-2017	0.9630	0.0134	Moderate decrease (p<0.05)
Short-term	2008-2017	0.9645	0.0227	Uncertain

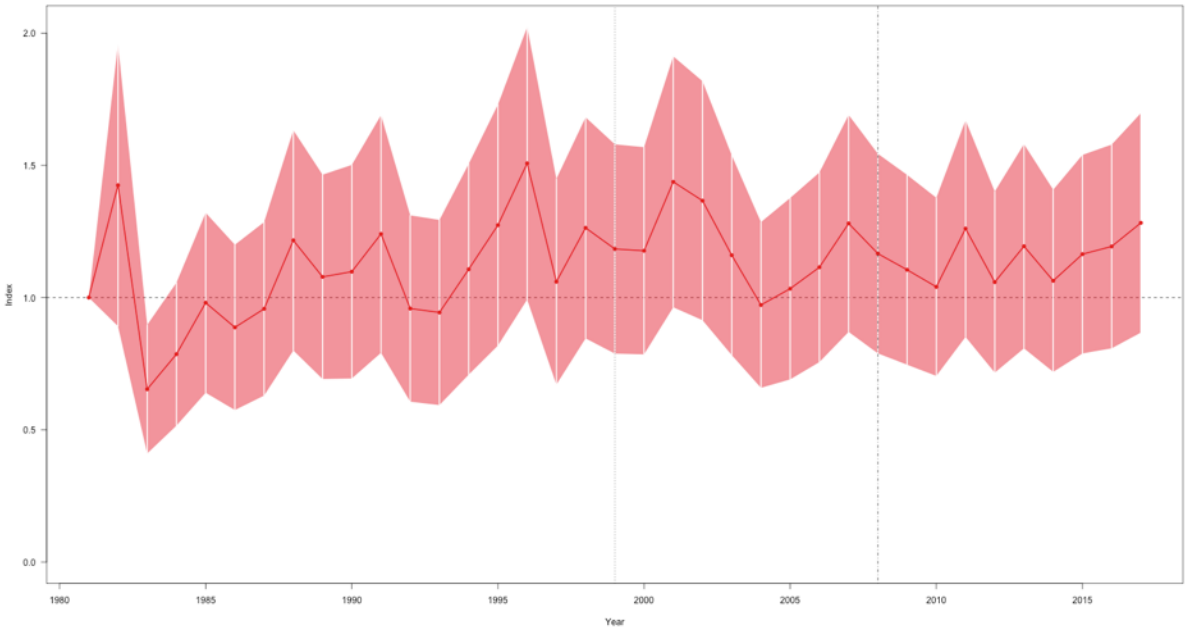
Generation length: 7.7 years

Countries used for the trend calculation: FI and SE.

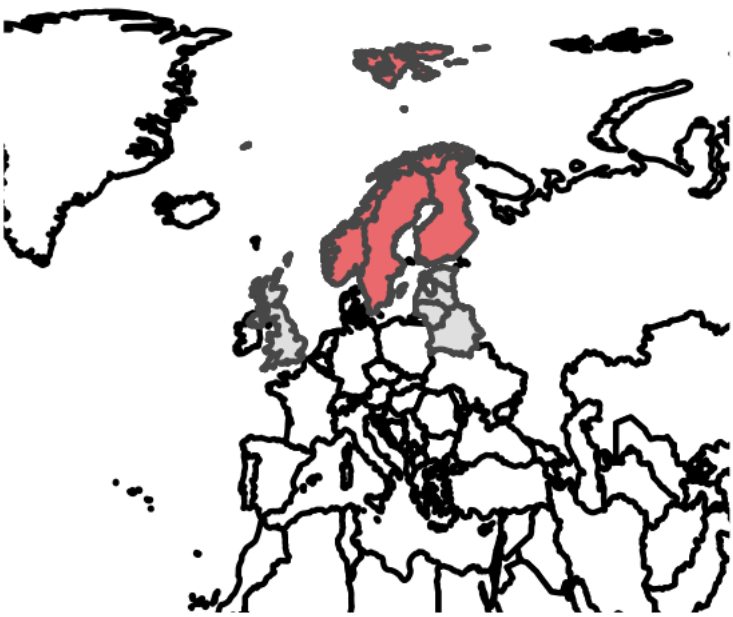
Comments: The population trend is calculated based on data from 2 of 4 breeding range states including most of the countries with large breeding population except of NO and RU. It is therefore not fully representative of the trend of the whole population.

Based on the PECBMS data, this population has declined by 14-59% over 3 generations

Common Greenshank *Tringa nebularia*, Northern Europe/SW Europe, NW & West Africa



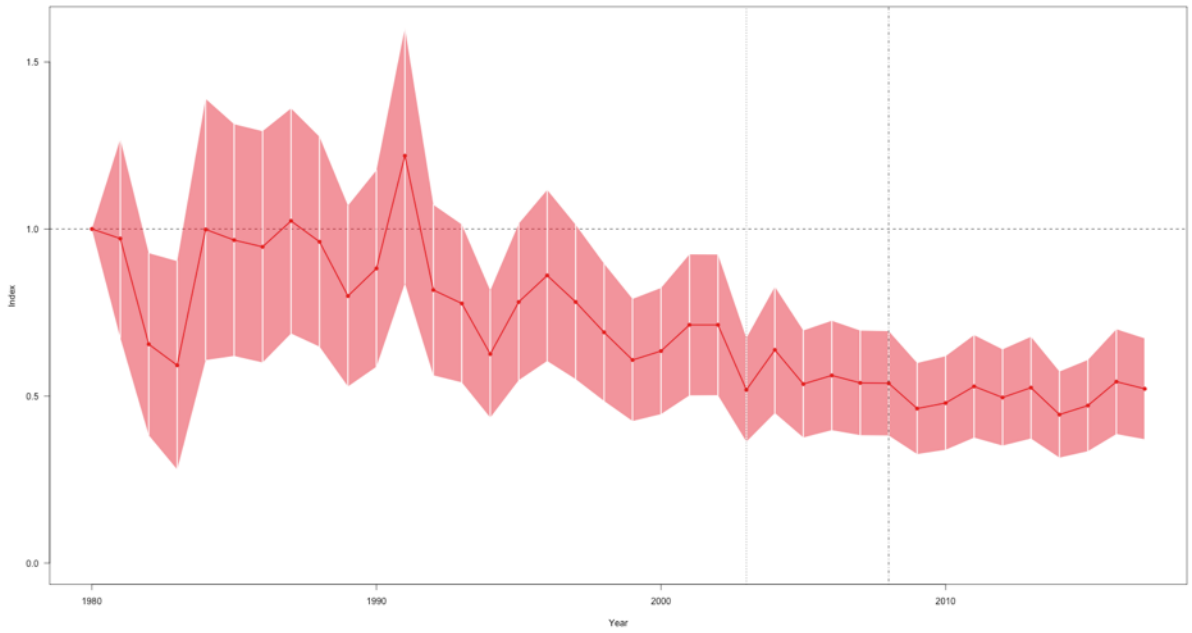
Trend	Period	Slope	SE	Assessment
Overall	1981-2017	1.0056	0.0035	Stable
3-generations	1999-2017	0.9976	0.0052	Stable
Short	2008-2017	1.0095	0.0059	Stable



Generation length: 6.3 years

Countries used for the trend calculation: FI, NO and SE.

Comments: The population trend is calculated based on data from 3 of 8 breeding range states including most of the countries with large breeding population except RU. It is therefore not fully representative of the trend of the whole population.



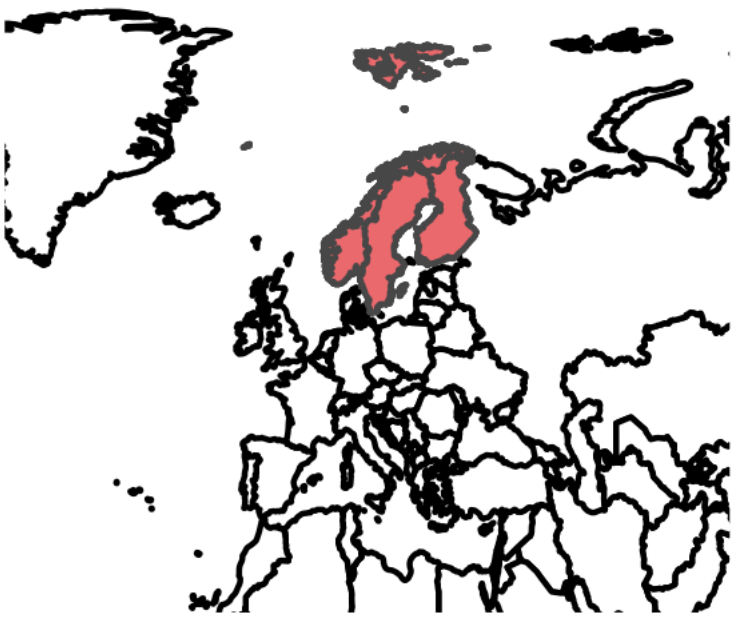
Common Redshank *Tringa totanus totanus*, Northern Europe (breeding)

Trend	Period	Slope	SE	Assessment
Overall	1980-2017	0.9797	0.0050	Moderate decrease (p<0.01)
3-generations	2003-2017	0.9907	0.0065	Stable
Short	2008-2017	1.0018	0.0062	Stable

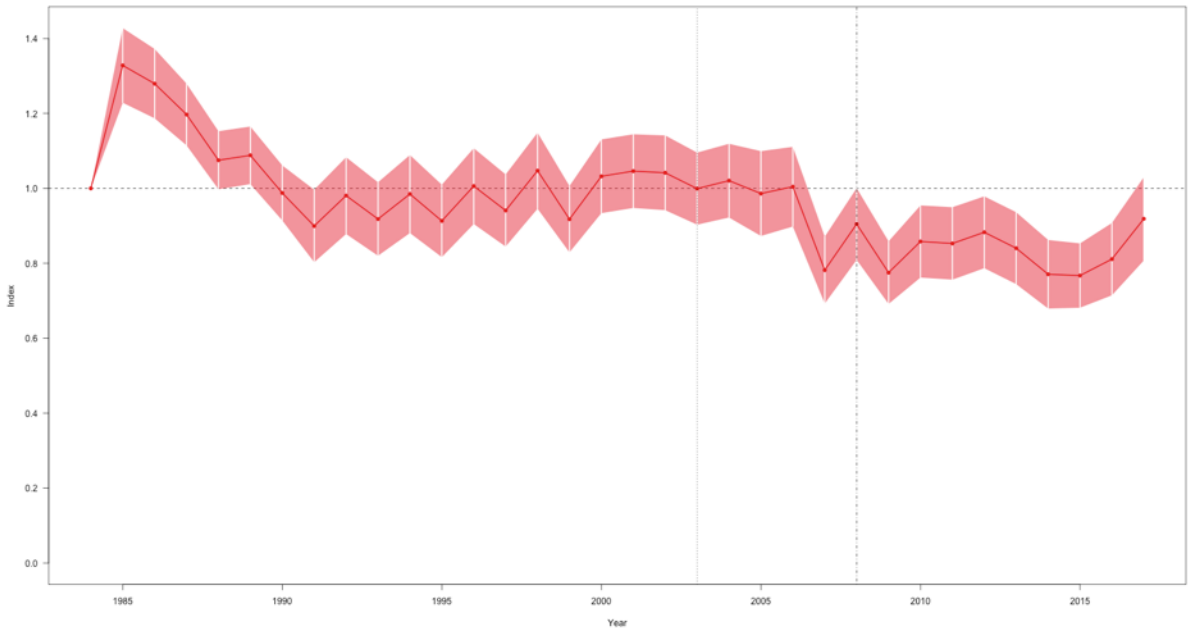
Generation length: 5.0 years

Countries used for the trend calculation: FI, NO and SE.

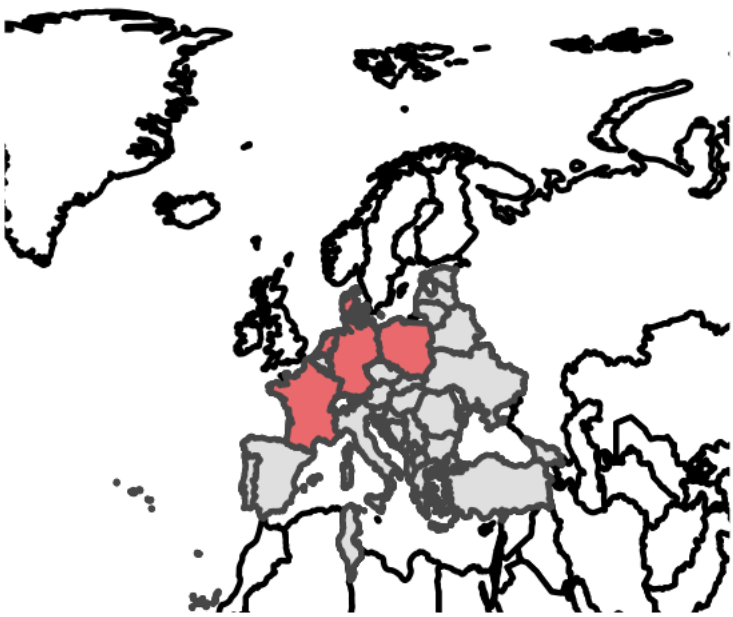
Comments: The population trend is calculated based on data from all 3 breeding range states of this population.



Common Redshank *Tringa totanus totanus*, Central & East Europe (breeding)



Trend	Period	Slope	SE	Assessment
Overall	1984-2017	0.9901	0.0022	Moderate decrease (p<0.01)
3-generations	2003-2017	0.9858	0.0041	Moderate decrease (p<0.05)
Short	2008-2017	0.9972	0.0083	Stable



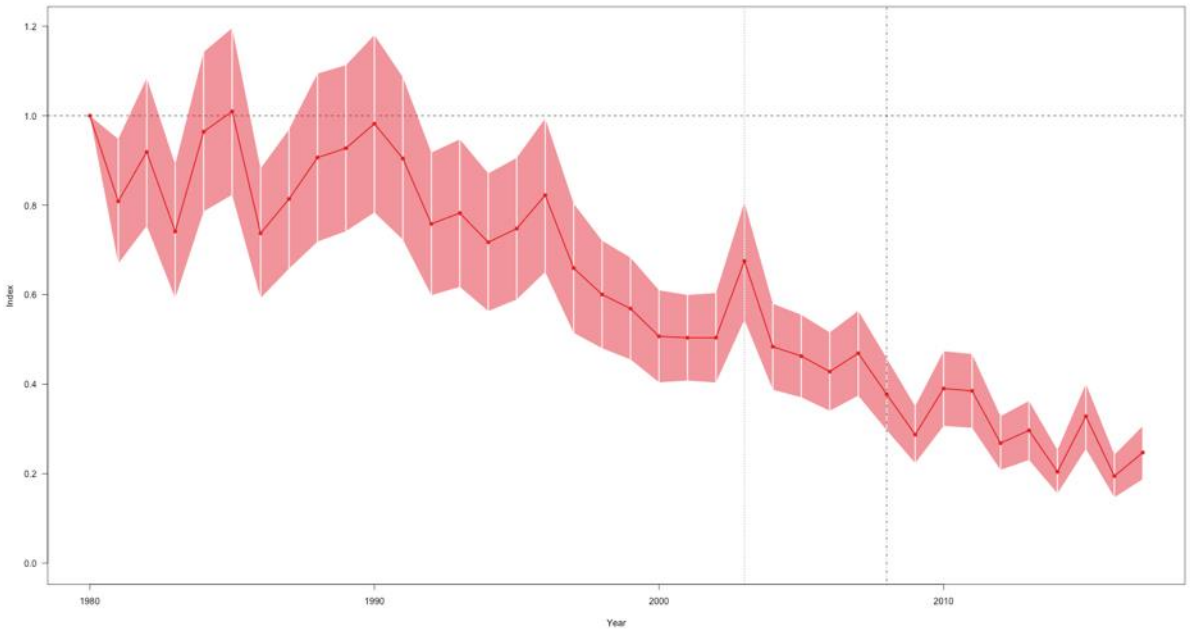
Generation length: 5.0 years

Countries used for the trend calculation: DK, DE, FR, NL and PL.

Comments: The population trend is calculated based on data from 5 of 33 breeding range states of this population including some of the countries with large breeding populations except EE, BY and UA. The trend is therefore not fully representative for the whole population.

Based on the PECBMS data, this population has declined by 9-27% over 3 generations.

Common Redshank *Tringa totanus totanus*, Britain & Ireland/Britain, Ireland, France



Trend	Period	Slope	SE	Assessment
Overall	1980-2017	0.9612	0.0047	Moderate decrease (p<0.01)
3-generations	2003-2017	0.9346	0.0072	Strong decrease (p<0.05)
Short	2008-2017	0.9457	0.0143	Moderate decrease (p<0.05)

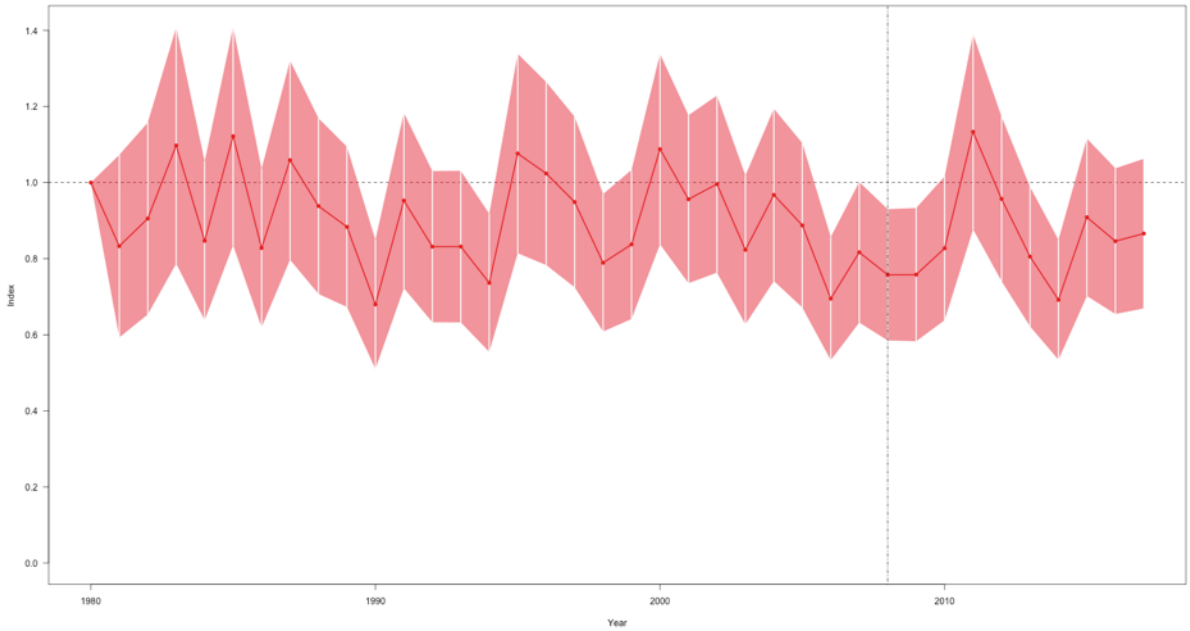
Generation length: 5.0 years

Countries used for the trend calculation: GB.

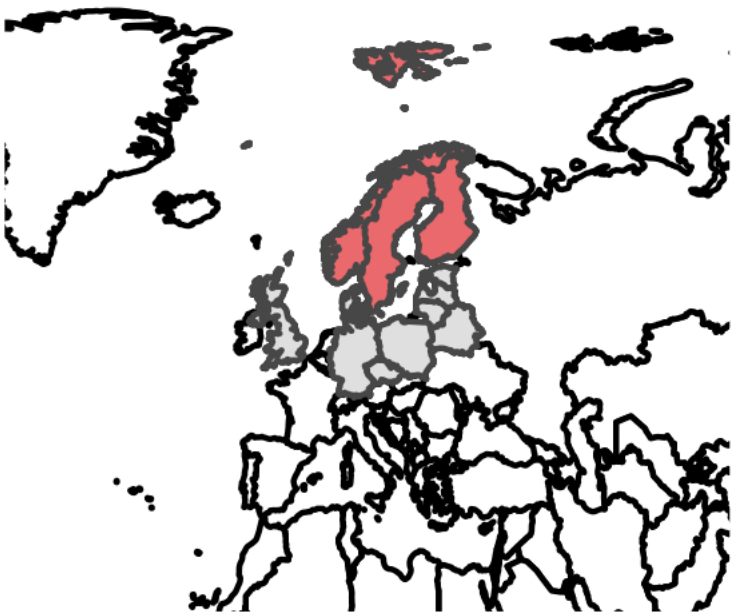
Comments: The population trend is calculated based on data from 1 of 2 breeding range states of this population where majority of the birds breed.

Based on the PECBMS data, this population has declined by 52-69% over 3 generations and the short-term decline is equivalent to a decline of 31-70% over 3 generations.

Wood Sandpiper *Tringa glareola*, North-west Europe/West Africa



Trend	Period	Slope	SE	Assessment
Overall	1980-2017	0.9969	0.0031	Stable
3-generations	2008-2017	1.0048	0.0051	Stable
Short	2008-2017	1.0048	0.0051	Stable



Generation length: 3.5 years

Countries used for the trend calculation: FI, NO and SE.

Comments: The population trend is calculated based on data from 3 of 12 breeding range states of this population including the most important countries except RU. The trend is therefore not fully representative for the entire population.

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Annex. Two letter ISO codes of country names mentioned

AT – Austria

BE – Belgium

BG – Bulgaria

BY – Belarus

CH – Switzerland

CY – Cyprus

CZ – Czech Republic

DE – Germany

DK – Denmark

EE – Estonia

ES – Spain

FI – Finland

FR – France

GB – United Kingdom

GR – Greece

HR – Croatia

HU - Hungary

IE – Republic of Ireland

IT – Italy

LT – Lithuania

LU – Luxembourg

LV – Latvia

NL – The Netherlands

NO – Norway

PL – Poland

PT – Portugal

RO – Romania

RU - Russia

SE – Sweden

SI – Slovenia

SK – Slovakia

TR - Turkey

UA - Ukraine