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





Pan-European Common Bird Monitoring Scheme and Wetlands International

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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 (RO), 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).

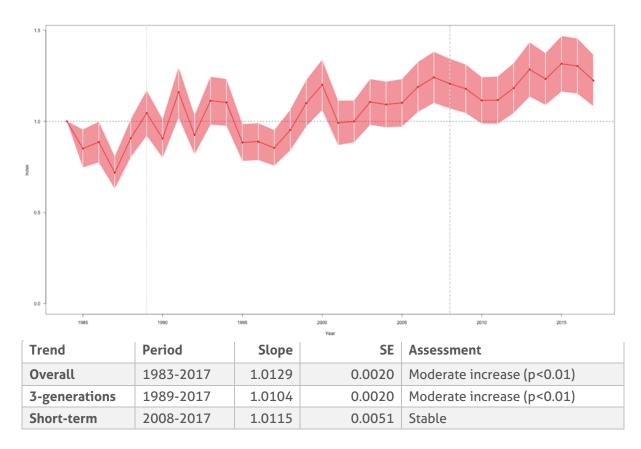
Acknowledgements

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

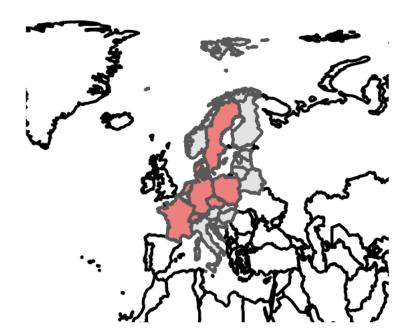
Wetlands International gratefully acknowledges the financial contribution of the Swiss Federal Office to the Environment, the Norwegian Environmental Protection Agency and the Croatian Ministry of Environmental Protection and Energy to the 8th edition of the AEWA Conservation Status Report through the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



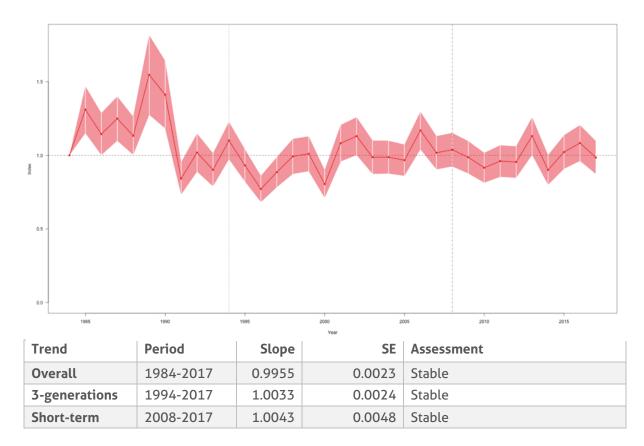
Mute Swan Cygnus olor, North-west Mainland & Central Europe



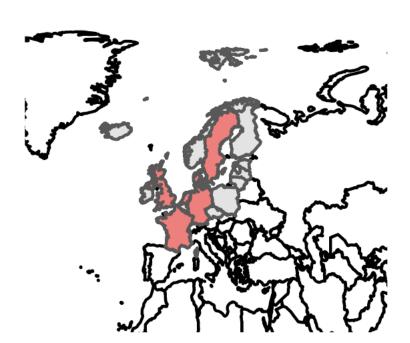
Generation length: 9.8 years

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

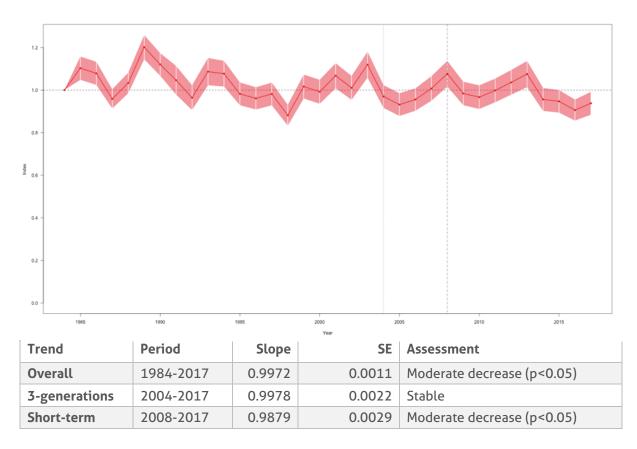


Generation length: 8.1 years

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.

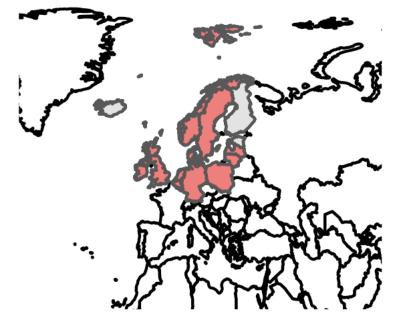


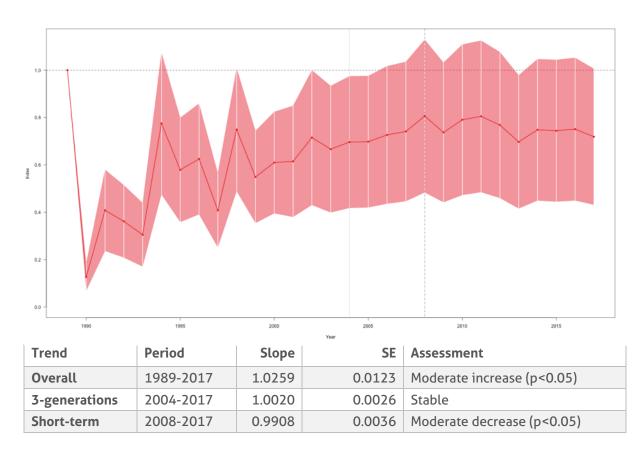




Countries used for the trend calculation: BE, DE, DK, GB, IE, LV, LT, LU, NL, NO, PL and SE.

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



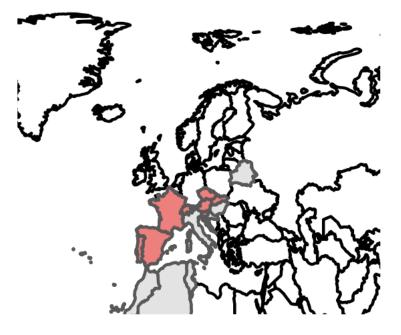


Mallard Anas platyrhynchos, Northern Europe/West Mediterranean

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.



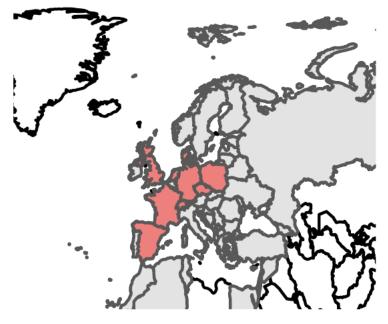


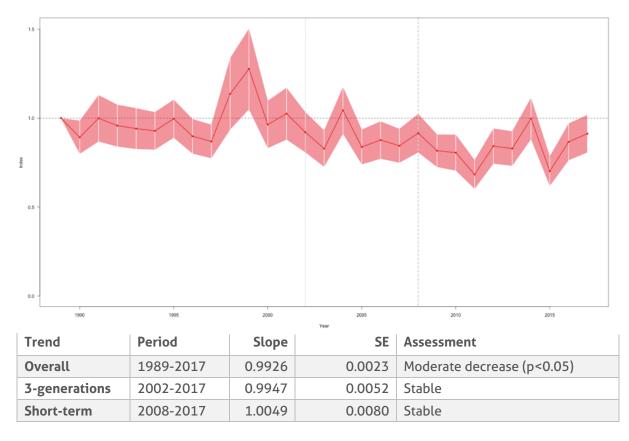
Little Grebe Tachybaptus ruficollis, Europe & North-west Africa

Generation length: 4.7 years

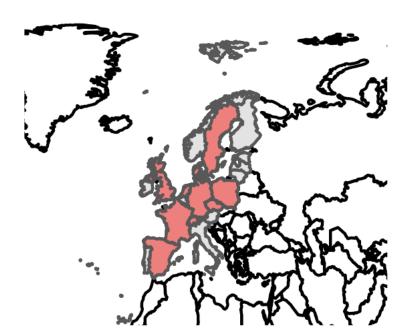


Comments: The population trend is calculated based on data from 9 of 51 breeding range states. The results are likely to be representative for Central and Western Europe but not for the whole population.





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

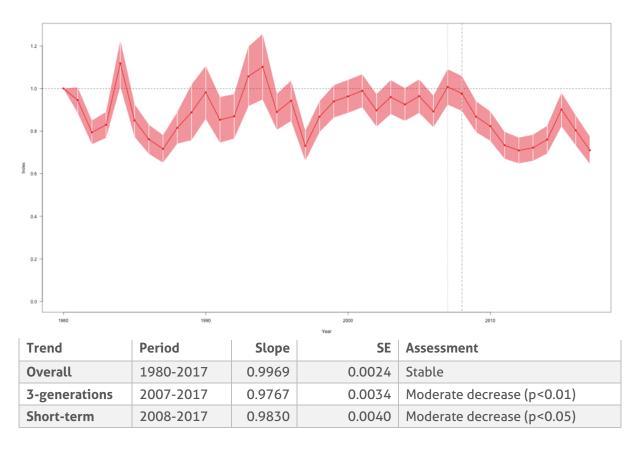


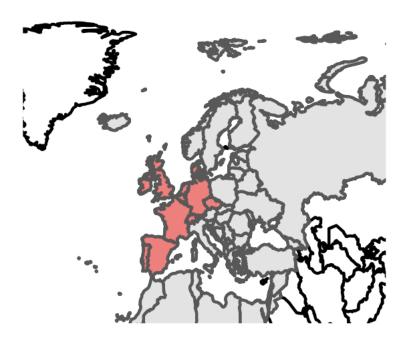
Generation length: 5.5 years

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.







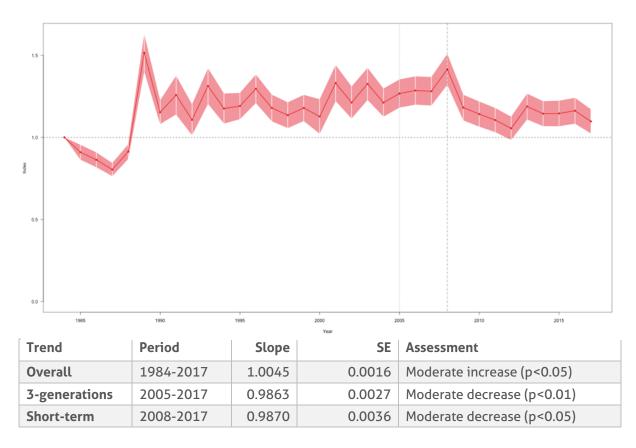
Generation length: 3.6 years

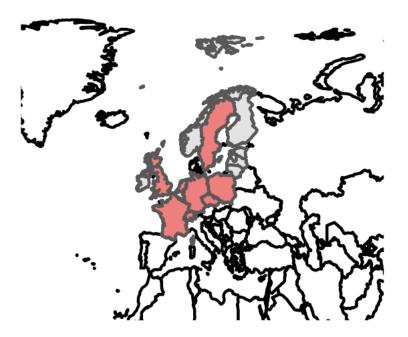
Countries used for the trend calculation: BE, CH, CZ, DE, DK, ES, FR, GB, IE, NL, PL and PT.

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)



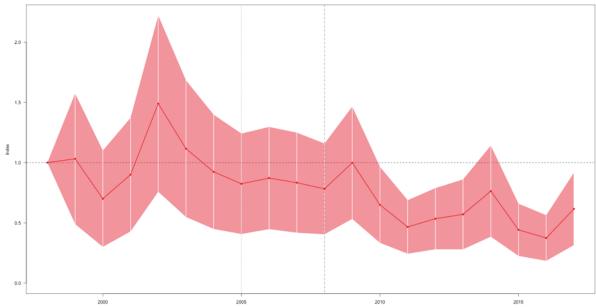


Generation length: 4.2 years

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)

			Year	
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)

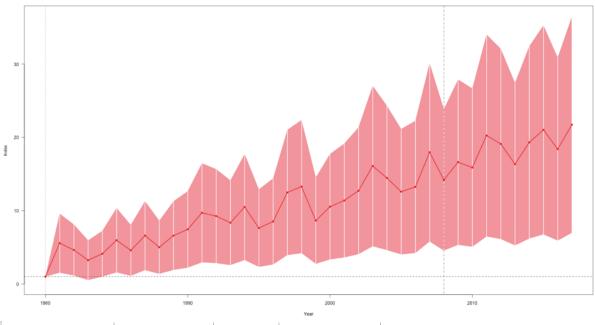
Generation length: 4.2 years

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

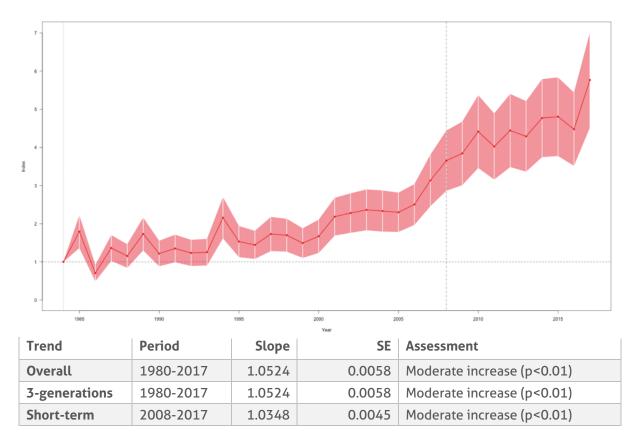
			Year	
Trend	Period	Slope	SE	Assessment
Overall	1980-2017	1.0524	0.0058	Moderate increase (p<0.01)
3-generations	1980-2017	1.0524	0.0058	Moderate increase (p<0.01)
Short-term	2008-2017	1.0348	0.0045	Moderate increase (p<0.01)

Generation length: 17.0 years

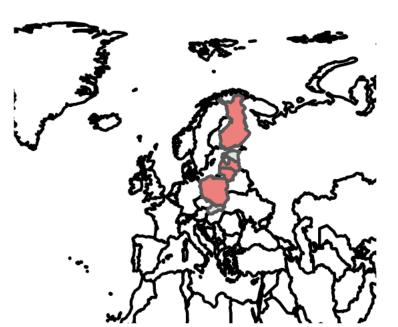
Countries used for the trend calculation: DE, NO and SE.

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.





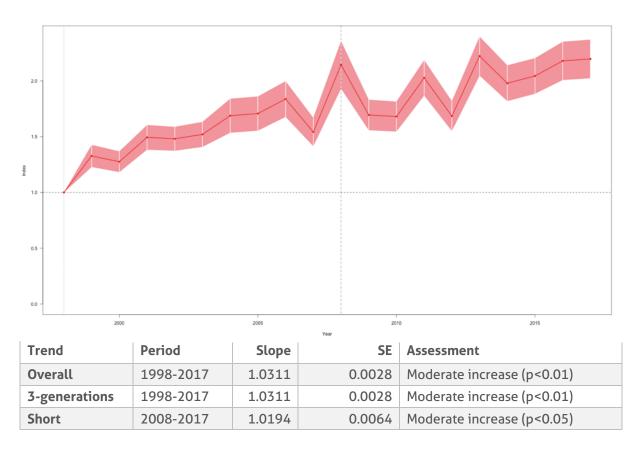
Common Crane Grus grus, North-east & Central Europe/North Africa



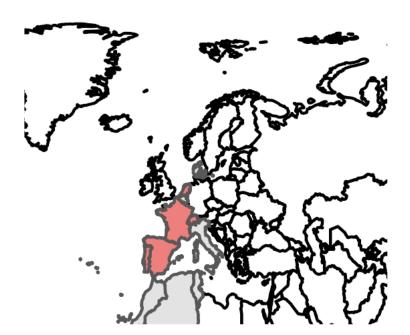
Generation length: 17.0 years

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.



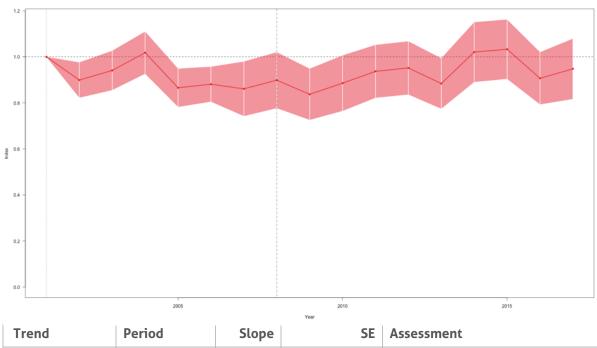
White Stork Ciconia ciconia, W Europe & North-west Africa/Sub-Saharan Africa



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.



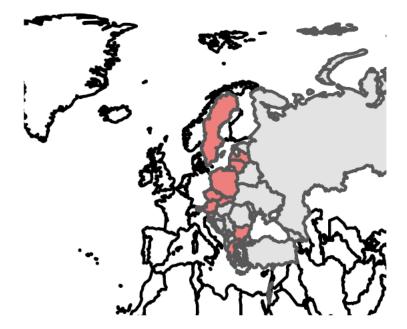
White Stork Ciconia ciconia, Central & Eastern Europe/Sub-Saharan Africa

			Year	
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

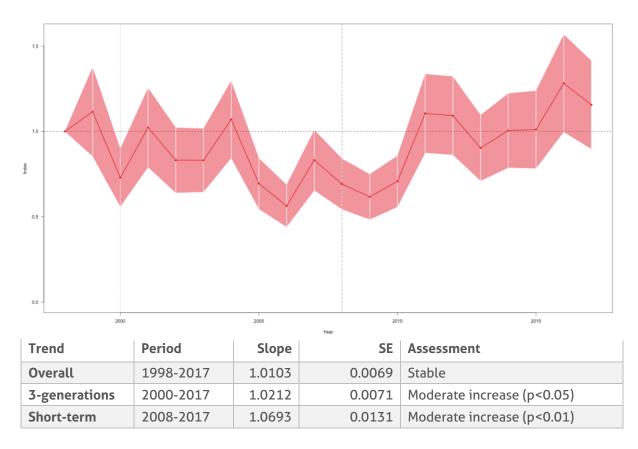
Generation length: 12.5 years

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.



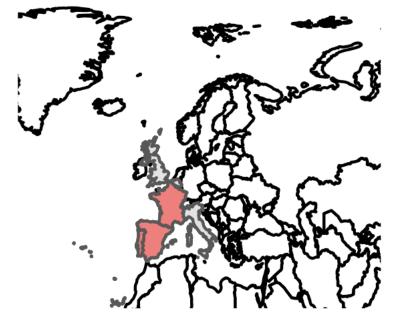
Cattle Egret Bubulcus ibis, South-west Europe

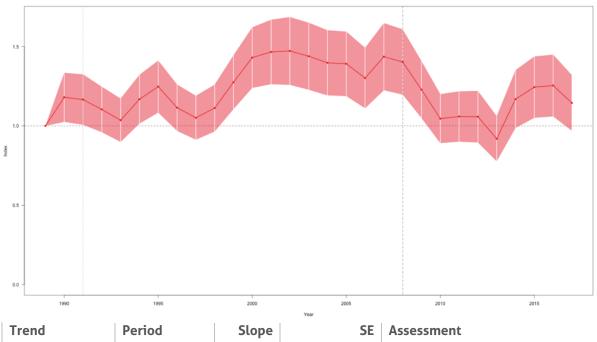


Generation length: 6.1 years

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

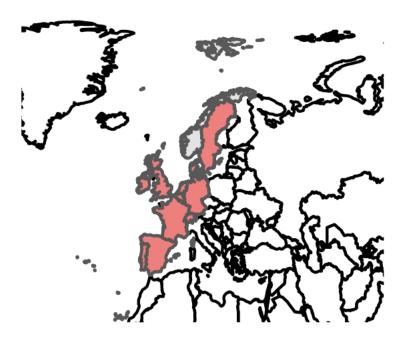
Comments: The population trend is calculated based on data from 3 of 6 breeding range states including all countries but IT with large breeding populations.





Grey Heron Ardea cinerea, Northern & Western Europe

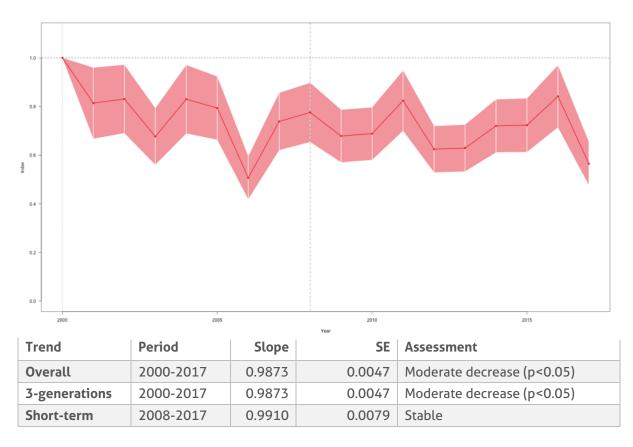
			Year	
Trend	Period	Slope	SE	Assessment
Overall	1989-2017	1.0012	0.0033	Stable
3-generations	1991-2017	0.9995	0.0031	Stable
Short-term	2008-2017	0.9960	0.0034	Stable



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

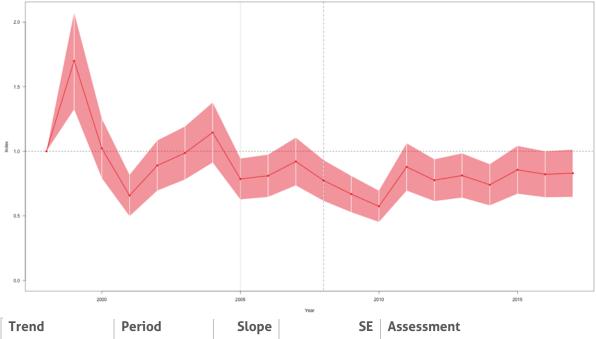


Generation length: 8.9 years

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.



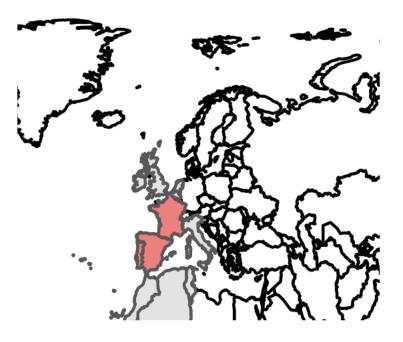
Little Egret Egretta garzetta, Western Europe, NW Africa

			fear	
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

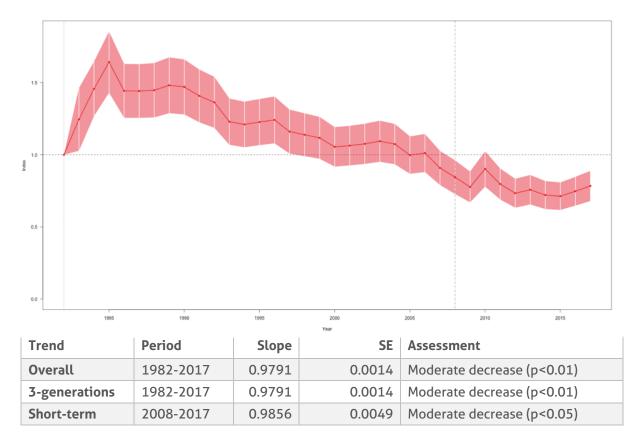
Generation length: 4.2 years

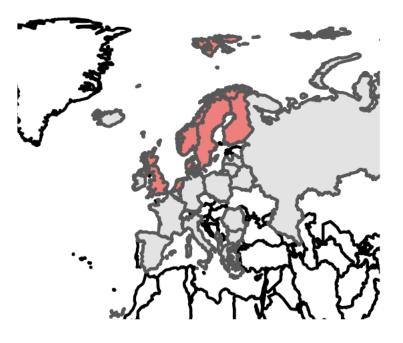
Countries used for the trend calculation: ES, FR and PT.

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





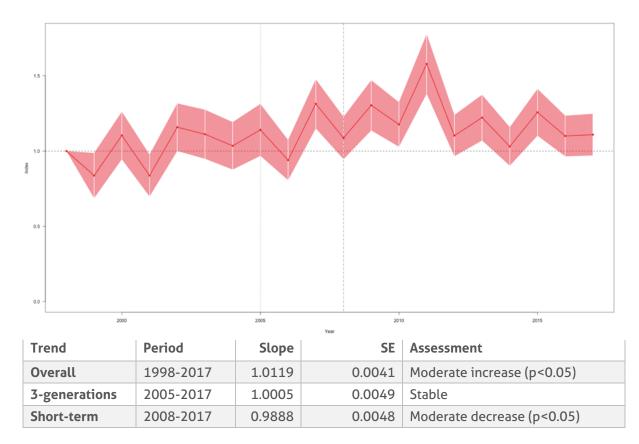
Generation length: 13.3 years

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.

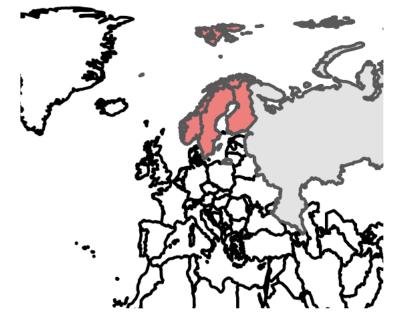
Eurasian Golden Plover *Pluvialis apricaria altifrons*, Northern Europe/Western Europe & NW Africa

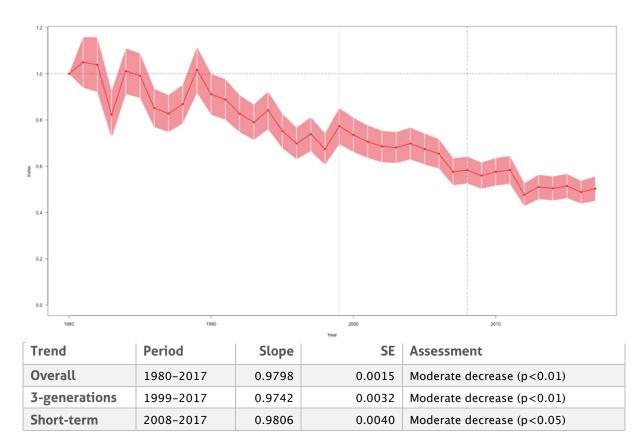


Generation length: 4.5 years

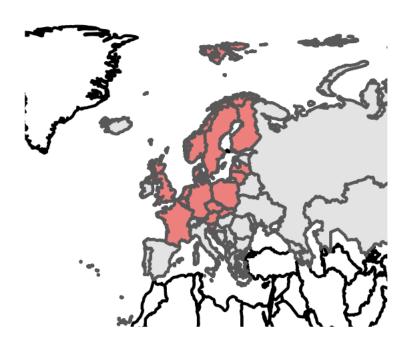
Countries used for the trend calculation: FI, NO and SE.

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

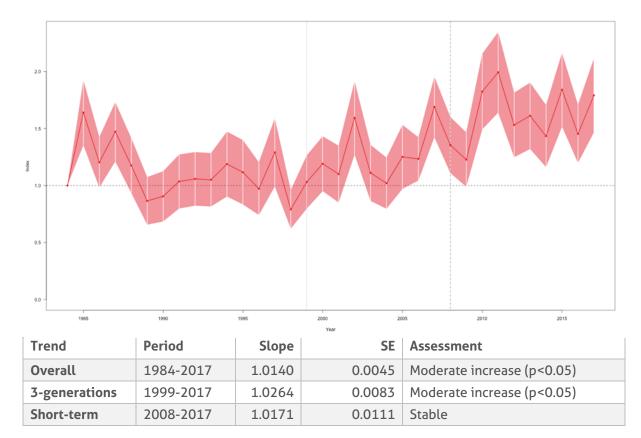


Generation length: 4.5 years

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.



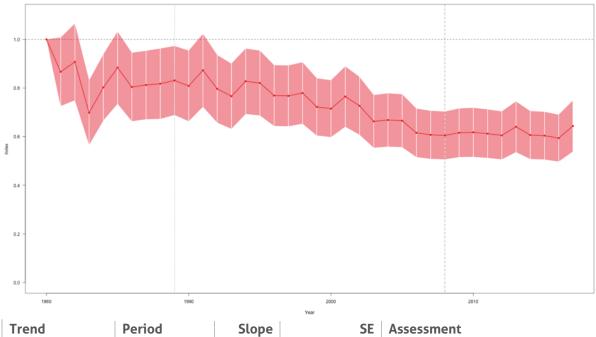
Whimbrel Numenius phaeopus, Northern Europe/West Africa



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

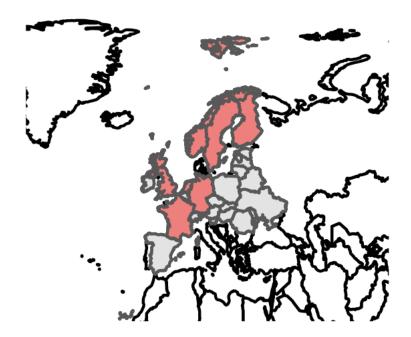
			Year	
Trend	Period	Slope	SE	Assessment
Overall	1980-2017	0.9884	0.0029	Moderate decrease (p<0.01)
3-generations	1989-2017	0.9865	0.0022	Moderate decrease (p<0.01)
Short-term	2008-2017	1.0014	0.0030	Stable

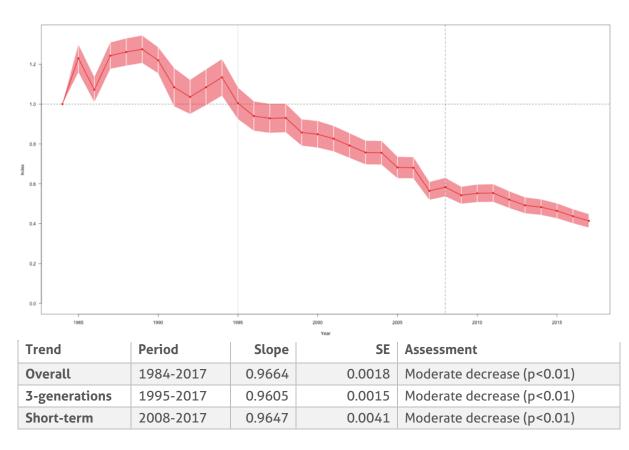
Generation length: 9.5 years

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

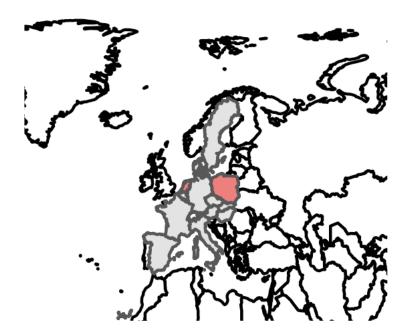
Comments: The population trend is calculated based on data from 7 of 25 breeding range states including most of the countries with large breeding populations except RU.

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



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

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·	Pro-	RNJ

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.



1.5

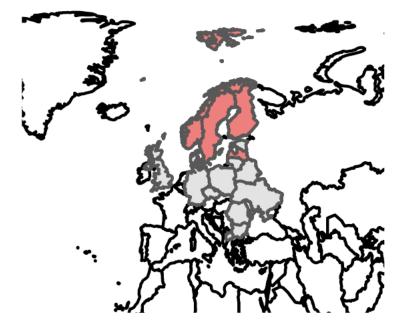
Green Sandpiper *Tringa ochropus*, Northern Europe/S & W Europe, West Africa

05 - 0.0 -						
1985	1990	1995	2000 Year	2005	2010	2015
Trend	Period	Slope	S	EA	ssessment	
Overall	1983-2017	1.0106	0.002	8 N	loderate increase	e (p<0.01)
3-generations	2004-2017	1.0012	0.004	7 S	table	
Short-term	2008-2017	1.0023	0.005	6 S	table	

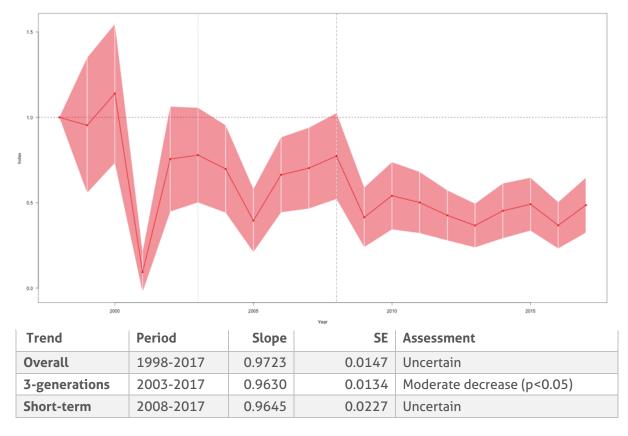
Generation length: 7.7 years

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



Generation length: 7.7 years

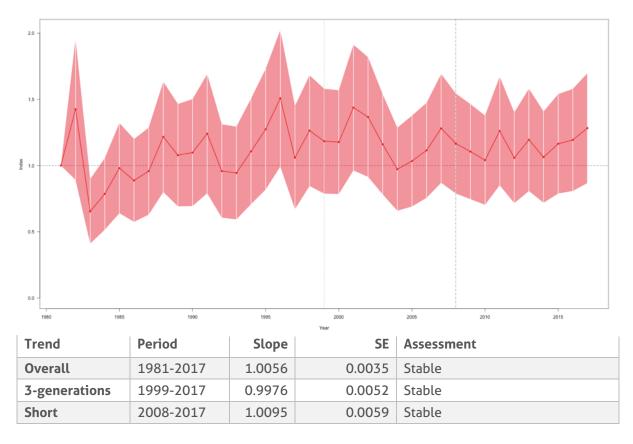
Countries used for the trend calculation: FI and SE.

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

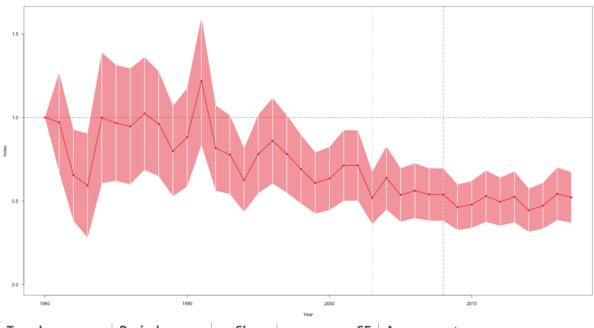


Generation length: 6.3 years

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)

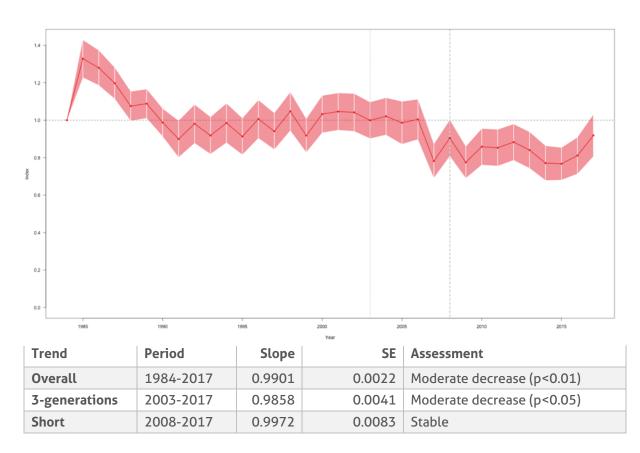
			Year	
Trend	Period	Slope	SE	Assessment
Overall	1980-2017	0.9797	0.0050	Moderate decrease (p<0.01)
3-generations	2003-2017	0.9907	0.0065	Stable
Short	2008-2017	1.0018	0.0062	Stable

Generation length: 5.0 years

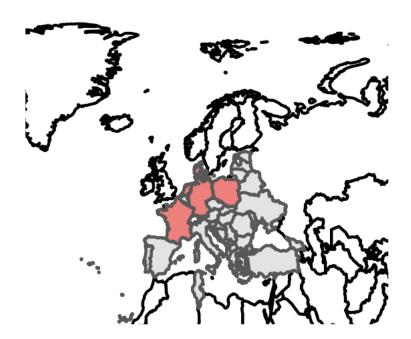
Countries used for the trend calculation: FI, NO and SE.

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)



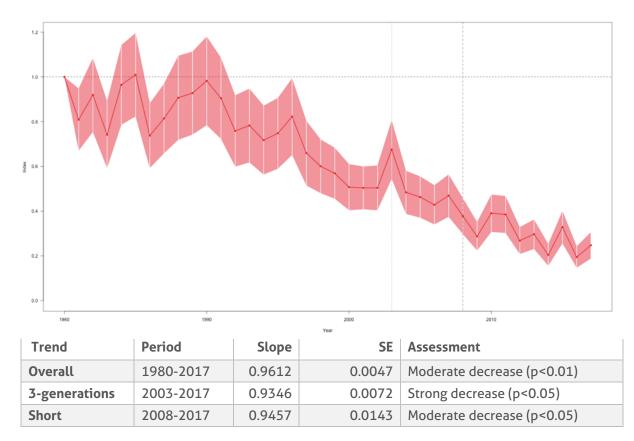
Generation length: 5.0 years

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



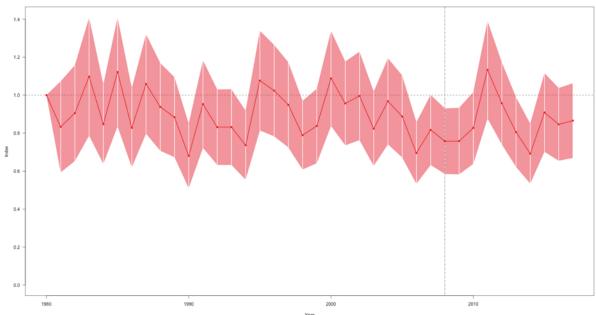
Generation length: 5.0 years

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.





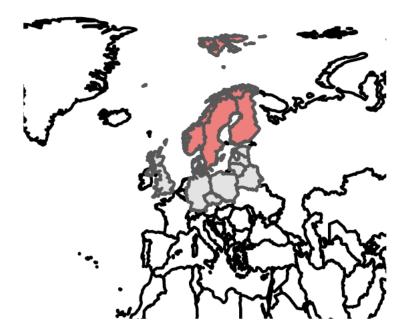
Wood Sandpiper Tringa glareola, North-west Europe/West Africa

			Year	
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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- van Strien, A. J., Pannekoek, J., & Gibbons, D. W. (2001). Indexing European bird population trends using results of national monitoring schemes: a trial of a new method. *Bird Study*, 48(2), 200-213.

Annex. Two letter ISO codes of country names mentioned

	,
AT – Austria	PL – Poland
BE – Belgium	PT – Portugal
BG – Bulgaria	RO – Romania
BY – Belarus	RU - Russia
CH – Switzerland	SE – Sweden
CY – Cyprus	SI – Slovenia
CZ – Czech Republic	SK – Slovakia
DE – Germany	TR - Turkey
DK – Denmark	UA - Ukraine
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	