Ardea cinerea (Grey Heron)

European Red List of Birds

Supplementary Material

The European Union (EU28) Red List assessments were based principally on the official data reported by EU Member States to the European Commission under Article 12 of the Birds Directive in 2019-20. For the European Red List assessments, similar data were sourced from BirdLife Partners and other collaborating experts in other European countries and territories. For more information, see BirdLife International (2021).

Contents

Recommended citation

BirdLife International (2021) European Red List of Birds. Luxembourg: Publications Office of the European Union.

Further information

http://datazone.birdlife.org/info/euroredlist
http://www.birdlife.org/europe-and-central-asia/european-red-list-birds-0
http://www.iucnredlist.org/regions/europe
http://ec.europa.eu/environment/nature/conservation/species/redlist/

Data requests and feedback

To request access to these data in electronic format, provide new information, correct any errors or provide feedback, please email science@birdlife.org.

Table 1. Reported national breeding population size and trends in Europe[1].

Country (or territory)[2]	Population estimate				Short-term population trend[5]				Long-term population trend[5]				Subspecific population (where relevant)
	Size (pairs)[3]	Europe (%)	Year(s)	Method[4]	Direction[6]	Magnitude (%)[7]	Year(s)	Method[4]	Direction[6]	Magnitude (%)[7]	Year(s)	Method[4]	
Albania	3–9	<1	2007-2018	complete	0		2007-2018	complete	+	200	1980-2018	complete	
Armenia	140–210	<1	2013-2018	complete	+	3 to 6	2007-2018	complete	0		2003-2018	expert	
Austria	1100–1300	<1	2013-2017	complete	-		2007-2017	complete	+		1981-2017	complete	
Azerbaijan	250–2500	<1	1996-2019	complete	0		2013-2019	expert	?		1980-2019	partial	
Belarus	4000–6500	2	2010-2018	partial	0	-10 to 10	2012-2019	expert	0	-10 to 10	1980-2019	expert	
Belgium	1600–2100	<1	2013-2018	complete	-	-36 to -16	2008-2018	complete	+	135 to 209	1973-2018	partial	
Bosnia & HG	900–1300	<1	2015-2018	complete	+	1 to 10	2007-2018	complete	?		1980-2018	deficient	
Bulgaria	800–1200	<1	2005-2018	partial	0	0	2000-2018	partial	+	5 to 10	1980-2018	partial	
Croatia	2700–3500	1	2013-2018	expert	0		2007-2018	expert	+	10 to 20	1980-2018	expert	
Czechia	3000–4000	1	2014-2017	complete	+	5 to 33	2001-2017	complete	-		1981-2017	partial	
Denmark	5500–5600	2	2017	partial	0	-35 to 73	2006-2017	complete	+	12 to 124	1980-2017	complete	
Estonia	2000–3000	<1	2013-2017	expert	0	23 to 66	2006-2017	expert	+	66 to 92	1980-2017	expert	
Finland	1000–1500	<1	2013-2018	partial	+		2007-2018	partial	+		1987-2018		
France	29100–29200	10	2014-2014	complete	-	-8	2007-2014	complete	+	192	1981-2014	complete	
Georgia	70–750	<1	2013-2017	partial	?			deficient	?				
Germany	20000–25000	8	2016-2016	expert	-	-17	2004-2016	expert	+	40 to 88	1980-2016	complete	
Greece	1400–1500	<1	2013-2018	partial	+		2007-2018	partial	+		1980-2018	partial	
Hungary	2900–3400	1	2015-2017	complete	0		2007-2018	complete	+		1976-2018	complete	
Rep. Ireland	3000–3100	1	2008-2011	partial	0		2000-2011	partial	0		1980-2011	partial	
Italy	10300–11800	4	2013-2018	expert	0		2002-2018	expert	+	290 to 935	1993-2018	expert	
Kosovo	100–150	<1	2007-2019	partial	-		2007-2018	partial	+		1990-2018	partial	
Latvia	1100–2000	<1	2013-2017	partial	0	-11 to -9	2000-2017	partial	+	73 to 76	1980-2017	partial	
Lithuania	1100–1500	<1	2013-2018	partial	-	-62 to -45	2013-2018	partial	-	-40 to -20	1980-2018	partial	
Luxembourg	90–130	<1	2013-2018	partial	+	30 to 40	2007-2018	complete	+	100 to 300	1980-2018	partial	
North Macedonia	250–350	<1	2014-2019	expert	0		2007-2018	expert	?		1980-2019		
Moldova	700–1000	<1	2014-2017	partial	+		2007-2018	partial	0		1990-2018	expert	
Montenegro	150–180	<1	2002-2012	expert	0		2007-2018	expert	?				
Netherlands	8100–11500	3	2013-2017	complete	-	-33 to -24	2006-2017	complete	+	45 to 49	1980-2017	complete	
Norway	5000–10000	2	2013-2018	expert	?		2013-2018	deficient	+	5 to 20	1980-2018	expert	
Poland	9000–9500	3	2013-2018	expert	?	-62 to 18	2007-2018	complete	0	0	1980-2018	expert	
Portugal	1200–1600	<1	2013-2018	complete	0		2013-2018	partial	0		1980-2018	partial	
Romania	4500–10000	2	2013-2018	expert	?	-23 to 7	2008-2018	complete	0		1980-2018	expert	

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Table 1. Reported national breeding population size and trends in Europe[1].

Country (or territory)[2]	Population estimate				Short-term population trend[5]				Long-term population trend[5]				Subspecific population (where relevant)
	Size (pairs)[3]	Europe (%)	Year(s)	Method[4]	Direction[6]	Magnitude (%)[7]	Year(s)	Method[4]	Direction[6]	Magnitude (%)[7]	Year(s)	Method[4]	
Russia	70000–120000	31	2008-2018	partial	?		2008-2018	deficient	?		1980-2018	partial	
Serbia	3000–4900	1	2013-2018	complete	+	30 to 49	2007-2018	complete	+	50 to 79	1980-2018	complete	
Slovakia	500–1000	<1	2013-2018	partial	+	20 to 30	2007-2018	partial	+	10 to 30	1980-2018	partial	
Slovenia	1000–1500	<1	2013-2018	partial	?		2007-2018	deficient	+	200 to 400	1980-2018	partial	
Spain	5400–5600	2	2010-2018	complete	+		2007-2018	complete	+		1980-2018	complete	
Sweden	5500–8600	2	2013-2018	partial	+	3 to 62	2007-2018	partial	+	7 to 89	1980-2018	partial	
Switzerland	1600–1800	<1	2013–2016	complete	+	12 to 56	2007-2018	complete	+	17 to 53	1990-2018	complete	
Turkey	2500–5000	1	2002-2012	partial	?		2008-2019	deficient	?		1980-2013	deficient	
Ukraine	25000–35000	10	2014-2018	partial	F	10 to 30	2007-2018	partial	F	20 to 50	1980-2018	partial	
United Kingdom	10000–11200	4	2013-2017	complete	-		2004-2016	complete	0		1980-2016	complete	
EU28	132000–160000	50											
Europe	**246000–350000**	**100**											

[1] See 'Sources' at end of factsheet, and for more details on individual EU Member State reports, see the Article 12 reporting portal at http://bd.eionet.europa.eu/article12/report.
[2] The designation of geographical entities and the presentation of the material do not imply the expression of any opinion whatsoever on the part of IUCN or BirdLife International concerning the legal status of any country, territory or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.
[3] In the few cases where population size estimates were reported in units other than those specified, they were converted to the correct units using standard correction factors.
[4] The 'method used' (replacing the data 'quality' assessment in the 2015 European Red List) is reported as: a) Complete: complete survey or a statistically robust estimate; b) Partial: based mainly on extrapolation from a limited amount of data; c) Expert: based mainly on expert opinion with very limited data; d) Defficient: insufficient or no data available.
[5] The robustness of regional trends to the effects of any missing or incomplete data was tested using plausible scenarios, based on other sources of information, including any other reported information, recent national Red Lists, scientific literature, other publications and consultation with relevant experts.
[6] Trend directions are reported as: increasing (+); decreasing (-); stable (0); fluctuating (F); or unknown (?).
[7] Trend magnitudes are rounded to the nearest integer.

Table 2. Reported national wintering population sizes and trends in Europe[1]. Note that some countries within the species' wintering range did not report any data, and that only minimum totals are presented, to avoid double-counting of birds moving between countries.

Country (or territory)[2]	Population estimate				Short-term population trend[5]				Long-term population trend[5]				Subspecific population (where relevant)
	Size (individuals)[3]	Europe (%)	Year(s)	Method[4]	Direction[6]	Magnitude (%)[7]	Year(s)	Method[4]	Direction[6]	Magnitude (%)[7]	Year(s)	Method[4]	
Albania	170–750	2	2007-2018	complete	+	2 to 98	2007-2018	complete	+	0 to 100	1980-2018	complete	
Andorra		<1			?				?				
Azerbaijan	500–2500	4	1996-2019	partial	?		2010-2019	partial	?		1980-2019	expert	
Bosnia & HG	1000–1500	4	2015-2018	complete	+	5 to 10	2007-2018	expert	?		1980-2018	deficient	
Bulgaria	1000–2000	5	2013-2018	expert	0		2007-2018	expert	0		1980-2018	expert	
Cyprus	160–380	<1	2013-2018	partial	+	20 to 60	2007-2018	partial	+	500 to 1000	1980-2018	expert	
Czechia	2500–3200	10	2015-2019	complete	+		2008-2019	complete	+		1980-2019	complete	
Iceland	50–70	<1	2018	expert	0		2002-2014	partial	0		1980-2018	partial	
Rep. Ireland	1900–2000	7	2011-2016	partial	-		2004-2016	partial	?		1987-2016	deficient	
Kosovo		<1	2019	complete	?				?				
Moldova	130–200	<1	2018-2019	partial	F		2007-2018	partial	0		1990-2018	expert	
Poland	1500–2900	7	2013-2018	complete	+	50 to 101	2011-2018	complete	?		1980-2018	deficient	
Serbia	1000–3000	6	2013-2018	complete	F		2013-2018	complete	+	30 to 49	1980-2018	partial	
Spain	12800–17500	54	2010-2018	complete	+		2007-2018	complete	+		1980-2018	complete	
Ukraine	100–250	<1	2014-2017	partial	+		2007-2018	partial	+		1980-2018	partial	
EU28	19900–27900	83											
Europe	**22800–36200**	**100**											

[1] See 'Sources' at end of factsheet, and for more details on individual EU Member State reports, see the Article 12 reporting portal at http://bd.eionet.europa.eu/article12/report.
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[3] In the few cases where population size estimates were reported in units other than those specified, they were converted to the correct units using standard correction factors.
[4] The 'method used' (replacing the data 'quality' assessment in the 2015 European Red List) is reported as: a) Complete: complete survey or a statistically robust estimate; b) Partial: based mainly on extrapolation from a limited amount of data; c) Expert: based mainly on expert opinion with very limited data; d) Defficient: insufficient or no data available.
[5] The robustness of regional trends to the effects of any missing or incomplete data was tested using plausible scenarios, based on other sources of information, including any other reported information, recent national Red Lists, scientific literature, other publications and consultation with relevant experts.
[6] Trend directions are reported as: increasing (+); decreasing (-); stable (0); fluctuating (F); or unknown (?).
[7] Trend magnitudes are rounded to the nearest integer.

Trend maps

A symbol appears in each country where the species occurs: the shape and colour of the symbol represent the population trend in that country, and the size of the symbol corresponds to the proportion of the European population occurring in that country.

KEY

- Large increase (≥50%)
- Moderate increase (20–49%)
- Small increase (<20%)
- Increase of unknown magnitude
- Large decrease (≥50%)
- Moderate decrease (20–49%)
- Small decrease (<20%)
- Decrease of unknown magnitude
- Stable or fluctuating
- Unknown
- Present (no population or trend data)
- Extinct since 1980

Each symbol, with the exception of Present and Extinct, may occur in up to three different size classes, corresponding to the proportion of the European population occurring in that country.

- Large: ≥10% of the European population
- Medium: 1–9% of the European population
- Small: <1% of the European population

The designation of geographical entities and the presentation of the material do not imply the expression of any opinion whatsoever on the part of IUCN or BirdLife International concerning the legal status of any country, territory or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Figure 1. Breeding population sizes and short-term trends across Europe.

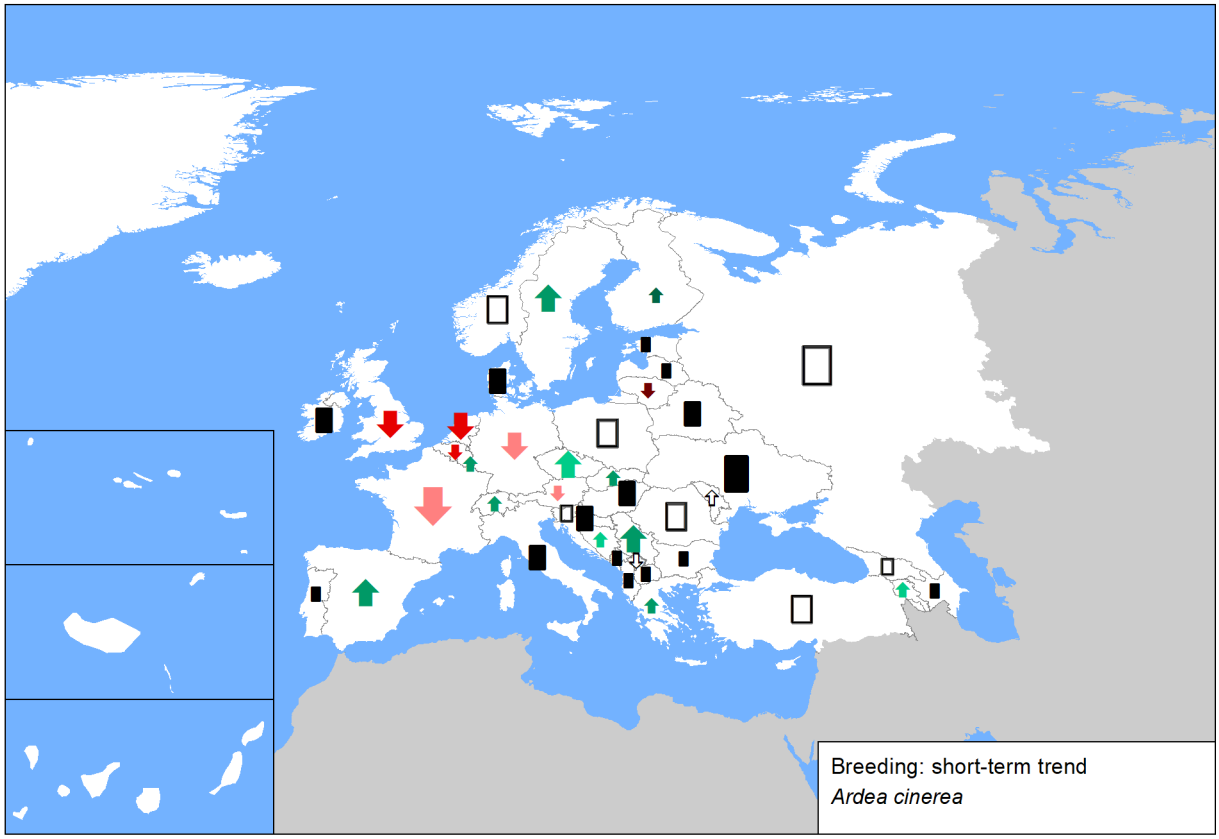


Figure 2. Breeding population sizes and long-term trends across Europe.

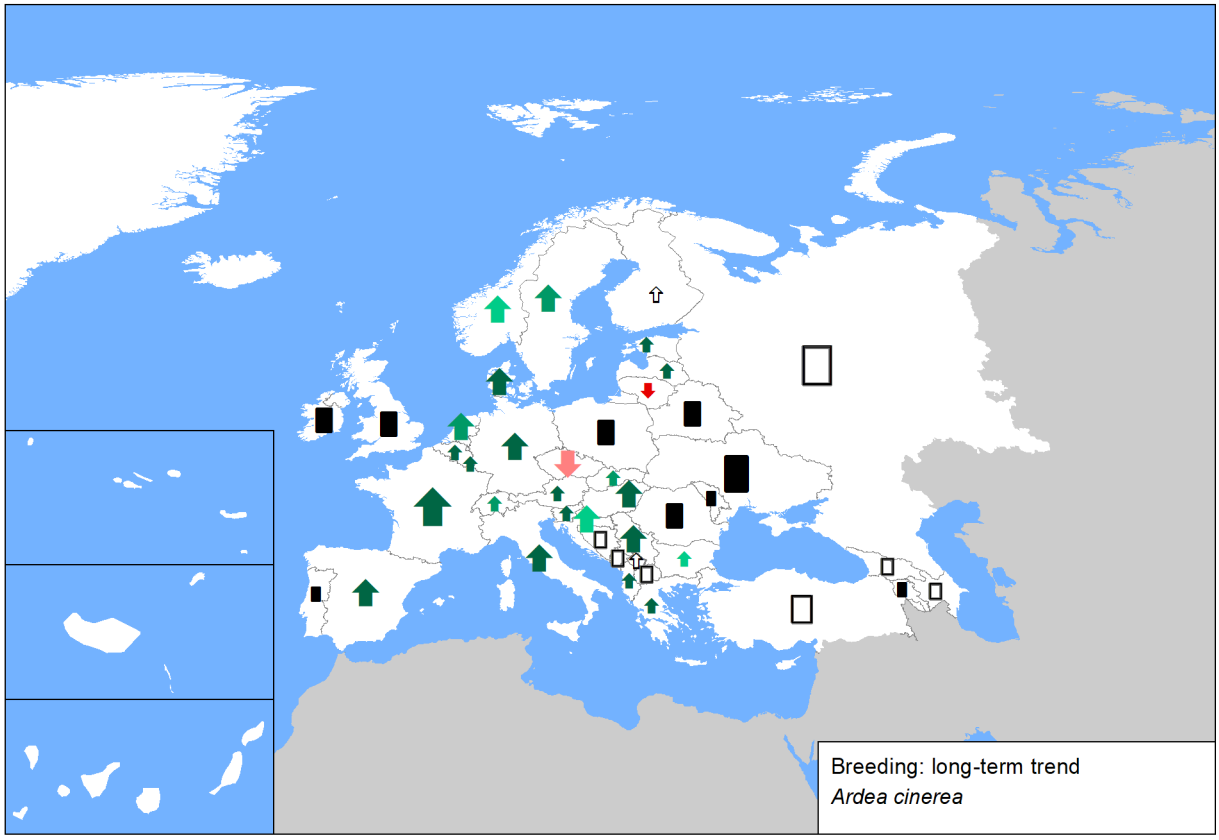


Figure 3. Reported wintering population sizes and short-term trends across Europe. Note that some countries within the species' wintering range did not report any data.

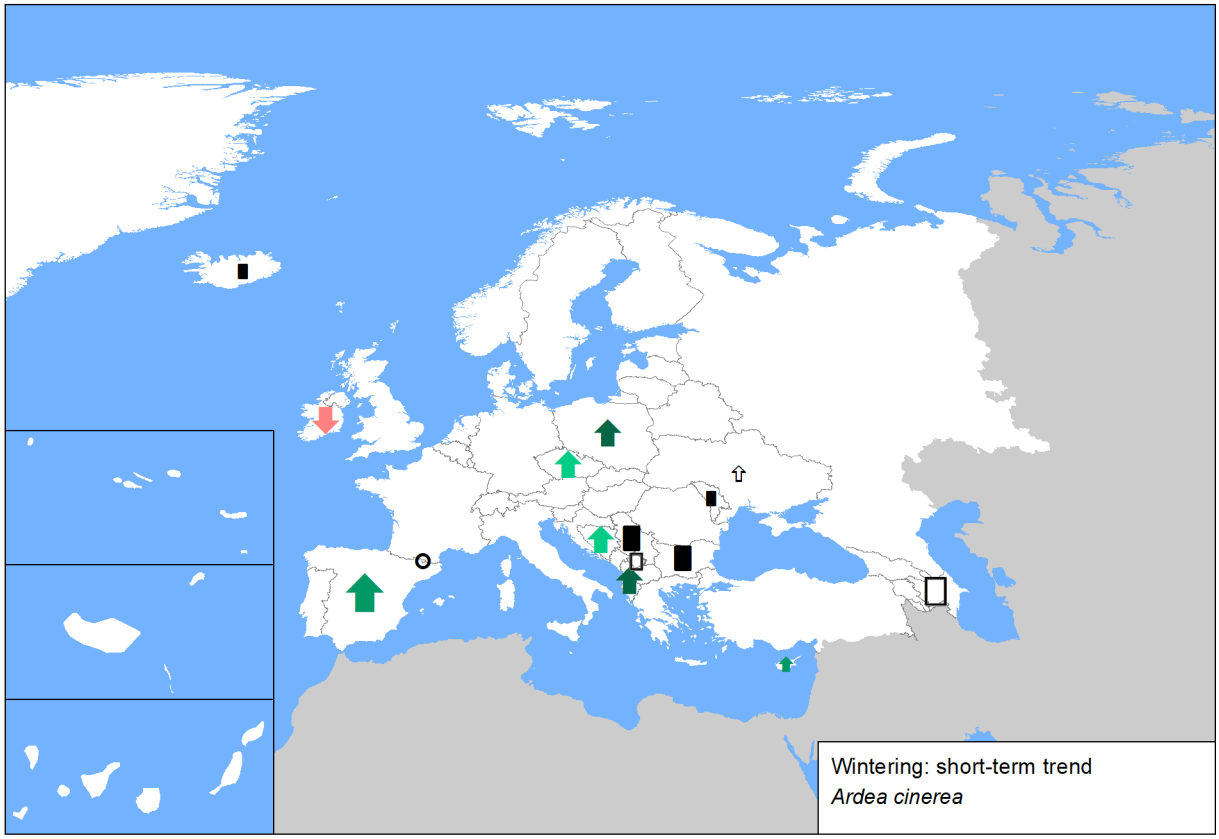
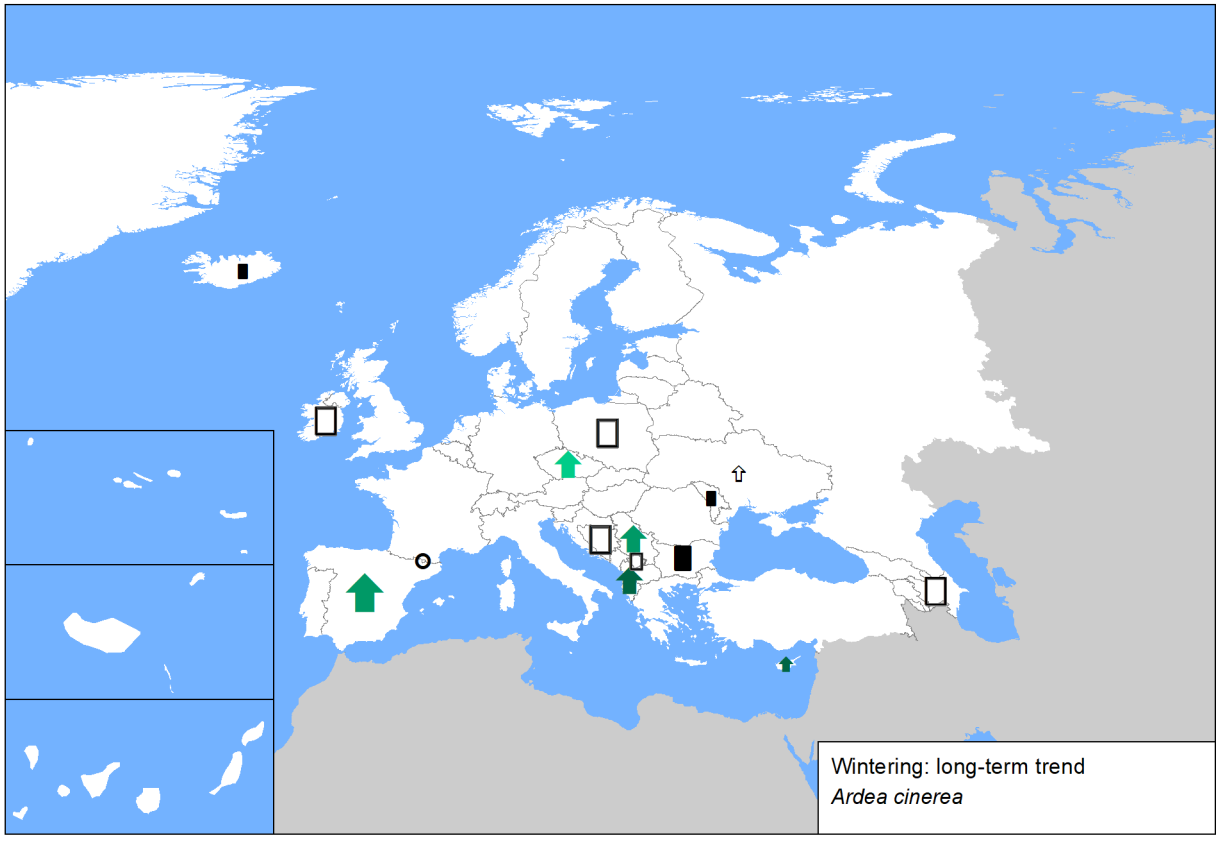


Figure 4. Reported wintering population sizes and long-term trends across Europe. Note that some countries within the species' wintering range did not report any data.



Sources

Albania

Breeding population size: Bino & Xeka pers. obs.
Breeding short-term trend: Bino & Xeka pers. obs.
Breeding long-term trend: Bino pers. obs.
Winter population size: Bino pers. obs.
Winter short-term trend: Bino et al. 2018
Winter long-term trend: Bino et al. 2018

Andorra

Winter short-term trend: Population trend not analysed for wintering birds

Armenia

Breeding population size: TSE NGO
Breeding short-term trend: TSE (2020) The Atlas of the Breeding Birds in Armenia. In preparation.
Breeding long-term trend: TSE (2020) The Atlas of the Breeding Birds in Armenia. In preparation.

Austria

Breeding population size: BirdLife Austria, unpublished data from www.ornitho.at (Vienna, Burgenland excluding Neusiedler See, Salzburg, Tirol, Vorarlberg), R. Parz-Gollner (unpublished data for Lower Austria), P. Sackl (unpublished data for Styria), E. Nemeth, unpublished data (Neusiedler See/Burgenland), Brader & Parz-Gollner (2016) for Upper Austria, Ornithologischer Rundbrief Kärnten April 2018.
Breeding short-term trend: BirdLife Austria, unpublished data from www.ornitho.at (Vienna, Salzburg, Tirol, Vorarlberg), R. Parz-Gollner (unpublished data for Lower Austria), P. Sackl (unpublished data for Styria), E. Nemeth (unpublished data for Burgenland), Brader & Parz-Gollner (2016) for Upper Austria, Ornithologischer Rundbrief Kärnten April 2018.
Breeding long-term trend: Dvorak et al. 1993

Azerbaijan

Breeding population size: AOS data base
Breeding short-term trend: AOS data base
Breeding long-term trend: AOS Data Base
Winter population size: AOS data base
Winter short-term trend: AOS Data Base
Winter long-term trend: AOS Data Base

Belarus

Breeding population size: Research work of the National Academy of Sciences of the Republic of Belarus “Dynamics and predictive assessment of changes in the state of populations of the main resource and biocenotically most important bird species in Belarus”
Breeding long-term trend: Nikiforov M.E., Kozulin A.V., eds. Belarussian birds at the beginning of XXI century: status, numbers, distribution. - 1997. - Minsk. - 187 p.

Belgium

Breeding population size: Vermeersch G. et al. (2018, in press). Broedvogels in Vlaanderen in de periode 2013-2018. Rapporten van het Instituut voor Natuur- en Bosonderzoek (INBO), Brussel. / Paquet, J-Y., Anselin, A., Vermeersch, G., Derouaux, A., Devos, K. (2019, in prep.). Contribution of Belgium to EBCC European Breeding Bird Atlas 2. Internal Report.
Breeding short-term trend: Vermeersch G. et al. (2018, in press). Broedvogels in Vlaanderen in de periode 2013-2018. Rapporten van het Instituut voor Natuur- en Bosonderzoek (INBO), Brussel. / Paquet, J-Y., Anselin, A., Vermeersch, G., Derouaux, A., Devos, K. (2019, in prep.). Contribution of Belgium to EBCC European Breeding Bird Atlas 2. Internal Report.
Breeding long-term trend: Vermeersch G. et al. (2018, in press). Broedvogels in Vlaanderen in de periode 2013-2018. Rapporten van het Instituut voor Natuur- en Bosonderzoek (INBO), Brussel. / Paquet, J-Y., Anselin, A., Vermeersch, G., Derouaux, A., Devos, K. (2019, in prep.). Contribution of Belgium to EBCC European Breeding Bird Atlas 2. Internal Report.

Bosnia and Herzegovina

Breeding population size: Based on data for EBBA2
Breeding short-term trend: more individual articles e.g published in magazine Bilten mreže posmatrača ptica u Bosni i Hercegovini-see https://ptice.ba/bs/category/bilteni_/), individual reports (e.g. for EBBA2, projects etc)
Winter population size: based on IWC reports-all reports published in magazine Bilten mreže posmatrača ptica (www.ptice.ba)
Winter short-term trend: based on IWC reports-all reports published in magazine Bilten mreže posmatrača ptica (www.ptice.ba)
Winter long-term trend: There are no qualitative data before 2005 to make estimates

Bulgaria

Breeding population size: Iankov P. (ed.) 2007. Atlas of Breeding Birds in Bulgaria. Bulgarian Society for the protection of Birds, Conservation Series, Book 10, Sofia, BSPB, 78-79; National Art. 12 reporting database 2013-2018; Michev T., Ts. Petrov, H. Nikolov, Z. Boev (2011). Grey Heron, Ardea cinerea. In: Red Data Book of Bulgaria, web edition, (http://e-ecodb.bas.bg/rdb/bg/). SPAs mapping in 2012 Common Bird Monitoring Scheme http://bspb.org/monitoring/

Bulgaria

Breeding short-term trend: Iankov P. (ed.) 2007. Atlas of Breeding Birds in Bulgaria. Bulgarian Society for the protection of Birds, Conservation Series, Book 10, Sofia, BSPB, 78-79; National Art. 12 reporting database 2013-2018; Michev T., Ts. Petrov, H. Nikolov, Z. Boev (2011). Grey Heron, Ardea cinerea. In: Red Data Book of Bulgaria, web edition, (http://e-ecodb.bas.bg/rdb/bg/).

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Winter population size: Wetlands International (2019): Submitted IWC data for Bulgaria for period 2013-2018.; National Art. 12 reporting database 2013-2018; National workshop of experts, Sofia 27-29.8.2019.

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Croatia

Breeding population size: Dumbović Mazal V., Pintar V., Zadravec M. (2019): Prvo izvješće o brojnosti i rasprostranjenosti ptica u Hrvatskoj sukladno odredbama Direktive o pticama. Horvat D. (2010):Gniježđenje i populacijska dinamika sive čaplje (Ardea cinerea Linnaeus, 1758) u Hrvatskoj. Sveučilište u Zagrebu,Prirodoslovno – matematički fakultet,Biološki odsjek, Diplomski rad. 39 pp.

Breeding short-term trend: Dumbović Mazal V., Pintar V., Zadravec M. (2019): Prvo izvješće o brojnosti i rasprostranjenosti ptica u Hrvatskoj sukladno odredbama Direktive o pticama.

Breeding long-term trend: Dumbović Mazal V., Pintar V., Zadravec M. (2019): Prvo izvješće o brojnosti i rasprostranjenosti ptica u Hrvatskoj sukladno odredbama Direktive o pticama.

Cyprus

Winter population size: Monthly waterbird counts by BirdLife Cyprus and Game & Fauna Service, as published in BirdLife Cyprus monthly checklists and also by the Game & Fauna Service; Analysis of recent BirdLife Cyprus bird sightings records reported in the society's annual reports. Very poor data

Winter short-term trend: Monthly waterbird counts by BirdLife Cyprus and Game & Fauna Service, as published in BirdLife Cyprus monthly checklists and also by the Game & Fauna Service; Analysis of recent BirdLife Cyprus bird sightings records reported in the society's annual reports. Very poor data

Winter long-term trend: More recent records (2000 onwards) as above, pre-2000 records based on birdwatching records as reported in BirdLife Cyprus annual reports

Czechia

Breeding population size: Šťastný et Bejček in prep. - Atlas hnízdního rozšíření ptáků ČR 2014-2017

Breeding short-term trend: Trends in waterbird breeding population size were estimated using changes in population data from nation-wide numbers project of “Atlas of Breeding Bird Distribution” carried out in whole Czech Republic in 2001 -2003 and 2014 – 2017. Range of relative change in breeding population size was used as the measurement of population trend. The values of relative rate of change were compared with data from annual monitoring (census in May – see Musil & Fuchs 1994, Musil et al. 2001, Čehovská et al. 2019 for the methods) on limited amount of sites (fishpond regions in south and central Bohemia - see Musil & Fuchs 1994). Čehovská M., Musil P., Musilová Z., Poláková, K. & Zouhar J. 2019: Diving duck census efficiency based on monitoring of individually marked females: the influence of breeding stage of individual females and timing of census. Bird Study in press. Musil P. Cepák J. Hudec K. & Zárybnický J. 2001. The long-term trends in the breeding waterfowl populations in the Czech Republic. OMPO, Institute of Applied Ecology, Kostelec nad Černými lesy. Musil P. & Fuchs R. 1994: Changes in abundance of water birds species in southern Bohemia (Czech Republic) in the last 10 years. Development in Hydrobiology. In: Kerekes J. J. [ed.]: Aquatic Birds in Trophic Web of Lakes. Hydrobiologia 279/280: 511–519.

Breeding long-term trend: Trends in waterbird breeding population size were estimated using changes in population data from nation-wide numbers project of “Atlas of Breeding Bird Distribution” carried out in whole Czech Republic in 2001 -2003 and 2014 – 2017. Range of relative change in breeding population size was used as the measurement of population trend. The values of relative rate of change were compared with data from annual monitoring (census in May – see Musil & Fuchs 1994, Musil et al. 2001, Čehovská et al. 2019 for the methods) on limited amount of sites (fishpond regions in south and central Bohemia - see Musil & Fuchs 1994). Čehovská M., Musil P., Musilová Z., Poláková, K. & Zouhar J. 2019: Diving duck census efficiency based on monitoring of individually marked females: the influence of breeding stage of individual females and timing of census. Bird Study in press. Musil P. Cepák J. Hudec K. & Zárybnický J. 2001. The long-term trends in the breeding waterfowl populations in the Czech Republic. OMPO, Institute of Applied Ecology, Kostelec nad Černými lesy. Musil P. & Fuchs R. 1994: Changes in abundance of water birds species in southern Bohemia (Czech Republic) in the last 10 years. Development in Hydrobiology. In: Kerekes J. J. [ed.]: Aquatic Birds in Trophic Web of Lakes. Hydrobiologia 279/280: 511–519.

Winter population size: Waterbird numbers were recorded in mid-January by regular citizen-science monitoring programme - the International Waterbird Census (IWC) – see Gilissen et al. 2002, Wetlands International 2006, Wetlands International 2019. Hundreds of volunteer birdwatchers conduct the mid-January counts on predetermined dates and sites each year, aiming to maximize synchrony (Gilissen et al. 2002, Musil et al. 2011, Musilová et al. 2014). The estimation of population size was calculated by Trends and Indices for Monitoring data (TRIM) software (Statistics Netherlands version 3.52, Pannekoek and Van Strien, 2005). ‘Time Totals’ values of the data (i.e. the actual count values plus the numbers of birds estimated by the TRIM software) for all 1155 sites included in the analysis were used to generate total estimates of the range of numbers of the waterbird species wintering in the Czech Republic between 2015 and 2019. We use the range (min–max) of population estimates due to the effect of between-year variation in numbers because of variable climatic conditions (Musil et al. 2008, Musilová et al. 2018). Gilissen N, Haanstra L, Delany S, Boere G, Hagemeijer W (2002) Numbers and distribution of wintering waterbirds in the Western Palearctic and Southwest Asia in 1987, 1988 and 1999. Results from the International Waterbird Census. Wetlands International Global Series No. 11, Wetlands International, Wageningen, The Netherlands. Musil P, Darolová A, Jureček J, Musilová Z, Podhrázský M, Slabeyová K (2008) The long-term trends in numbers of wintering geese in the Czech Republic and Slovakia in 1991–2007. Tichodroma 20: 61–67. Musil P, Musilová Z, Fuchs R, Poláková S (2011) Long-term changes in numbers and distribution of wintering waterbirds in the Czech Republic, 1966–2008. Bird Study 58: 450–460. Musilová Z, Musil P, Zouhar J, Adam M (2018) Changes in habitat suitability influence non-breeding distribution of waterbirds in central Europe. Ibis: 160: 582–596. Musilová Z, Musil P, Zouhar J, Bejček V, Šťastný K, Hudec K (2014) Numbers of wintering waterbirds in the Czech Republic: long-term and spatial-scale approaches to assess population size. Bird Study 61: 321–331.

Ardea cinerea (Grey Heron)

Czechia

Winter short-term trend: Waterbird numbers were recorded in mid-January by regular citizen-science monitoring programme - the International Waterbird Census (IWC) – see Gilissen et al. 2002, Wetlands International 2006, Wetlands International 2019. Hundreds of volunteer birdwatchers conduct the mid-January counts on predetermined dates and sites each year, aiming to maximize synchrony (Gilissen et al. 2002, Musil et al. 2011, Musilová et al. 2014). The individual species trends in numbers was calculated by Trends and Indices for Monitoring data (TRIM) software (Statistics Netherlands version 3.52, Pannekoek and Van Strien, 2005). The additive slope (i.e. the change in indices from one year to the next) was used to estimate the Czech trend, see also Fouque et al. (2009), Musil et al. (2011), Musilová et al. (2015), Musilová et al. (2018 a, b). Fouque C, Guillemain M, Schricke V (2009) Trends in the numbers of Coot Fulica atra and wildfowl Anatidae wintering in France and their relationship with hunting activity at wetland sites. Wildfowl. Special Issue 2: 42–59. Gilissen N, Haanstra L, Delany S, Boere G, Hagemeijer W (2002) Numbers and distribution of wintering waterbirds in the Western Palearctic and Southwest Asia in 1987, 1988 and 1999. Results from the International Waterbird Census. Wetlands International Global Series No. 11, Wetlands International, Wageningen, The Netherlands. Musil P, Musilová Z, Fuchs R, Poláková S (2011) Long-term changes in numbers and distribution of wintering waterbirds in the Czech Republic, 1966–2008. Bird Study 58: 450–460. Musilová Z, Musil P, Zouhar J, Adam M (2018a) Changes in habitat suitability influence non-breeding distribution of waterbirds in central Europe. Ibis: 160: 582–596. Musilová Z, Musil P, Zouhar J, Adam M, Bejček V (2018b) Importance of Natura 2000 sites for wintering waterbirds: Low preference, species' distribution changes and carrying capacity of Natura 2000 could fail to protect the species. Biological Conservation 228: 79–88. Musilová Z, Musil P, Zouhar J, Bejček V, Šťastný K, Hudec K (2014) Numbers of wintering waterbirds in the Czech Republic: long-term and spatial-scale approaches to assess population size. Bird Study 61: 321–331. Musilová Z, Musil P, Zouhar J, Romportl D (2015) Long-term trends, total numbers and species richness of increasing waterbird populations at sites on the edge of their winter range: cold-weather refuge sites are more important than protected sites. J Ornithol: 1–10. Pannekoek J, Van Strien AJ (2005) TRIM 3 Manual (TRends and Indices for Monitoring Data). Statistics Netherlands, Voorburg, The Netherlands. Wetlands International (2006) Waterbird population estimates. Fourth Edition. Wetlands International, Wageningen, The Netherlands. Wetlands International (2019) Waterbird Population Estimates. Available at: wpe.wetlands.org (accessed 10 March 2019).

Winter long-term trend: Waterbird numbers were recorded in mid-January by regular citizen-science monitoring programme - the International Waterbird Census (IWC) – see Gilissen et al. 2002, Wetlands International 2006, Wetlands International 2019. Hundreds of volunteer birdwatchers conduct the mid-January counts on predetermined dates and sites each year, aiming to maximize synchrony (Gilissen et al. 2002, Musil et al. 2011, Musilová et al. 2014). The individual species trends in numbers was calculated by Trends and Indices for Monitoring data (TRIM) software (Statistics Netherlands version 3.52, Pannekoek and Van Strien, 2005). The additive slope (i.e. the change in indices from one year to the next) was used to estimate the Czech trend, see also Fouque et al. (2009), Musil et al. (2011), Musilová et al. (2015), Musilová et al. (2018 a, b). Fouque C, Guillemain M, Schricke V (2009) Trends in the numbers of Coot Fulica atra and wildfowl Anatidae wintering in France and their relationship with hunting activity at wetland sites. Wildfowl. Special Issue 2: 42–59. Gilissen N, Haanstra L, Delany S, Boere G, Hagemeijer W (2002) Numbers and distribution of wintering waterbirds in the Western Palearctic and Southwest Asia in 1987, 1988 and 1999. Results from the International Waterbird Census. Wetlands International Global Series No. 11, Wetlands International, Wageningen, The Netherlands. Musil P, Musilová Z, Fuchs R, Poláková S (2011) Long-term changes in numbers and distribution of wintering waterbirds in the Czech Republic, 1966–2008. Bird Study 58: 450–460. Musilová Z, Musil P, Zouhar J, Adam M (2018a) Changes in habitat suitability influence non-breeding distribution of waterbirds in central Europe. Ibis: 160: 582–596. Musilová Z, Musil P, Zouhar J, Adam M, Bejček V (2018b) Importance of Natura 2000 sites for wintering waterbirds: Low preference, species' distribution changes and carrying capacity of Natura 2000 could fail to protect the species. Biological Conservation 228: 79–88. Musilová Z, Musil P, Zouhar J, Bejček V, Šťastný K, Hudec K (2014) Numbers of wintering waterbirds in the Czech Republic: long-term and spatial-scale approaches to assess population size. Bird Study 61: 321–331. Musilová Z, Musil P, Zouhar J, Romportl D (2015) Long-term trends, total numbers and species richness of increasing waterbird populations at sites on the edge of their winter range: cold-weather refuge sites are more important than protected sites. J Ornithol: 1–10. Pannekoek J, Van Strien AJ (2005) TRIM 3 Manual (TRends and Indices for Monitoring Data). Statistics Netherlands, Voorburg, The Netherlands. Wetlands International (2006) Waterbird population estimates. Fourth Edition. Wetlands International, Wageningen, The Netherlands. Wetlands International (2019) Waterbird Population Estimates. Available at: wpe.wetlands.org (accessed 10 March 2019).

Denmark

Breeding population size: Charlotte M. Moshøj, Daniel Palm Eskildsen, Michael Fink Jørgensen & Thomas Vikstrøm, (2018): Overvågning af de almindelige fuglearter i Danmark 1975-2017 & Mandrup, E. 1997, Hvor mange fugle yngler i Danmark, Dansk Ornitologisk Tidsskrift, nr 3, 1997

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Estonia

Breeding population size: Estonian Working Group on Bird Status and Numbers

Breeding short-term trend: Estonian Working Group on Bird Status and Numbers

Breeding long-term trend: Estonian Working Group on Bird Status and Numbers

Finland

Breeding population size: BirdLife Finland 2019: Regional observation summary database of Finnish Birdwatching societies on scarce bird species. Expert working group. Lehikoinen, A. , Below, A., Jukarainen, A., Laaksonen, T., Lehtiniemi, T., Mikkola-Roos, M., Pessa, J., Rajasärkkä, A., Rusanen, P., Sirkiä, P., Tiainen, J. & Valkama, J. 2019: Suomen lintujen pesimäkantojen koot. – Linnut-vuosikirja 2018: 38-45.

Breeding short-term trend: BirdLife Finland 2019: Tiira bird observation database.

Breeding long-term trend: Expert working group.

France

Breeding population size: Marion L. 2019. Recensement national des hérons coloniaux de France 2014. SESLG-CNRS, Université de Rennes109 p.

Breeding short-term trend: Marion L. 2019. Recensement national des hérons coloniaux de France 2014. SESLG-CNRS, Université de Rennes109 p.

Georgia

Breeding population size: EBBA Georgia, prepared by Sabuko-Society for nature conservation, Ilia state university, NGO "psovi".

Germany

Breeding population size: Gerlach et al. (in Vorb.): Vögel in Deutschland – 2019. Dachverband Deutscher Avifaunisten, Bundesamt für Naturschutz und Länderarbeitsgemeinschaft der Vogelschutzwarten, Münster.

Breeding short-term trend: Gerlach et al. (in Vorb.): Vögel in Deutschland – 2019. Dachverband Deutscher Avifaunisten, Bundesamt für Naturschutz und Länderarbeitsgemeinschaft der Vogelschutzwarten, Münster.

Germany

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Greece

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Hungary

Breeding population size: National park directorates' databases (Annual survey of colonially breeding and strictly protected bird species) http://map.mme.hu/maps/map2

Breeding short-term trend: National park directorates' databases (Annual survey of colonially breeding and strictly protected bird species) http://map.mme.hu/maps/map2

Breeding long-term trend: Haraszthy L. (szerk.) (1984): Magyarország fészkelő madarai. Natura, Budapest. Haraszthy, L. (szerk.) (1998): Magyarország madarai. Mezőgazda Kiadó, Budapest. 441 p. National park directorates' databases (Annual survey of colonially breeding and strictly protected bird species) http://map.mme.hu/maps/map2

Iceland

Winter population size: Icelandic Institute of Natural History. Mid-winter bird counts, https://www.ni.is/greinar/vetrarfuglatalningar-nidurstodur; Icelandic Institute of Natural History, unpubl.data.

Winter short-term trend: Icelandic Institute of Natural History. Mid-winter bird counts, https://www.ni.is/greinar/vetrarfuglatalningar-nidurstodur; Icelandic Institute of Natural History, unpubl.data; Rare birds in Iceland, annual report in Bliki.

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Republic of Ireland

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Winter population size: Burke, B., Lewis, L. J., Fitzgerald, N., Frost, T., Austin, G. & Tierney, T. D. (2018) Estimates of waterbird numbers wintering in Ireland, 2011/12 – 2015/16. Irish Birds 11, 1-12.

Winter short-term trend: Lewis, L. J., Burke, B., Fitzgerald, N., Tierney, T. D. & Kelly, S. (2019) Irish Wetland Bird Survey: Waterbird Status and Distribution 2009/10-2015/16. Irish Wildlife Manuals, No. 106. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland. Population estimates on which these trends are based, though consistent in terms of data collection and statistical analysis, are likely to be underestimates of the true population numbers due to the relatively poor I-WeBS coverage of some of the areas that this species is distributed over.

Winter long-term trend: No long term trend can be calculated

Italy

Breeding population size: Fasola M., 2017. Monitoraggio garzaie in Lombardia, Piemonte, Emilia 2017 - 45° anno. Rapporto 2017 del gruppo GarzaieItalia. 9 pp. - Fasola com.pers., in Gustin M., 2018. Redazione del Rapporto sullo stato di conservazione delle popolazioni italiane di u

Italy

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Kosovo

Breeding population size: Qenan Maxhuni

Breeding short-term trend: Qenan Maxhuni

Breeding long-term trend: Puzovic, S. et al. (2004): Birds of Serbia and Montenegro – Size of nesting populations. I trends: 1990-2002. Ciconia 12

Winter population size: Maxhuni, Q., Bino, T., Xeka, E., Sevo, B., Bejko, E. & Muhaxhiri, J. (2019) First International Waterbird Census (IWC) in Kosovo, MESP/KEPA

Latvia

Breeding population size: Unpublished data for European Breeding Bird Atlas (2013-2017); Expert: Andris Dekants, andris.dekants@lob.lv

Breeding short-term trend: Unpublished data for European Breeding Bird Atlas (2013-2017); Expert: Andris Dekants, andris.dekants@lob.lv

Breeding long-term trend: Strazds M., Priednieks J., Vaverins G. 1994. [Size of Latvian bird populations.] (in Latvian) In: Putni dabā, 4: 3–18 Unpublished data for European Breeding Bird Atlas (2013-2017); Expert: Andris Dekants, andris.dekants@lob.lv

Lithuania

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Breeding short-term trend: Expert working group of the Lithuanian Ornithological Society (lod@birdlife.lt) 2015-2018. Lietuvos perinčių paukščių atlaso duomenų bazė (Lithuanian Breeding Birds Atlas Database). Vilnius. Ministry of Environment of the Republic of Lithuania. 2012. Status and trends of bird populations (Article 12, Birds Directive 2009/147/EC) National Summary 2008-2012 Lithuania. Ministry of Environment of the Republic of Lithuania. 2016-2018. Leidinio "Lietuvos raudonoji knyga" parengimo paslaugos (Red data book of Lithuania). (Agreement No VPS-2016-104-ES) Ministry of Environment of the Republic of Lithuania. 2017-2018. Lietuvos saugomų gyvūnų, augalų ir grybų vertinimo pagal IUCN kategorijas ir rūšių aprašymų parengimo paslaugos (Protected species of animals, plants and mushrooms IUCN status estimation and describtions in Lithuania (Agreement No VPS-2017-16-AARP)

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Moldova

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Breeding short-term trend: SPPN expert opinion (sppn.moldova@gmail.com)

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