

Calidris pugnax (Ruff)

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

Reported national population sizes and trends
Trend maps of reported national population data
Sources of reported national population data
Species factsheet bibliography

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.

Calidris pugnax (Ruff)

Table 1. Reported national breeding population size and trends in Europe¹.

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	
Belarus	20000–24000	3	2010-2018	partial	0	-10 to 10	2012-2019	expert	?		1980-2019	deficient	
Denmark	48	<1	2016-2016	complete	F		2004-2016	complete	-	-95 to -90	1980-2016	complete	
Estonia	10–30	<1	2013-2017	expert	-	-84 to -30	2006-2017	expert	-		1980-2017	expert	
Finland	9100–24200	2	2013-2018	complete	-	-71 to 128	2007-2018	complete	-	-95 to -76	1981-2018	partial	
France	0–15	<1	2013-2017	complete	-	-100 to -75	2006-2018	complete	-	-100 to -80	1981-2018	complete	
Germany	50	<1	2016-2016	complete	+		2004-2016	expert	-		1985-2016	expert	
Latvia	0–5	<1	2013-2018	expert	?		2012-2017	deficient	-	-99 to -97	1991-2017	expert	
Lithuania	250–350	<1	2013-2018	partial	F		2013-2018	partial	-	-50 to -30	1980-2018	partial	
Netherlands	15–30	<1	2013-2015	complete	?	-19 to 235	2006-2017	complete	-	-100 to -99	1980-2017	complete	
Norway	2000–3500	<1	2013-2018	complete	?		2013-2018	deficient	-	-90 to -80	1980-2018	partial	
Poland	0–3	<1	2013-2018	complete	F		2007-2018	complete	-	-100 to -99	1980-2018	expert	
Russia	450000–1250000	89	2007-2018	partial	-	-20 to -15	2008-2018	expert	-	-49 to -30	1980-2018	partial	
Sweden	32000–70000	6	2013-2018	partial	-	-60 to 110	2007-2018	partial	-	-80 to -60	1980-2018	expert	
Ukraine		<1	2015-2019	complete	-	-100 to -50	2013-2019	partial	-		1980-2018	partial	
United Kingdom	13	<1	2012-2016	complete	+		2001-2016	complete	+		1978-2016	complete	
EU28	41500–94700	8											
Europe	513000–1380000	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.

Calidris pugnax (Ruff)

Table 2. Reported national wintering population sizes and trends in Europe¹. 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	0–260	<1	2007-2018	complete	0	0	2007-2018	complete	0	0	1980-2018	complete	
Azerbaijan	500–5000	26	1996-2019	expert	?		2010-2019	expert	?		1980-2019	expert	
Belgium	500–1100	12	2013-2018	complete	-	-84 to -33	2007-2018	complete	-	-91 to -69	1992-2018	complete	
Bulgaria	10–60	<1	2013-2018	expert	F		2001-2018	expert	F		1980-2018	expert	
Greece	10–100	<1	2015	partial	0		2007-2018	partial	?		1980-2018	deficient	
Rep. Ireland	60–70	1	2011-2016	deficient	?		2004-2016	deficient	?		1987-2016	deficient	
Italy	60–80	1	2013-2015	partial	+	10 to 110	2009-2015	partial	-	-25 to -15	1991-2015	partial	
Portugal	7–170	1	2013-2018	complete	?	4 to 188	2007-2012	complete	+		1988-2018	partial	
Spain	1400–2900	42	2016-2018	complete	+	9 to 56	2007-2018	partial	+		1980-2018	partial	
Turkey	0–100	<1	2013-2019	complete	?		2008-2019	deficient	?		1980-2019	deficient	
Ukraine	1–10	<1	2014-2017	partial	?		2007-2018	partial	?		1980-2018	partial	
United Kingdom	920	15	2012-2016	complete	-		2005-2016	complete	+		1980-2016	complete	
EU28	3000–5400	74											
Europe	3500–10800	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) Deficient: 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 ($\geq 50\%$) | ↓ Large decrease ($\geq 50\%$) |
| ↑ Moderate increase (20–49%) | ↓ Moderate decrease (20–49%) |
| ↑ Small increase ($< 20\%$) | ↓ Small decrease ($< 20\%$) |
| ↑ Increase of unknown magnitude | ↓ 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: $\geq 10\%$ 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.

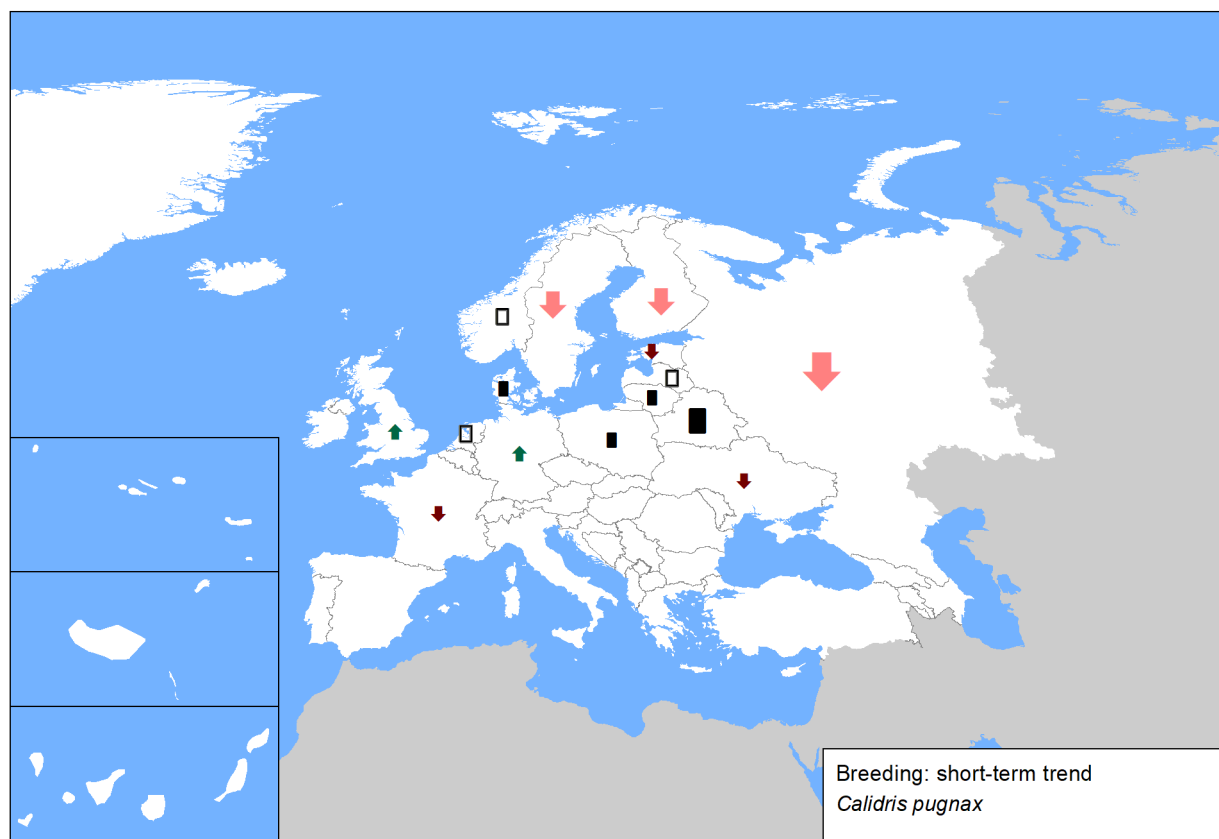


Figure 2. Breeding population sizes and long-term trends across Europe.

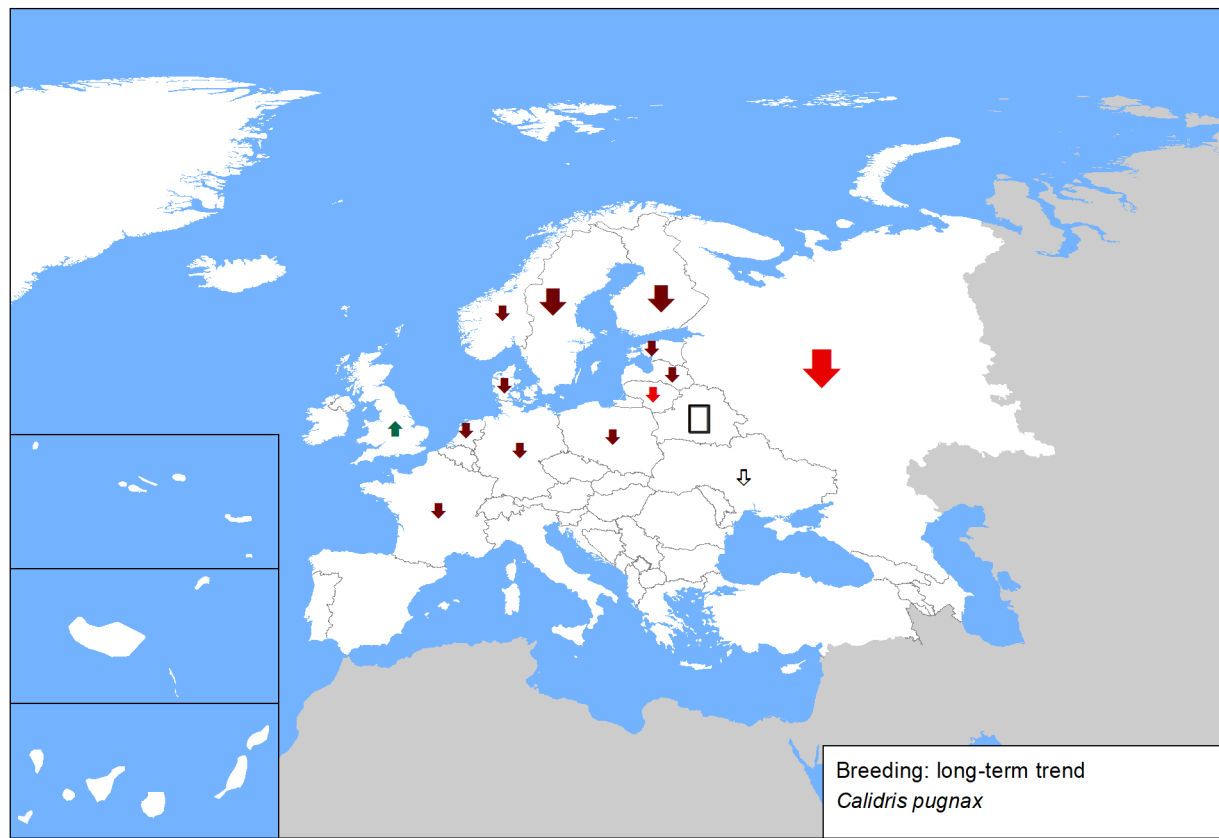


Figure 3. Reported wintering population sizes and short-term trends across Europe. Note that some countries within the species' wintering range did not report any data.

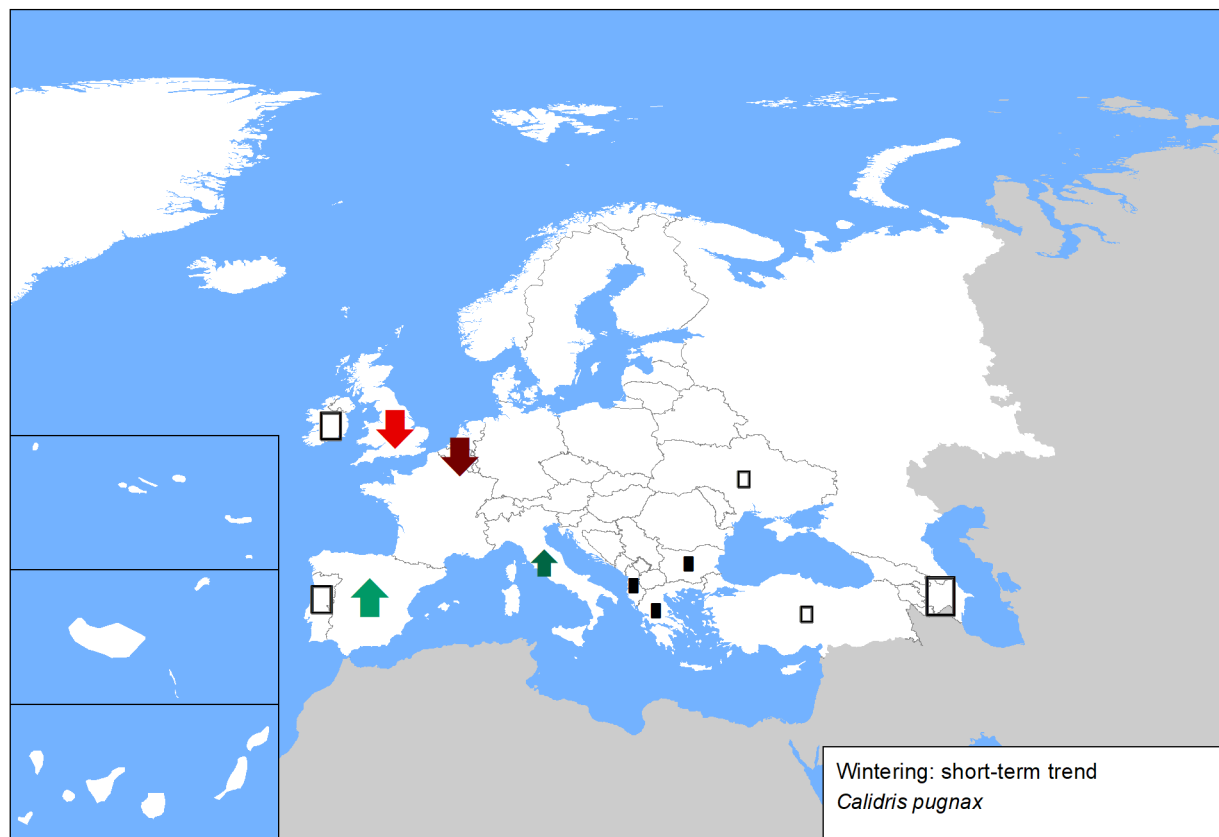
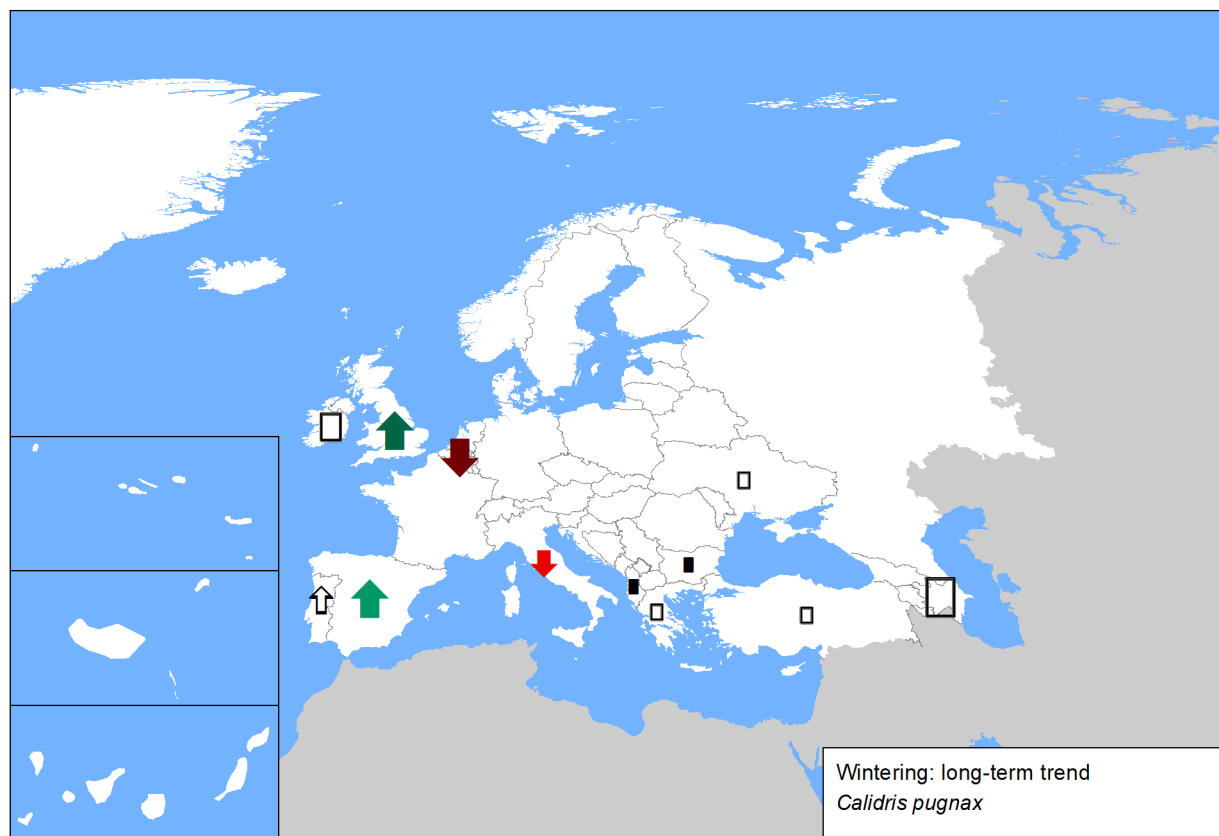


Figure 4. Reported wintering population sizes and long-term trends across Europe. Note that some countries within the species' wintering range did not report any data.



Sources

Albania

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

Azerbaijan

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

Winter population size: Waterbird database INBO
Winter short-term trend: Waterbird database INBO & Aves
Winter long-term trend: Waterbird database INBO & Aves

Bulgaria

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
Winter short-term trend: National assessment of breeding, migrating and wintering species of birds listed in Natura-2000 network in Bulgaria. Workshop 31/08/2007, Sofia, CLGE-BAS.; National Art. 12 reporting database 2013-2018; NANKINOV, D., S. SIMEONOV, T. MICHEV, B. IVANOV. 1997. The Fauna of Bulgaria. Vol. 26. AVES. Part II. BAS Press, Pensoft. Sofia. 428 pp.; BSPB database.; Dimitrov, M., T. Michev, L. Profirov, K. Nyagolov. 2005. Waterbirds of Bourgas Wetlands: Results and Evaluation of the Monthly Waterbirds Monitoring 1996-2002. Bulgarian Biodiversity Foundation and Publ. House Pensoft, Sofia, 160 pp.;
Winter long-term trend: National assessment of breeding, migrating and wintering species of birds listed in Natura-2000 network in Bulgaria. Workshop 31/08/2007, Sofia, CLGE-BAS. NANKINOV, D., S. SIMEONOV, T. MICHEV, B. IVANOV. 1997. The Fauna of Bulgaria. Vol. 26. AVES. Part II. BAS Press, Pensoft. Sofia. 428 pp. BSPB database.; Michev, T., L. Profirov. 2003. Midwinter Numbers of Waterbirds in Bulgaria (1977-2001). Results from 25 years of mid-winter count carried out at the most important Bulgarian Wetlands. Publ. House Pensoft, Sofia, 160 pp.;

Denmark

Breeding population size: Nielsen, R.D., Holm, T.E., Clausen, P., Bregnballe, T., Clausen, K.K., Petersen, I.K., Sterup, J., Balsby, T.J.S., Pedersen, C.L., Mikkelsen, P. & Bladt, J. (2019). Fugle 2012-2017. NOVANA. Aarhus Universitet, DCE – Nationalt Center for Miljø og Energi. - Videnskabelig rapport nr. 314. http://dce2.au.dk/pub/SR314.pdf and http://novana.au.dk/fugle/
Breeding short-term trend: Nielsen, R.D., Holm, T.E., Clausen, P., Bregnballe, T., Clausen, K.K., Petersen, I.K., Sterup, J., Balsby, T.J.S., Pedersen, C.L., Mikkelsen, P. & Bladt, J. (2019). Fugle 2012-2017. NOVANA. Aarhus Universitet, DCE – Nationalt Center for Miljø og Energi. - Videnskabelig rapport nr. 314. http://dce2.au.dk/pub/SR314.pdf and http://novana.au.dk/fugle/
Breeding long-term trend: Nielsen, R.D., Holm, T.E., Clausen, P., Bregnballe, T., Clausen, K.K., Petersen, I.K., Sterup, J., Balsby, T.J.S., Pedersen, C.L., Mikkelsen, P. & Bladt, J. (2019). Fugle 2012-2017. NOVANA. Aarhus Universitet, DCE – Nationalt Center for Miljø og Energi. - Videnskabelig rapport nr. 314. http://dce2.au.dk/pub/SR314.pdf and http://novana.au.dk/fugle/

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: Lehtikainen, 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: Bird monitoring schemes of the Finnish Museum of Natural History, University of Helsinki
Breeding long-term trend: Bird monitoring schemes of the Finnish Museum of Natural History, University of Helsinki

France

Breeding population size: girard o. 2018. Combattant varié <i>Calidris pugnax</i> . Ornithos 25-2, p.75
Breeding short-term trend: girard o. 2009. Combattant varié <i>Philomachus pugnax</i> . Ornithos 16-3, p 167 ; girard olivier 2018. Combattant varié <i>Calidris pugnax</i> . les oiseaux nicheurs rares et menacés en France en 2015,
Breeding long-term trend: girard ol 1994. Combattant varié <i>Philomachus pugnax</i> . in Nouvel Atlas des Oiseaux Nicheurs de France 1985-1989, SOF Parisp 292-295

Germany

Breeding population size: Monitoring seltener Brutvögel (http://www.dda-web.de/index.php?cat=monitoring&subcat=ga&subsubcat=kontakt)
--

Calidris pugnax (Ruff)

Germany

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

Greece

Winter population size: 1) BirdLife International (2004) Birds in Europe : Population estimates, trends and conservation status, Cambridge, UK: BirdLife International (BirdLife Conservation Series No. 12). 2) Natura viewer (http://natura2000.eea.europa.eu/#). 3) Δημαλέξης, Τ., Καστρίτης, Θ., Γρίβας, Κ., Μανωλόπουλος, Α., Καρδακάρη, Ν., Καραλής, Λ., Ξηρουχάκης, Σ., Τσαϊτουρίδης, Χ., Παπαζoglou, C. & Barov, B. 2009. Προσδιορισμός συμβατών δραστηριοτήτων σε σχέση με τα είδη χαρακτηρισμού των Ζωνών Ειδικής Προστασίας της ορνιθοπανίδας. Παραδοτέο 8. Οδηγός οικολογικών απαιτήσεων, απειλών και ενδεδειγμένων μέτρων για τα είδη χαρακτηρισμού. 4) Βλάχος Χ., Μπίρτσας Π., Θωμαΐδης Χ., Χατζηνίκος Ε., Μποντζιώρης Β., Μπραζιζιώτης Σ., Κόντος Κ., Βλαχάκη Δ., Δεδουσοπούλου Ε., Κιούσης Δ., Ξένος Α., Στεφάνου Α.Μ., Κασάμπας Δ., και Μελικώκη Κ. (Συντονιστές έκδοσης). 2015. Γ' Φάση της Μελέτης 9 «Εποπτεία και Αξιολόγηση της Κατάστασης Διατήρησης Ειδών Ορνιθοπανίδας στην Ελλάδα» ΥΠΑΠΕΝ, Αθήνα, Σύμπραξη Γραφείων Μελετών «Φ.ΦΑΞΟΥΛΑΣ-Ν.ΜΑΝΤΖΙΟΣ» Ε.Ε. – ΡΟΔΟΥΛΑ ΚΩΝΣΤΑΝΤΙΝΙΔΟΥ ΤΟΥ ΓΕΩΡΓΙΟΥ – "ΑΘ.ΤΖΑΚΟΠΟΥΛΟΣ ΚΑΙ ΣΙΑ" Ε.Ε.», Θεσσαλονίκη.
Winter short-term trend: 1) BirdLife International (2004) Birds in Europe : Population estimates, trends and conservation status, Cambridge, UK: BirdLife International (BirdLife Conservation Series No. 12). 2) Natura viewer (http://natura2000.eea.europa.eu/#). 3) Δημαλέξης, Τ., Καστρίτης, Θ., Γρίβας, Κ., Μανωλόπουλος, Α., Καρδακάρη, Ν., Καραλής, Λ., Ξηρουχάκης, Σ., Τσαϊτουρίδης, Χ., Παπαζoglou, C. & Barov, B. 2009. Προσδιορισμός συμβατών δραστηριοτήτων σε σχέση με τα είδη χαρακτηρισμού των Ζωνών Ειδικής Προστασίας της ορνιθοπανίδας. Παραδοτέο 8. Οδηγός οικολογικών απαιτήσεων, απειλών και ενδεδειγμένων μέτρων για τα είδη χαρακτηρισμού. 4) Βλάχος Χ., Μπίρτσας Π., Θωμαΐδης Χ., Χατζηνίκος Ε., Μποντζιώρης Β., Μπραζιζιώτης Σ., Κόντος Κ., Βλαχάκη Δ., Δεδουσοπούλου Ε., Κιούσης Δ., Ξένος Α., Στεφάνου Α.Μ., Κασάμπας Δ., και Μελικώκη Κ. (Συντονιστές έκδοσης). 2015. Γ' Φάση της Μελέτης 9 «Εποπτεία και Αξιολόγηση της Κατάστασης Διατήρησης Ειδών Ορνιθοπανίδας στην Ελλάδα» ΥΠΑΠΕΝ, Αθήνα, Σύμπραξη Γραφείων Μελετών «Φ.ΦΑΞΟΥΛΑΣ-Ν.ΜΑΝΤΖΙΟΣ» Ε.Ε. – ΡΟΔΟΥΛΑ ΚΩΝΣΤΑΝΤΙΝΙΔΟΥ ΤΟΥ ΓΕΩΡΓΙΟΥ – "ΑΘ.ΤΖΑΚΟΠΟΥΛΟΣ ΚΑΙ ΣΙΑ" Ε.Ε.», Θεσσαλονίκη.
Winter long-term trend: No data available

Republic of Ireland

Winter population size: The population estimate was derived by averaging peak annual winter counts for this species over a five year period. This species is a relatively scarce winter visitor to Ireland and is likely to be underrecorded. 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.
Winter short-term trend: This species is a relatively scarce passage migrant and winter visitor to Ireland and is likely to be underrecorded via I-WeBS core count methodology. For this reason, meaningful short-term trends cannot be derived. For further information refer to Crowe and Boland (2012). Boland, H. & Crowe, O. (2012) Irish wetland bird survey: waterbird status and distribution 2001/02 – 2008/09. BirdWatch Ireland, Kilcoole, Co. Wicklow.
Winter long-term trend: No long term trend can be calculated

Italy

Winter population size: ISPRA-IWC Database
Winter short-term trend: ISPRA-IWC Database - Zenatello M., Baccetti N., Borghesi F., 2014. Risultati dei censimenti degli uccelli acquatici svernanti in Italia. Distribuzione, stima e trend delle popolazioni nel 2001-2010. ISPRA, Serie Rapporti, 206/2014, pp: 24-28.
Winter long-term trend: ISPRA-IWC Database; Baccetti N, Dall'Antonia P, Magagnoli P, Melega L, Serra L, Soldatini C, Zenatello M 2002. Risultati dei censimenti degli uccelli acquatici svernanti in Italia: distribuzione, stima e trend delle popolazioni nel 1991-2000. Biol. Cons. Fauna 111: 19-20.

Latvia

Breeding population size: Unpublished data for European Breeding Bird Atlas (2013-2017); Expert: Andris Dekants, andris.dekants@lob.lv
Breeding short-term trend: No data available.
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

Breeding population size: 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)
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)
Breeding long-term trend: Logminas, V. (ed.). 1991. Lietuvos fauna: paukščiai. Vilnius: „Mokslas“. Kurlavičius, P. (ed.) 2006. Lietuvos perinčių paukščių atlasas. Kaunas: „Lututė“. Expert working group of the Lithuanian Ornithological Society (lod@birdlife.lt) BirdLife International/European Bird Census Council. 2000. European bird populations: estimates and trends. Cambridge, UK: BirdLife International (BirdLife Conservation Series No. 10). Raudonikis L. 2004. Important Bird Areas of the European Union Importance in Lithuania. Lithuanian Ornithological Society & Institute of Ecology of Vilnius University. Lututė, Vilnius. Jusys, V., Karalius, S., Raudonikis, L. 2012. Lietuvos paukščių pažinimo vadovas. Kaunas: „Lututė“. 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. 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. 2016-2018. Leidinio "Lietuvos raudonoji knyga" parengimo paslaugos (Red data book of Lithuania). (Agreement No VPS-2016-104-ES)

Netherlands

Breeding population size: Sovon Bird atlas (Sovon 2018)
Breeding short-term trend: NEM (Sovon, RWS, CBS, provinces)
Breeding long-term trend: Sovon

Calidris pugnax (Ruff)

Norway

Breeding population size: Shimmings P. & Øien, I.J. 2015. Bestandsestimater og trender for norske hekkefugler. NOF-rapport 2015-2.
Breeding long-term trend: (a) Shimmings, P. & Øien, I.J. 2015. Bestandsestimater for norske hekkefugler. NOF Rapport 2-2015. 268 pp. (b) Øien, I.J. & Aarvak, T. 2010. Brushanen forsvinner - resultater fra landsdekkende kartlegging og status for arten i Norge. Vår Fuglefauna 33: 162-173.

Poland

Breeding population size: The Polish Avifaunistic Commission http://komisjafaunistyczna.pl/
Breeding short-term trend: Stawarczyk T., Cofta T., Kajzer Z., Lontkowski J., Sikora A. 2017. Rządkie Ptaki Polski. Studio B&W Wojciech Janecki, Sosnowiec; The Polish Avifaunistic Commission http://komisjafaunistyczna.pl/
Breeding long-term trend: Tucker G.M., Heath M.F. 1994. Birds in Europe: their conservation status. BirdLife International, Cambridge, UK.; BirdLife International 2004. Birds in Europe: population estimates, trends and conservation status. BirdLife International, Cambridge, UK; To

Portugal

Winter population size: Programa Nacional de Monitorização de Aves Aquáticas Invernantes
Winter short-term trend: Programa Nacional de Monitorização de Aves Aquáticas Invernantes
Winter long-term trend: Sousa J (2002b). Tendências populacionais de aves aquáticas. Relatório de estudo integrado no Projecto do Instituto da Conservação da Natureza "Livro Vermelho dos Vertebrados de Portugal - Revisão"/Programa Operacional do Ambiente, não publicado.; Programa Nacional de Monitorização de Aves Aquáticas Invernantes

Russia

Breeding population size: Database of the project on Atlas of breeding birds of European Russia; Mischenko, expert opinion. almovs@mail.ru
Breeding short-term trend: Sukhanova 2015; Sviridova 2019
Breeding long-term trend: Rakhimberdiev et al. 2011

Spain

Winter population size: Información proporcionada por las comunidades autónomas. SEO/BirdLife (2012). Atlas de las aves en invierno en España 2007-2010. Ministerio para la Transición Ecológica-SEO/BirdLife. Madrid. 816 pp. (https://www.miteco.gob.es/es/biodiversidad/temas/inventariosnacionales/atlas_aves_invierno_tcm30-198034.pdf) SEO/BirdLife (2018). Censos de aves acuáticas. (http://www.acuaticas.org/WebForms/ConsultaContenidos/Paginas/RealMapasDistAbunEspecie.aspx)
Winter short-term trend: Información proporcionada por las Comunidades Autónomas. SEO/BirdLife (2012). Atlas de las aves en invierno en España 2007-2010. Ministerio para la Transición Ecológica-SEO/BirdLife. Madrid. 816 pp (https://www.miteco.gob.es/es/biodiversidad/temas/inventarios-nacionales/atlas_aves_invierno_tcm30-198034.pdf) SEO/BirdLife (2018). Censos de aves acuáticas. (http://www.acuaticas.org/WebForms/ConsultaContenidos/Paginas/RealMapasDistAbunEspecie.aspx)
Winter long-term trend: González, R. & Pérez-Aranda, D. (2011). Las aves acuáticas en España, 1980-2009. SEO/BirdLife, Madrid, 338 pp. Información proporcionada por las Comunidades Autónomas. SEO/BirdLife (2012). Atlas de las aves en invierno en España 2007-2010. Ministerio para la Transición Ecológica-SEO/BirdLife. Madrid. 816 pp (https://www.miteco.gob.es/es/biodiversidad/temas/inventarios-nacionales/atlas_aves_invierno_tcm30-198034.pdf) SEO/BirdLife (2018). Censos de aves acuáticas. (http://www.acuaticas.org/WebForms/ConsultaContenidos/Paginas/RealMapasDistAbunEspecie.aspx)

Sweden

Breeding population size: Ottosson, U., Ottvall, R., Elmberg, J., Green, M., Gustafsson, R., Haas, F., Holmqvist, N., Lindström, Å., Nilsson, L., Svensson, M., Svensson, S. & Tjernberg, M. 2012. Fåglarna i Sverige – antal och förekomst. SOF, Halmstad. Swedish Bird Survey. BirdLife Sverige, Annual Bird reports.
Breeding short-term trend: Svensk fågeltaxering - Swedish Bird Survey
Breeding long-term trend: Regional inventories

Turkey

Winter population size: Ebird Database and Midwinter Fowl Counts (2013-2018), Birdlife Estimate
Winter short-term trend: Midwinter bird counts 2012-2019
Winter long-term trend: Midwinter bird counts 1980-2019 and Historical Records come from OSME and other midwinter counts

Ukraine

Winter population size: 1. Andryushchenko, Yu.A., Popenko, V.M. 2016. New data on winter records of waders in South Ukraine. In Chernichko I.I., Mel'nikov V.N. (Eds.). 2016. Issues of Wader Ecology, Migration and Conservation in Northern Eurasia: Materials of the 10th Jubilee Conference of the Working Group on Waders of Northern Eurasia, Ivanovo, 3-6 February 2016. Ivanovo State University, Ivanovo: 7-17 (in Russ.). 2. Redinov, K.A., Petrovych, Z.O., Nastachenko, A.S. 2016. New data about wintering of waders on the Crimean peninsula. Issues of Wader Ecology, Migration and Conservation in Northern Eurasia: Materials of the 10th Jubilee Conference of the Working Group on Waders of Northern Eurasia, Ivanovo, 3-6 February 2016. Ivanovo State University, Ivanovo: 312-313 (in Russ.).

United Kingdom

Breeding population size: RBBP; Holling, M. & the Rare Breeding Birds Panel. 2018. Rare breeding birds in the United Kingdom in 2016. British Birds 111: 644-694.
Breeding short-term trend: RBBP; Holling, M. & the Rare Breeding Birds Panel. 2018. Rare breeding birds in the United Kingdom in 2016. British Birds 111: 644-694.
Breeding long-term trend: RBBP; Holling, M. & the Rare Breeding Birds Panel. 2018. Rare breeding birds in the United Kingdom in 2016. British Birds 111: 644-694.
Winter population size: Frost, T.M., Austin, G.E., Hearn, R.D., McAvoy, S.G., Robinson, A., Stroud, D.A., Woodward, I.D. & Wotton, S.R. 2019. Population estimates of wintering waterbirds in Great Britain. British Birds 112: 130-145. Northern Ireland total taken from BirdTrack.
Winter short-term trend: Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. & Balmer, D.E. (2018). Waterbirds in the UK 2016/17: The Wetland Bird Survey. BTO, RSPB and JNCC, in association with WWT. British Trust for Ornithology, Thetford. 40 pp.
Winter long-term trend: Frost, T.M., Austin, G.E., Calbrade, N.A., Mellan, H.J., Hearn, R.D., Stroud, D.A., Wotton, S.R. & Balmer, D.E. (2018). Waterbirds in the UK 2016/17: The Wetland Bird Survey. BTO, RSPB and JNCC, in association with WWT. British Trust for Ornithology, Thetford. 40 pp.

Bibliography

- Billerman, S.M., Keeney, B.K., Rodewald, P.G. and Schulenberg, T.S. (eds). 2020. Birds of the World. Cornell Laboratory of Ornithology, Ithaca.
- Bird, J. P., Martin, R., Akçakaya, H. R., Gilroy, J., Burfield, I. J., Garnett, S. G., Symes, A., Taylor, J., Sekercioglu, Ç. H. and Butchart, S. H. M. 2020. Generation lengths of the world's birds and their implications for extinction risk. *Conservation Biology* 34(5): 1252-1261. DOI: 10.1111/cobi.13486.
- Blaker, D. 1967. An outbreak of Botulinus poisoning among waterbirds. *Ostrich* 38(2): 144-147.
- Brazil, M. 2009. Birds of East Asia: eastern China, Taiwan, Korea, Japan, eastern Russia. Christopher Helm, London.
- Delany, S. and Scott, D. 2006. Waterbird population estimates. Wetlands International, Wageningen, The Netherlands.
- Flint, V.E., Boehme, R.L., Kostin, Y.V. and Kuznetsov, A.A. 1984. A field guide to birds of the USSR. Princeton University Press, Princeton, New Jersey.
- Gaidet, N., Dodman, T., Caron, A., Balanca, G., Desvaux, S., Goutard, F., Cattoli, G., Lamarque, F., Hagemeijer, W. and Monicat, F. 2007. Avian Influenza Viruses in Water Birds, Africa. *Emerging Infectious Diseases* 13(4): 626-629.
- Grishanov, D. 2006. Conservation problems of migratory waterfowl and shorebirds and their habitats in the Kaliningrad region of Russia. In: G. Boere, C. Galbraith and D Stroud (eds), *Waterbirds around the world*, pp. 356. The Stationary Office, Edinburgh, U.K.
- Hagemeijer, E.J.M. and Blair, M.J. 1997. The EBCC atlas of European breeding birds: their distribution and abundance. T. and A.D. Poyser, London.
- Hayman, P., Marchant, J. and Prater, A.J. 1986. Shorebirds. Croom Helm, London.
- Hubalek, Z., Skorpikova, V. and Horal, D. 2005. Avian botulism at a sugar beet processing plant in South Moravia (Czech Republic). *Vetinarni Medicina* 50(10): 443-445.
- Hyvärinen, E., Juslén, A., Kempainen, E., Uddström, A. and Liukko, U.M. 2019. The 2019 Red List of Finnish Species. Ympäristöministeriö and Suomen ympäristökeskus, Helsinki.
- Johnsgard, P.A. 1981. The plovers, sandpipers and snipes of the world. University of Nebraska Press, Lincoln, U.S.A. and London.
- Leyrer, J., Brown, D., Gerritsen, G., Hötter, H. and Ottvall, R. (compilers). 2018. International Multispecies Action Plan for the Conservation of Breeding Waders in Wet Grassland Habitats in Europe (2018-2028). Report of Action A13 under the framework of Project LIFE EuroSAP (LIFE14 PRE/UK/002). NABU, RSPB, VBN and SOF.
- Marsbøll, S. and Aaser, H.F. 2009. Restoration of Meadow Bird Habitats – a LIFE Nature Project. Danish Forest and Nature Agency, West Jutland.
- Melville, D.S. and Shortridge, K.F. 2006. Migratory waterbirds and avian influenza in the East Asian-Australasian Flyway with particular reference to the 2003-2004 H5N1 outbreak. In: G. Boere, C. Galbraith & D. Stroud (eds), *Waterbirds around the World*, pp. 432-438. The Stationery Office, Edinburgh, U.K.
- Mendes, L., Piersma, T., Lecoq, M., Spaans, B. and Ricklefs, E. 2005. Disease-limited distributions? Contrasts in the prevalence of avian malaria in shorebird species using marine and freshwater habitats. *Oikos* 109: 396-404.

Snow, D.W. and Perrins, C.M. 1998. The Birds of the Western Palearctic, Volume 1: Non-Passerines. Oxford University Press, Oxford.

Svensk Fågeltaxering. Alla trender för en art. Available at: <http://www.fageltaxering.lu.se/resultat/trender/allatrendertillsammans>. (Accessed: March 2020).

Wetland International - China Office. 2006. Relict Gull surveys in Hongjianao, Shaanxi Province. Newsletter of China Ornithological Society 15(2): 29.

Zöckler, C. 2002. Declining Ruff *Philomachus pugnax* populations: a response to global warming? Wader Study Group Bulletin 97: 19-29.

del Hoyo, J., Collar, N.J., Christie, D.A., Elliott, A. and Fishpool, L.D.C. 2014. HBW and BirdLife International Illustrated Checklist of the Birds of the World. Volume 1: Non-passerines. Lynx Edicions BirdLife International, Barcelona, Spain and Cambridge, UK.

del Hoyo, J., Elliott, A. and Sargatal, J. (eds). 1996. Handbook of the Birds of the World, Vol. 3: Hoatzin to Auks. Lynx Edicions, Barcelona, Spain.

van Heerden, J. 1974. Botulism in the Orange Free State goldfields. Ostrich 45(3): 182-184.