



THE IUCN RED LIST
OF THREATENED SPECIES™



Uria aalge (Common Murre)

European Red List of Birds

Supplementary Material

The European Union (EU27) 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 2013-14.

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 (2015).

Contents

Reported national population sizes and trends	p. 2
Trend maps of reported national population data	p. 3
Sources of reported national population data	p. 5
Species factsheet bibliography	p. 8

Recommended citation

BirdLife International (2015) European Red List of Birds. Luxembourg: Office for Official Publications of the European Communities.

Further information

- <http://www.birdlife.org/datazone/info/euroredlist>
- <http://www.birdlife.org/europe-and-central-asia/european-red-list-birds-0>
- <http://www.iucnredlist.org/initiatives/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.

Uria aalge (Common Murre)

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

Country (or territory) ²	Population estimate				Short-term population trend ⁴				Long-term population trend ⁴				Subspecific population (where relevant)
	Size (individuals) ³	Europe (%)	Year(s)	Quality	Direction ⁵	Magnitude (%) ⁶	Year(s)	Quality	Direction ⁵	Magnitude (%) ⁶	Year(s)	Quality	
Denmark	5,800	<1	2011	good	0	0	1999-2011	good	+	100-1000	1980-2011	medium	U. a. aalge
DK: Faroe Is	200,000	8	1999	medium	-		2001-2012		?				U. a. aalge
DK: Greenland	1,000-3,000	<1	2000-2012	poor	-	1-10	2000-2012	poor	-	30-50	1980-2012	poor	U. a. aalge
Finland	80-260	<1	2006-2012	good	F	0	2001-2012	good	F	0	1980-2012	good	U. a. aalge
France	568-604	<1	2008-2012	good	+	17-19	2000-2012	good	F	0	1977-2012	good	U. a. albionis
Germany	4,448	<1	2005-2009	good	0	0	1998-2008	good	+	31-400	1985-2009	medium	U. a. albionis
Iceland	368,000-1,060,000	24	2006-2008	good	-	29	2005-2009	good	0	0	1985-2008	poor	U. a. aalge
Rep. Ireland	142,804	5	2012	medium	0	0	2002-2012	medium	+	44	1987-2012	medium	U. a. albionis
Norway	25,000	1	2013	medium	-	5-20	2003-2013	good	-	50-70	1980-2013	good	U. a. aalge
NO: Svalbard	160,000	6	2001-2013	poor	?				?				U. a. hyperborea
Portugal	1	<1	2012	good	-	96	2002-2012	good	-	99	1981-2012	good	U. a. ibericus
Russia	6,000-12,000	<1	2000-2007	medium	F	0	2000-2012	medium	F	0	1980-2012	medium	U. a. hyperborea
Spain	4	<1	2012	good	-	50-75	2001-2012	good	-	75-85	1980-2012	good	U. a. ibericus
Sweden	21,400-28,000	1	2008-2012	good	0	0	2001-2012	medium	+	10-40	1980-2012	medium	U. a. aalge
United Kingdom	1,266,000	48	1998-2002	good	-	36	1987-2000	good	+	126	1969-2000	good	U. a. aalge
United Kingdom	152,000	6	1998-2002	good	+	60	1987-2000	good	+	164	1969-2000	good	U. a. albionis
EU27	1,590,000-1,600,000	59		Increasing									
Europe	2,350,000-3,060,000	100		Decreasing									

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 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.

⁵ Trend directions are reported as: increasing (+); decreasing (-); stable (0); fluctuating (F); or unknown (?).

⁶ 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.

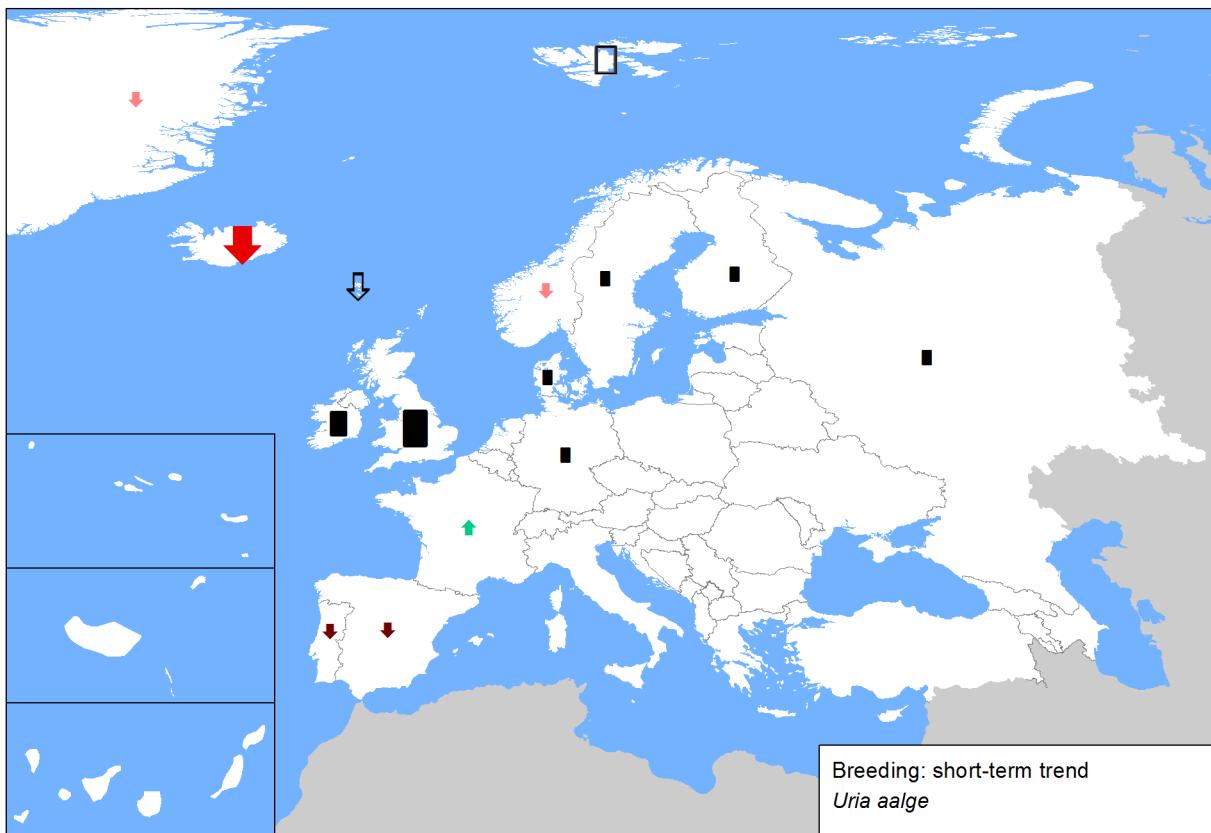
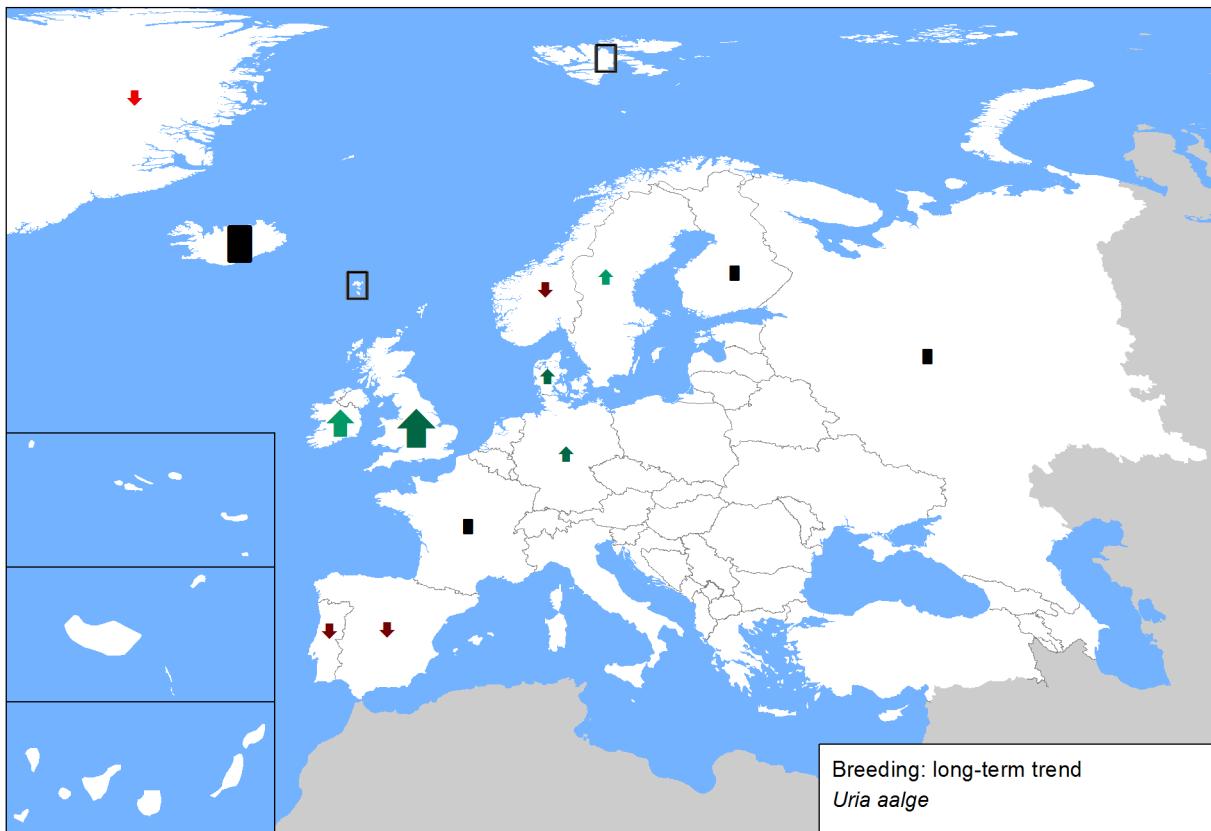


Figure 2. Breeding population sizes and long-term trends across Europe.



Sources

Denmark: *U. a. aalge*

Breeding population size: Ekspertvurdering foretaget af Dansk Ornitologisk Forening på baggrund af tidligere publicerede oplysninger, modtagne oplysninger og data i www.dofbasen.dk (Knud N. Flensted).

Breeding short-term trend: BIRDLIFE INTERNATIONAL (2004) Birds in Europe: population estimates, trends and conservation status. Wageningen, The Netherlands: BirdLife International. (BirdLife Conservation Series No. 12) complete survey in 2011

Breeding long-term trend: BIRDLIFE INTERNATIONAL (2004) Birds in Europe: population estimates, trends and conservation status. Wageningen, The Netherlands: BirdLife International. (BirdLife Conservation Series No. 12) Grell, Michael Borch (1998): Fuglenes Danmark. Gads forlag i samarbejde med Dansk Ornitologisk Forening. Olsen, Klaus Malling (1992): Danmarks fugle –en oversigt. Dansk Ornitologisk Forening. complete survey in 2011

DK: Faroe Is: *U. a. aalge*

Breeding population size: TemaNord (2010) Action plan for seabirds in Western-Nordic areas. Nordic Council of Ministers, Copenhagen. B. Olsen unpublished data (per Berglund & Hentati-Sundberg 2014). Hammer et al. (2014) Færøsk trækfugletlas [Faroeese bird migration atlas]. Fróðskapur / Faroe University Press, Tórshavn.

Breeding short-term trend: B. Olsen unpublished data (per Berglund & Hentati-Sundberg 2014).

DK: Greenland: *U. a. aalge*

Breeding population size: Boermann, D., Mosbech, A., Bjerrum, M., Labansen, A.L. & Merkel F. 2010. The Greenland seabird colony register. – Poster ved 1st Seabird World Conference, Victoria 7-11 Sept. 2010.

Breeding short-term trend: Boermann, D., Mosbech, A., Bjerrum, M., Labansen, A.L. & Merkel F. 2010. The Greenland seabird colony register. – Poster ved 1st Seabird World Conference, Victoria 7-11 Sept. 2010. Boermann, D. 2008. Grønlands Rødliste 2007. – Grønlands Hjemmestyre og Danmarks Miljøundersøgelser, 152 p.

Breeding long-term trend: Boermann, D. 2008. Grønlands Rødliste 2007. – Grønlands Hjemmestyre og Danmarks Miljøundersøgelser, 152 p.

Finland: *U. a. aalge*

Breeding population size: Archipelago Bird Census data.

Breeding short-term trend: Archipelago Bird Census data.

Breeding long-term trend: Archipelago Bird Census data.

France: *U. a. albionis*

Breeding population size: Cadiou et al. 2012 Bilan de la saison de reproduction des oiseaux marins en Bretagne en 2011

Breeding short-term trend: Dupuis, V. & coordinateurs espèces 2012 Les Oiseaux nicheurs rares & menacés en 2011, p. 289-325 Cadiou et al. 2004 Oiseaux marins nicheurs de France métropolitaine Cadiou B., Jacob Y., Le Nuz M., Quénot F., Yésou P. & Février Y. 2012 Bilan de la saison de reproduction des oiseaux marins en Bretagne en 2011., Brest, 35 p.

Breeding long-term trend: Dupuis, V. & coordinateurs espèces 2012 Les Oiseaux nicheurs rares & menacés en 2011, p. 289-325 Cadiou et al. 2004 Oiseaux marins nicheurs de France métropolitaine Cadiou B., Jacob Y., Le Nuz M., Quénot F., Yésou P. & Février Y. 2012 Bilan de la saison de reproduction des oiseaux marins en Bretagne en 2011., Brest, 35 p.

Germany: *U. a. albionis*

Breeding population size: Gedeon, K., C. Grüneberg, A. Mitschke & C. Sudfeldt (in Vorb.): Atlas Deutscher Brutvogelarten. SVD & DDA, Münster.

Breeding short-term trend: Monitoring seltener Brutvögel

Breeding long-term trend: Dachverband Deutscher Avifaunisten e.V.

Iceland: *U. a. aalge*

Breeding population size: Arnþór Garðarsson ofl. in press (Bliki 33)

Breeding short-term trend: Arnþór Garðarsson ofl. in press (Bliki 33)

Breeding long-term trend: Arnþór Garðarsson ofl. in press (Bliki 33)

Republic of Ireland: *U. a. albionis*

Breeding population size: Mitchell, P. Ian, Newton, S.F., Ratcliffe, N. & Dunn, T.E. (2004) Seabird populations of Britain and Ireland. Results of the Seabird 2000 Census (1998-2002). T & AD Poyser, London. Expert opinion and unpublished data: S. Newton, BirdWatch Ireland; <http://www.birdwatchireland.ie>.

Breeding short-term trend: Mitchell, P. Ian, Newton, S.F., Ratcliffe, N. & Dunn, T.E. (2004) Seabird populations of Britain and Ireland. Results of the Seabird 2000 Census (1998-2002). T & AD Poyser, London. Expert opinion and unpublished data: S. Newton, BirdWatch Ireland; <http://www.birdwatchireland.ie>.

Breeding long-term trend: Lloyd, C., Tasker, M.L. & Partridge, K. (1991) The status of Seabirds in Britain and Ireland. T & AD Poyser, London. Expert opinion and unpublished data: S. Newton, BirdWatch Ireland; <http://www.birdwatchireland.ie>.

Norway: *U. a. aalge*

Breeding population size: The Norwegian Monitoring programme for seabirds, Svein-Håkon Lorentsen pers.comm.

Breeding short-term trend: The Norwegian Monitoring programme for seabirds, Svein-Håkon Lorentsen pers.comm.

Breeding long-term trend: The Norwegian Monitoring programme for seabirds, Svein-Håkon Lorentsen pers.comm.

NO: Svalbard: *U. a. hyperborea*

Breeding population size: Bangjord, G., Haugskott, T. & Hammer, S. 2013. Svalbard birds - a basic field guide. Longyearbyen Field Biological Society. 124 pages.

Breeding short-term trend: The Norwegian monitoring program for seabirds, Svein-Håkon Lorentsen pers.comm.

Uria aalge (Common Murre)

NO: Svalbard: U. a. hyperborea

Breeding long-term trend: The Norwegian monitoring program for seabirds, Svein-Håkon Lorentsen pers.comm.

Portugal: U. a. ibericus

Breeding population size: Lurdes Morais, Paulo Crisóstomo & Eduardo Mourato. (2012). Contagens de aves marinhas no Arquipélago das Berlengas arau-comum (*Uria aalge*) gaivota-de-patas-amarelas (*Larus michahellis*), galheta (*Phalacrocorax aristotelis*), roquinho (*Oceanodroma castro*). ICNF - Reserva Natural das Berlengas. Relatório técnico não publicado

Breeding short-term trend: Lurdes Morais, Paulo Crisóstomo & Eduardo Mourato. (2012). Contagens de aves marinhas no Arquipélago das Berlengas arau-comum (*Uria aalge*) gaivota-de-patas-amarelas (*Larus michahellis*), galheta (*Phalacrocorax aristotelis*), roquinho (*Oceanodroma castro*). ICNF - Reserva Natural das Berlengas. Relatório técnico não publicado

Breeding long-term trend: 1981 Araújo, A & Luís, A, s.d. Populações Aves Marinhas Nidificantes na Ilha da Berlenga. CEMPA, Serviço de Estudos do Ambiente, Secr. de Estado do Ordenamento e Ambiente, Ministério da Qualidade de Vida (relatório não publicado); Lurdes Morais, Paulo Crisóstomo & Eduardo Mourato. (2012). Contagens de aves marinhas no Arquipélago das Berlengas arau-comum (*Uria aalge*) gaivota-de-patas-amarelas (*Larus michahellis*), galheta (*Phalacrocorax aristotelis*), roquinho (*Oceanodroma castro*). ICNF - Reserva Natural das Berlengas. Relatório técnico não publicado

Russia: U. a. hyperborea

Breeding population size: Gavrilov M.V., Tertitski G.M., Pokrovskaya I.V., Golovkin A.N. 1993. The archipelago avifauna. – In: Matishov G.G., Galaktionov K.V., Denisov V.V., Drobysheva S.S., Chinarina A.D., Timofeeva S.V. The environment and ecosystems of the Frans Josef Land (archipelago and shelf). Apatity: Kola Scientific Center RAS: 81 93 (In Russian). Gavrilov M.V. 2011. Fauna and populations of birds in some high-latitude islands of Western Arctic. – In: Matishov G.G., Tishkov A.A. (eds.) Terrestrial and marine ecosystems / Russian input in MPG 2007/2008. Moscow, Paulsen: 344-364 (In Russian). Gavrilov M.V. Avifauna and its change during historical period. – In: Collective monograph of Murmansk Marine Biological Institute. In press. Krasnov, Yu.V., Matishov, G.G., Galaktionov, K.V., Savinova, T.N. 1995. The colonial seabirds of Murman. St. Petersburg: Nauka Publishers, 224 pp. (In Russian). Krasnov Yu.V., Nikolaeva N.G., Goryaev Yu.I., Ezhov A.V. 2007. Recent condition of colonies and tendencies of changes in numbers of kittiwakes and guillemots in Kola Peninsula. - Ornithologia, 34 (1): 65-75 (in Russian).

Breeding short-term trend: Gavrilov M.V. 2011. Fauna and populations of birds in some high-latitude islands of Western Arctic. – In: Matishov G.G., Tishkov A.A. (eds.) Terrestrial and marine ecosystems / Russian input in MPG 2007/2008. Moscow, Paulsen: 344-364 (In Russian).

Breeding long-term trend: Gavrilov M.V., Tertitski G.M., Pokrovskaya I.V., Golovkin A.N. 1993. The archipelago avifauna. – In: Matishov G.G., Galaktionov K.V., Denisov V.V., Drobysheva S.S., Chinarina A.D., Timofeeva S.V. The environment and ecosystems of the Frans Josef Land (archipelago and shelf). Apatity: Kola Scientific Center RAS: 81 93 (In Russian). Gavrilov M.V. 2011. Fauna and populations of birds in some high-latitude islands of Western Arctic. – In: Matishov G.G., Tishkov A.A. (eds.) Terrestrial and marine ecosystems / Russian input in MPG 2007/2008. Moscow, Paulsen: 344-364 (In Russian).

Spain: U. a. ibericus

Breeding population size: Dirección Xeral de Conservación da Natureza (2012) Plan Director da Rede Natura 2000 de Galicia. Anexo IV- Espazos da Área Litoral. Dirección Xeral de Conservación da Natureza, Consellería de Medio Ambiente, Territorio e Infraestructuras. Xunta de Galicia.. Munilla, I. & Velando, A. 2008. PLAN INTEGRAL DE RECUPERACIÓN E CONSERVACIÓN DAS AVES NIDIFICANTES en CANTÍS COSTEIROS: URÍA AALGE, PHALACROCORAX ARISTOTELIS E RISSA TRIDACTYLA. Dirección Xeral de Conservación da Natureza, Consellería de Medio Ambiente e Desenvolvimento sostible. Informe no publicado. 141 pp.

Breeding short-term trend: Munilla, I. & Velando, A. 2008. PLAN INTEGRAL DE RECUPERACIÓN E CONSERVACIÓN DAS AVES NIDIFICANTES en CANTÍS COSTEIROS: URÍA AALGE, PHALACROCORAX ARISTOTELIS E RISSA TRIDACTYLA. Dirección Xeral de Conservación da Natureza, Consellería de Medio Ambiente e Desenvolvimento sostible. Informe no publicado. 141 pp. Munilla, I., Díez, C. & Velando, A. 2007. Are edge bird populations doomed to extinction? A retrospective analysis of the common guillemot collapse in Iberia. BIOLOGICAL CONSERVATION 137, 359–371 Alcalde, A. y F. Docampo. 2009. Arao común. En: Palomino, D. y B. Molina (Eds): Aves acuáticas reproductoras en España. Población en 2007 y método de censo, pp. 147 – 153. SEO/BirdLife, Madrid.

Breeding long-term trend: Munilla, I. & Velando, A. 2008. PLAN INTEGRAL DE RECUPERACIÓN E CONSERVACIÓN DAS AVES NIDIFICANTES en CANTÍS COSTEIROS: URÍA AALGE, PHALACROCORAX ARISTOTELIS E RISSA TRIDACTYLA. Dirección Xeral de Conservación da Natureza, Consellería de Medio Ambiente e Desenvolvimento sostible. Informe no publicado. 141 pp. Munilla, I., Díez, C., Velando, A., 2007. Are edge bird populations doomed to extinction? A retrospective analysis of the common guillemot collapse in Iberia. BIOLOGICAL CONSERVATION 137, 359–371 Madroño, A., C. González y J.C. Atienza (Eds.). 2004. Libro Rojo de Las Aves de España. Dirección General para la Diversidad-Sociedad Española de Ornitología. Madrid. Alcalde, A. y F. Docampo. 2009. Arao común. En: Palomino, D. y B. Molina (Eds): Aves acuáticas reproductoras en España. Población en 2007 y método de censo, pp. 147 – 153. SEO/BirdLife, Madrid.

Sweden: U. a. aalge

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. Sveriges Ornitologiska Förening, Halmstad.

Breeding short-term trend: Swedish Bird Survey (Svensk Fågeltaxering), Lund University.

Breeding long-term trend: Swedish Bird Survey (Svensk Fågeltaxering), Lund University.

United Kingdom: U. a. aalge

Breeding population size: Harris, M.P. & Wanless, S. 2004. Common Guillemot *Uria aalge*. Pp. 350-363. In: Mitchell, P.I., Newton, S., Ratcliffe, N. & Dunn, T.E. (eds.) Seabird populations of Britain and Ireland. T. & A.D. Poyser.

Breeding short-term trend: Lloyd, C., Tasker, M.L. & Partridge, K. 1991. The status of seabirds in Britain and Ireland. London, T. & A.D. Poyser. 355 pp. Harris, M.P. & Wanless, S. 2004. Common Guillemot *Uria aalge*. Pp. 350-363. In: Mitchell, P.I., Newton, S., Ratcliffe, N. & Dunn, T.E. (eds.) Seabird populations of Britain and Ireland. T. & A.D. Poyser. JNCC (2014) Seabird Population Trends and Causes of Change: 1986-2013 Report (<http://www.jncc.defra.gov.uk/page-3201>). Joint Nature Conservation Committee. Updated August 2014.

Breeding long-term trend: Cramp, S., Bourne, W.R.P. & Saunders, D. 1974. The seabirds of Britain and Ireland. London, Collins. Harris, M.P. & Wanless, S. 2004. Common Guillemot *Uria aalge*. Pp. 350-363. In: Mitchell, P.I., Newton, S., Ratcliffe, N. & Dunn, T.E. (eds.) Seabird populations of Britain and Ireland. T. & A.D. Poyser. JNCC (2014) Seabird Population Trends and Causes of Change: 1986-2013 Report (<http://www.jncc.defra.gov.uk/page-3201>). Joint Nature Conservation Committee. Updated August 2014.

United Kingdom: U. a. albionis

Breeding population size: Harris, M.P. & Wanless, S. 2004. Common Guillemot *Uria aalge*. Pp. 350-363. In: Mitchell, P.I., Newton, S., Ratcliffe, N. & Dunn, T.E. (eds.) Seabird populations of Britain and Ireland. T. & A.D. Poyser.

Uria aalge (Common Murre)

United Kingdom: U. a. albionis

Breeding short-term trend: Lloyd, C., Tasker, M.L. & Partridge, K. 1991. The status of seabirds in Britain and Ireland. London, T. & A.D. Poyser. 355 pp. Harris, M.P. & Wanless, S. 2004. Common Guillemot *Uria aalge*. Pp. 350-363. In: Mitchell, P.I., Newton, S., Ratcliffe, N. & Dunn, T.E. (eds.) Seabird populations of Britain and Ireland. T. & A.D. Poyser. JNCC (2014) Seabird Population Trends and Causes of Change: 1986-2013 Report (<http://www.jncc.defra.gov.uk/page-3201>). Joint Nature Conservation Committee. Updated August 2014.

Breeding long-term trend: Cramp, S., Bourne, W.R.P. & Saunders, D. 1974. The seabirds of Britain and Ireland. London, Collins. Harris, M.P. & Wanless, S. 2004. Common Guillemot *Uria aalge*. Pp. 350-363. In: Mitchell, P.I., Newton, S., Ratcliffe, N. & Dunn, T.E. (eds.) Seabird populations of Britain and Ireland. T. & A.D. Poyser. JNCC (2014) Seabird Population Trends and Causes of Change: 1986-2013 Report (<http://www.jncc.defra.gov.uk/page-3201>). Joint Nature Conservation Committee. Updated August 2014.

Bibliography

- Bryant, R.B. and Jones, I.L. 1999. Food resource use and diet overlap of common and thick-billed murres at the Gannet Islands, Labrador. *Waterbirds* 22(2): 392-400.
- Frederiksen, M., Anker Nilssen, T., Beaugrand, G., and Wanless, S. (2013). Climate, copepods and seabirds in the boreal Northeast Atlantic—current state and future outlook. *Global Change Biology*, 19(2): 364-372.
- Hagemeijer, W.J.M. & Blair, M.J. 1997. *The EBCC Atlas of European Breeding Birds: Their Distribution and Abundance*. T & A D Poyser, London.
- Nettleship, D.N., Kirwan, G.M. and Christie, D.A. (2013). Common Murre (*Uria aalge*). In: del Hoyo, J., Elliott, A., Sargatal, J., Christie, D.A. and de Juana, E. (eds.) 2013. *Handbook of the Birds of the World Alive*. Lynx Edicions, Barcelona. (retrieved from <http://www.hbw.com/node/54060> on 7 April 2015).
- Osterblom, H., Fransson, T., and Olsson, O. (2002). Bycatches of common guillemot (*Uria aalge*) in the Baltic Sea gillnet fishery. *Biological Conservation*, 105(3): 309-319.
- Osterblom, H., Van Der Jeugd, H.P., and Olsson, O. (2004). Adult survival and avian cholera in Common Guillemots *Uria aalge* in the Baltic Sea. *Ibis*, 146(3): 531-534.
- Sandvik, H., Erikstad, K.E., Barrett, R.T., and Yoccoz, N.G. (2005). The effect of climate on adult survival in five species of North Atlantic seabirds. *Journal of Animal Ecology*, 74(5): 817-831.
- Vanermen, N., Onkelinx, T., Courtens, W., Verstraete, H., and Stienen, E.W. 2014. Seabird avoidance and attraction at an offshore wind farm in the Belgian part of the North Sea. *Hydrobiologia*: 1-11.
- Wanless, S., Morris, J.A. and Harris, M.P. 1988. Diving behavior of guillemot *Uria aalge*, puffin *Fratercula arctica* and razorbill *Alca torda* as shown by radio-telemetry. *Journal of Zoology* 216: 73-81.