

***Microcarbo pygmaeus* (Pygmy Cormorant)**

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. 4
Sources of reported national population data	p. 7
Species factsheet bibliography	p. 12

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.

Microcarbo pygmaeus (Pygmy Cormorant)

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 (pairs) ³	Europe (%)	Year(s)	Quality	Direction ⁵	Magnitude (%) ⁶	Year(s)	Quality	Direction ⁵	Magnitude (%) ⁶	Year(s)	Quality	
Albania	0-25	<1	2002-2012	medium	0	0	2002-2012	medium	-	80-95	1980-2012	medium	
Armenia	400-700	1	2002-2012	good	?				?				
Austria	116-146	<1	2011-2012	good	+	700	2001-2012	good					Black Sea & Mediterranean
Azerbaijan	10,000-15,000	28	2014	medium	+		2000-2014	medium	+		1980-2014		
Bosnia & HG	600-900	2	2010-2014	good	+	5-10	2001-2012	good	+	90-95	1980-2013	medium	
Bulgaria	440-500	1	2005-2012	medium	+	3-5	2000-2012	medium	+	5-10	1980-2012	medium	Black Sea & Mediterranean
Croatia	15-55	<1	2013	good	+	5-10	2001-2012	good	+	50-100	1980-2012	medium	
Georgia	Present	<1			?				?				
Greece	3,086	7	2009	good	+	150-160	1998-2009	good	+	400	1975-2009	medium	Black Sea & Mediterranean
Hungary	600-1,500	2	2008-2012	good	+	167-415	2003-2012	medium	+	5900-9900	1995-2012	good	Black Sea & Mediterranean
Italy	1,000-1,500	3	2006-2010	medium	+	1900-2900	2000-2010	medium	+		1994-2010	medium	Black Sea & Mediterranean
FYRO Macedonia	60-120	<1	2001-2012	poor	?				?				
Moldova	0-10	<1	2000-2010	medium	F	0	2000-2010	medium	F	0	1980-2010	medium	
Montenegro	2,400-3,000	6	2002-2012	good	+		2002-2012	good	+		1980-2012	good	
Romania	9,400-10,500	23	2008-2013	medium	+	0-19	2000-2012	medium	+	0-19	1980-2012	medium	Black Sea & Mediterranean
Russia	6,000-8,000	16	2008-2011	medium	+	60-150	2000-2012	good	+	40-70	1980-2012	medium	
Serbia	900-1,600	3	2008-2012	good	+	30	2000-2012	medium	+	30	1980-2012	medium	
Slovakia	0	<1	2012		?				?				Black Sea & Mediterranean
Turkey	2,000-3,000	6	2013	medium	+	0-19	2000-2012	poor	-	30-49	1990-2013	good	
Ukraine	550-750	1	2010	medium	F	10-30	1998-2010	medium	F	20-40	1980-2010	medium	
EU27	14,600-17,200	37			Increasing								
Europe	37,600-50,400	100			Increasing								

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.

Microcarbo pygmaeus (Pygmy Cormorant)

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 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	
Albania	600-1,800	2	2002-2012	medium	0	0	2002-2012	medium	-	10-20	1980-2012	poor	
Armenia	111-2,535	1	2003-2013	good	?				?				
Azerbaijan	10,000-15,000	19	2014	medium	0.0	0	2000-2014	medium	0.0	0	1980-2014	medium	
Bosnia & HG	600-2,000	2	2008-2013	medium	0	0	2000-2013	medium	?				
Bulgaria	3,500-11,800	10	2008-2012	medium	+	5-10	2001-2012	medium	+	10-20	1980-2012	medium	
Croatia	700-3,500	2	2010	medium	+	70-100	2002-2010	medium	?				
Georgia	360	1	2002	good	?				?				
Greece	1,398-3,571	3	2007-2013	medium	0	0	2004-2013	good	?			good	
Italy	12,670	20	2013	good	+	390-1275	2000-2009	good	+	17000-28000	1991-2009	good	
FYRO Macedonia	500-3,500	2	2001-2012	good	F	0	2002-2012	good	F	0	1980-2012	good	
Moldova	0	<1	2000-2010		?				?				
Montenegro	2,500-11,000	8	2003-2012	good	+		2003-2012	good	+		1991-2012	good	
Romania	5,000-20,000	16	2008-2013	medium	F	1-5	2000-2013	medium	?				
Serbia	3,000-7,000	7	2008-2012	medium	F	0	2000-2012		+		1980-2012	poor	
Slovakia	350-750	1	2005-2012	medium	+	200-1000	2000-2012	medium	+	200-5000	1996-2012	medium	
Slovenia	150-500	<1	2008-2012	medium	+	160-800	2001-2012	medium	+	1250-15000	1980-2012	medium	
Turkey	3,252	5	2002-2012	good	0	0	2002-2012	poor	?				
Ukraine	300-1,500	1	1998-2009	medium	F	10-40	1998-2009	medium	F	20-50	1980-2009	medium	
EU27	23,100-49,300	50			Increasing								
Europe	45,000-101,000	100			Increasing								

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.

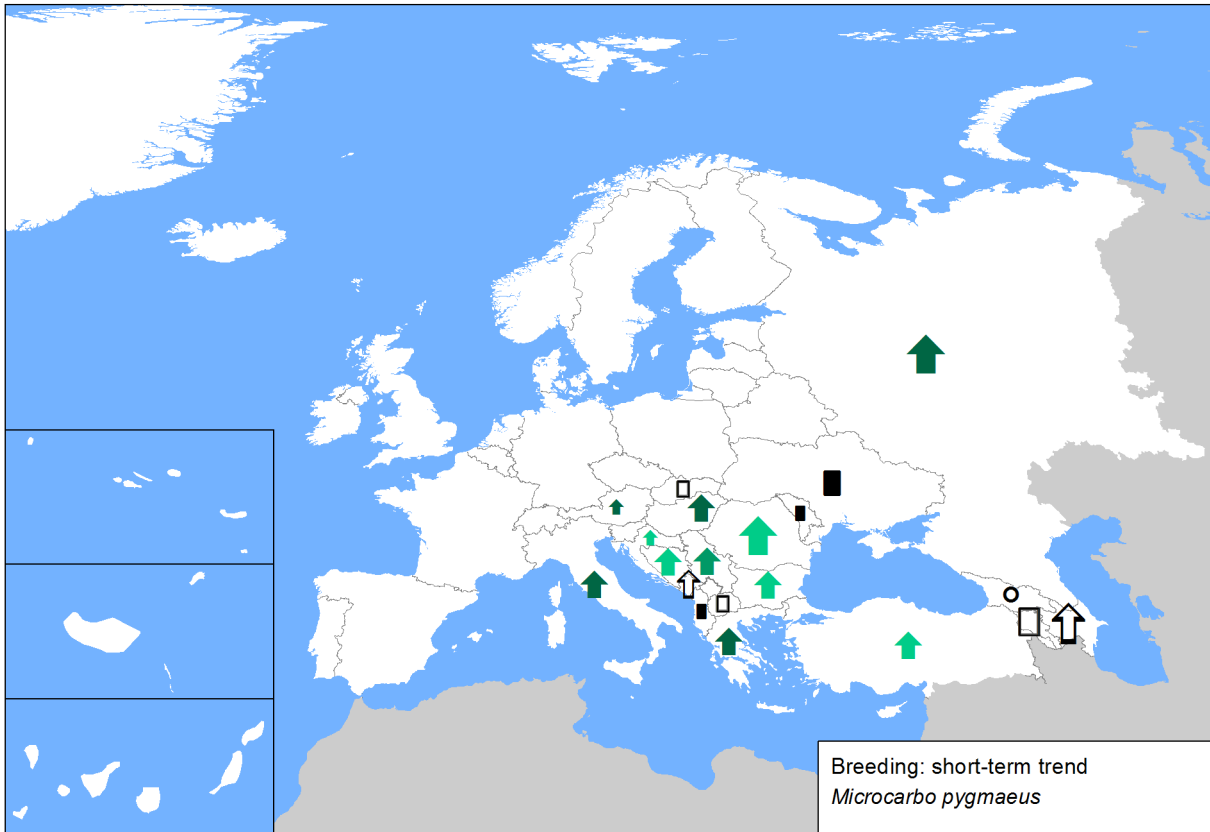


Figure 2. Breeding population sizes and long-term trends across Europe.

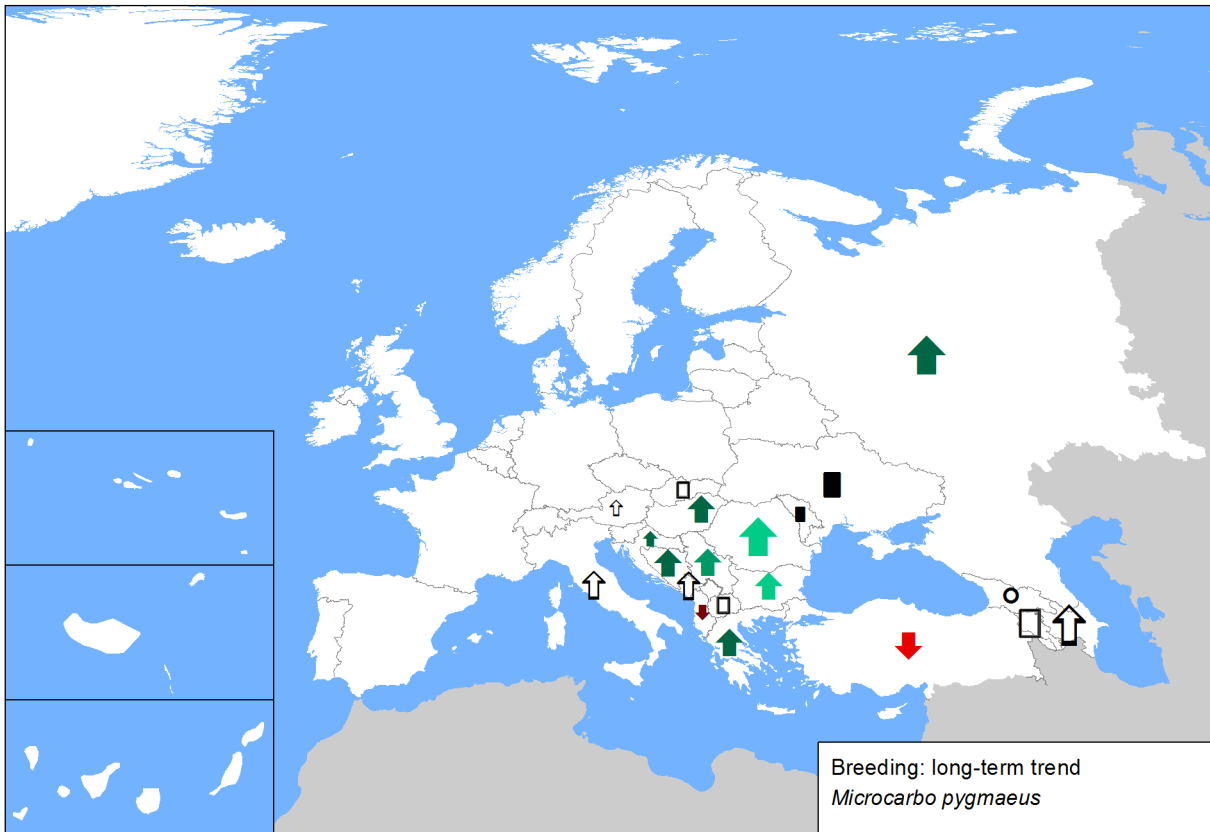


Figure 3. Reported wintering population sizes and short-term trends across Europe. Note that some countries within the species' wintering range did not report any data.

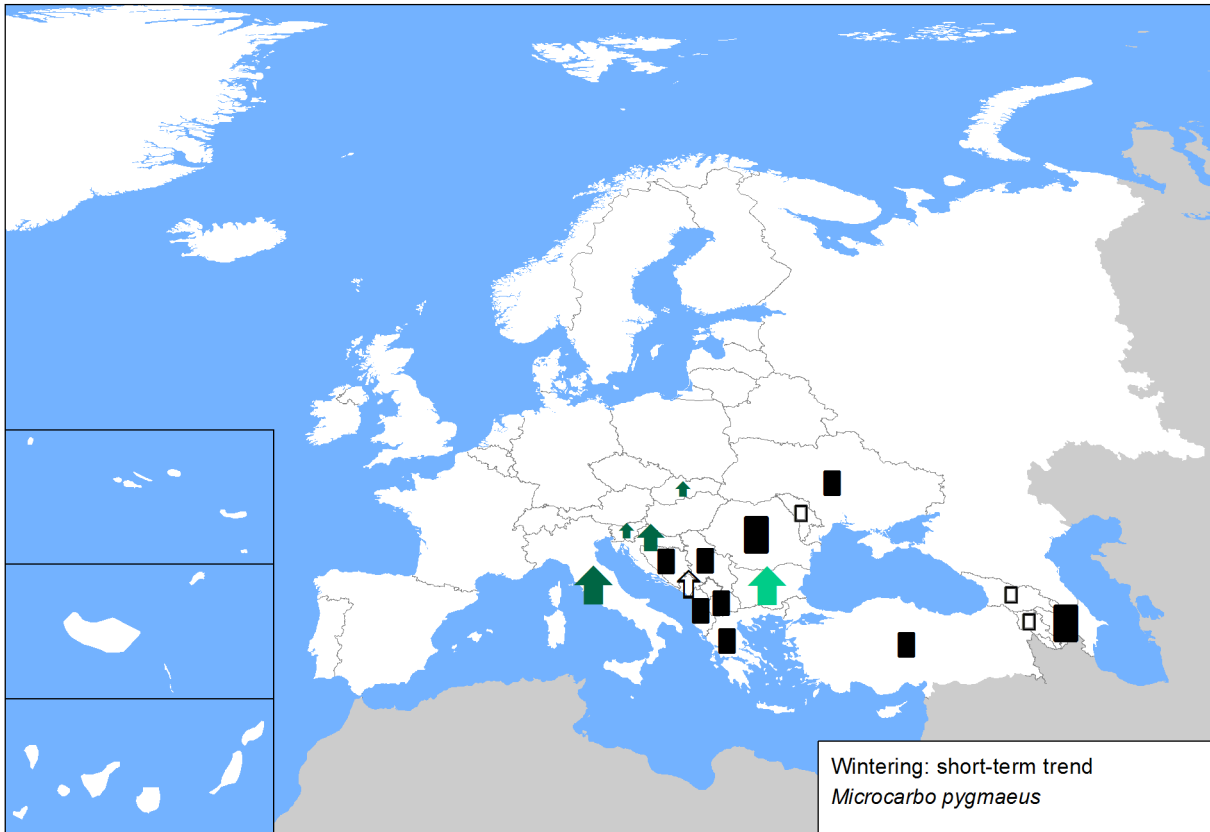
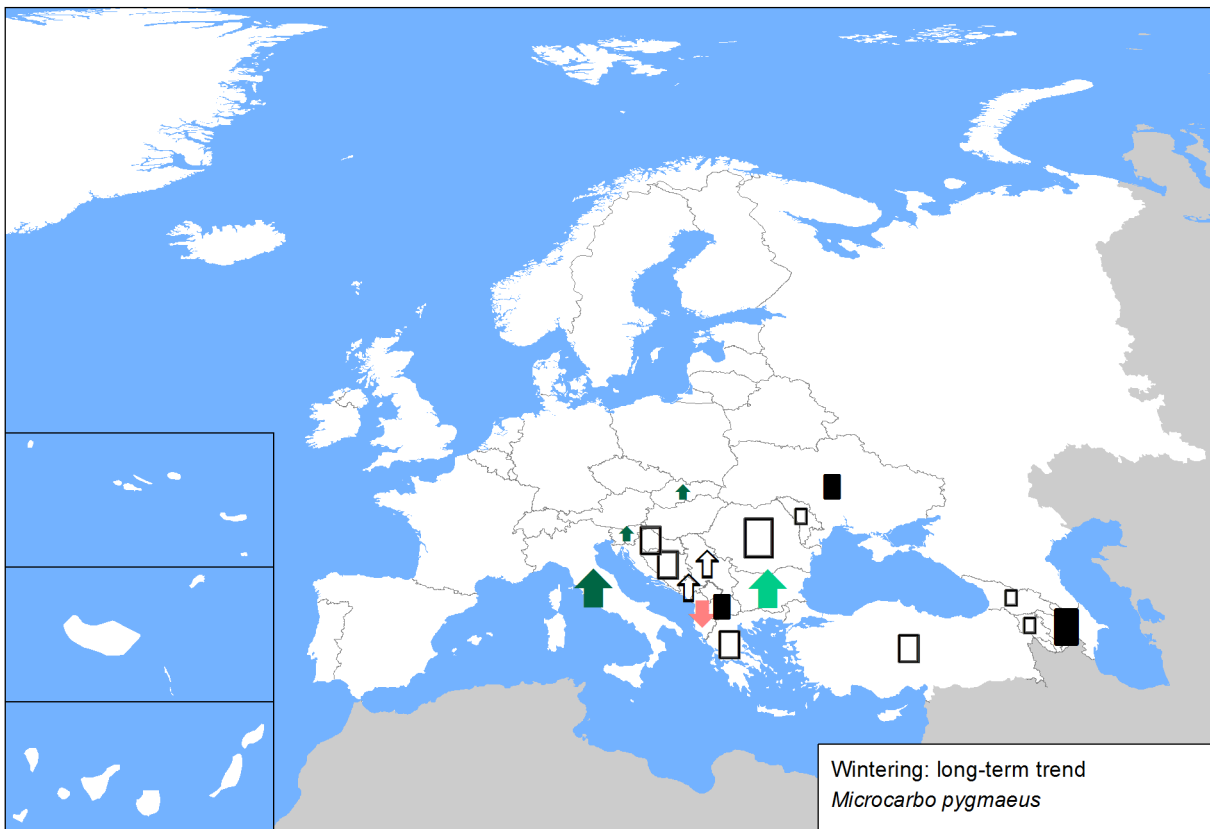


Figure 4. Reported wintering population sizes and long-term trends across Europe. Note that some countries within the species' wintering range did not report any data.



Sources

Albania

Breeding population size: Bino pers. obs.
Breeding short-term trend: Bino pers. obs.
Breeding long-term trend: Bino pers. obs.
Winter population size: Bino pers. obs.
Winter short-term trend: Bino pers. obs.
Winter long-term trend: Bino pers. obs.

Armenia

Breeding population size: ASPB data
Winter population size: ASPB IWC counts

Austria: Black Sea & Mediterranean

Breeding population size: Nemeth (2008), Nemeth & Dvorak (2012), E. Nemeth unpublished data
Breeding short-term trend: Nemeth (2008), Nemeth & Dvorak (2012), E. Nemeth, unpublished data
Breeding long-term trend: New breeding bird, first breeding in 2007

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

Bosnia and Herzegovina

Breeding population size: Kotrošan, D., Dročić, N., Trbojević, S., Šimić, E., Dervović, I., 2012: Program IBA, Međunarodno značajna područja za ptice, u Bosni i Hercegovini. Ornitološko društvo "Naše ptice", interno izdanje za projekat "Evaluacija IBA područja u FBiH", Sarajevo
Breeding short-term trend: Obratil S., 2000: Istraživanja faune ptica na Hutovo blatu u period siječanj – prosinac 2000 god. Nepublikovan izvještaj za projekat "Nova politika gospodarenja močvarom Hutovo blato", Stumberger, B., Sackl, P., 2008/2009: Rezultati brojanja ptica močvarica i njihov gnjezdeći status u Livanjskom polju 2007.-2009. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 4-5(4-5): 38-55.
Breeding long-term trend: Obratil S., 2000: Istraživanja faune ptica na Hutovo blatu u period siječanj – prosinac 2000 god. Nepublikovan izvještaj za projekat "Nova politika gospodarenja močvarom Hutovo blato"
Winter population size: Kotrošan, D., Dervović, I., 2010: Rezultati zimskog brojanja ptica močvarica u Bosni i Hercegovini za period od 2008. do 2010. godine. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 6(6): 23-45., Dervović, I. & Kotrošan, D., 2011/2012: Rezultati zimskog brojanja ptica močvarica u Bosni i Hercegovini u 2011. godini. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 7-8(7-8): 44-55., Topić, G. & Kotrošan, D., 2011/2012: Rezultati Međunarodnog cenzusa ptica vodenih staništa u Bosni i Hercegovini 2012. godine. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 7-8(7-8): 56-73., Topić, G., 2013: Rezultati Međunarodnog cenzusa ptica vodenih staništa u Bosni i Hercegovini 2013. godine. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 7-8(7-8): 14-40.
Winter short-term trend: Dervović, I. 2005: Rezultati januarskog brojanja vodenih ptica 1998-2005. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 1(1): 43-45. Dervović, I. 2006: Rezultati zimskog prebrojavanja ptica močvarica u Bosni i Hercegovini u 2006. godini. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 2(2): 20-22. Dervović, I. 2007: Izvještaj o januarskom prebrojavanju vodenih ptica u 2007. godini. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 3(3): 47. Kotrošan, D., Dervović, I., 2010: Rezultati zimskog brojanja ptica močvarica u Bosni i Hercegovini za period od 2008. do 2010. godine. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 6(6): 23-45., Dervović, I. & Kotrošan, D., 2011/2012: Rezultati zimskog brojanja ptica močvarica u Bosni i Hercegovini u 2011. godini. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 7-8(7-8): 44-55., Topić, G. & Kotrošan, D., 2011/2012: Rezultati Međunarodnog cenzusa ptica vodenih staništa u Bosni i Hercegovini 2012. godine. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 7-8(7-8): 56-73., Topić, G., 2013: Rezultati Međunarodnog cenzusa ptica vodenih staništa u Bosni i Hercegovini 2013. godine. Bilten Mreže posmatrača ptica u Bosni i Hercegovini, 7-8(7-8): 14-40.

Bulgaria: Black Sea & Mediterranean

Breeding population size: 1. Iankov, P. (ed.) 2007 Atlas of Breeding Birds in Bulgaria. Bulgarian Society for the Protection of Birds, Conservation Series, Book 10, Sofia, BSPB, 679 p. 2. Golemansky V. (ed.) 2011. Red data book of the Republic of Bulgaria, Vol. 2 Animals, Bulgarian Academy of Sciences, Ministry of Environment and Waters of Bulgaria. Sofia, 2011 3. BSPB Bird Database 4. WWF Green borders LIFE+ Project Reports Expert for contact: Svilen Cheshmedjiev, svilen.cheshmedjiev@bspb.org
Breeding short-term trend: 1. Iankov, P. (ed.) 2007 Atlas of Breeding Birds in Bulgaria. Bulgarian Society for the Protection of Birds, Conservation Series, Book 10, Sofia, BSPB, 679 p. 2. Golemansky V. (ed.) 2011. Red data book of the Republic of Bulgaria, Vol. 2 Animals, Bulgarian Academy of Sciences, Ministry of Environment and Waters of Bulgaria. Sofia, 2011 3. BSPB Bird Database 4. WWF Green borders LIFE+ Project Reports Expert for contact: Svilen Cheshmedjiev, svilen.cheshmedjiev@bspb.org
Breeding long-term trend: 1. Iankov, P. (ed.) 2007 Atlas of Breeding Birds in Bulgaria. Bulgarian Society for the Protection of Birds, Conservation Series, Book 10, Sofia, BSPB, 679 p. 2. Golemansky V. (ed.) 2011. Red data book of the Republic of Bulgaria, Vol. 2 Animals, Bulgarian Academy of Sciences, Ministry of Environment and Waters of Bulgaria. Sofia, 2011 3. Botev, B. (ed.) 1985. Red Data Book of Bulgaria, Vol. 2, Animals, Sofia, Bas 4. BSPB Bird Database 5. WWF Green borders LIFE+ Project Reports Expert for contact: Svilen Cheshmedjiev, svilen.cheshmedjiev@bspb.org
Winter population size: 1. BSPB Bird Database 2. Golemansky V. (ed.) 2011. Red data book of the Republic of Bulgaria, Vol. 2 Animals, Bulgarian Academy of Sciences, Ministry of Environment and Waters of Bulgaria. Sofia, 2011 3. WWF Green borders LIFE+ Project Reports Expert for contact: Svilen Cheshmedjiev, svilen.cheshmedjiev@bspb.org

Microcarbo pygmaeus (Pygmy Cormorant)

Bulgaria: Black Sea & Mediterranean

Winter short-term trend: 1. BSPB Bird Database 2. Golemansky V. (ed.) 2011. Red data book of the Republic of Bulgaria, Vol. 2 Animals, Bulgarian Academy of Sciences, Ministry of Environment and Waters of Bulgaria. Sofia, 2011 3. WWF Green borders LIFE+ Project Reports Expert for contact: Svilen Cheshmedjiev, svilen.cheshmedjiev@bspb.org

Winter long-term trend: 1. BSPB Bird Database 2. Golemansky V. (ed.) 2011. Red data book of the Republic of Bulgaria, Vol. 2 Animals, Bulgarian Academy of Sciences, Ministry of Environment and Waters of Bulgaria. Sofia, 2011 3. WWF Green borders LIFE+ Project Reports 4. Botev, B. (ed.) 1985. Red Data Book of Bulgaria, Vol. 2, Animals, Sofia, Bas Expert for contact: Svilen Cheshmedjiev, svilen.cheshmedjiev@bspb.org

Croatia

Breeding population size: Tutiš, V., Kralj, J., Radović, D., Čiković, D. i Barišić, S. (2013): Crvena knjiga ptica Republike Hrvatske. Ministarstvo zaštite okoliša i prirode, Državni zavod za zaštitu prirode, Zagreb

Breeding short-term trend: Tutiš, V., Kralj, J., Radović, D., Čiković, D. i Barišić, S. (2013): Crvena knjiga ptica Republike Hrvatske. Ministarstvo zaštite okoliša i prirode, Državni zavod za zaštitu prirode, Zagreb

Breeding long-term trend: BiE III Work group, Croatia

Winter population size: Tutiš, V., Kralj, J., Radović, D., Čiković, D. i Barišić, S. (2013): Crvena knjiga ptica Republike Hrvatske. Ministarstvo zaštite okoliša i prirode, Državni zavod za zaštitu prirode, Zagreb

Winter short-term trend: Report on the implementation of AEWA for the period 2009-2011 - Croatia. <http://www.unep-aewa.org/en/document/national-report-croatia-3>

Winter long-term trend: Report on the implementation of AEWA for the period 2009-2011 - Croatia. <http://www.unep-aewa.org/en/document/national-report-croatia-3>

Georgia

Breeding population size: BirdLife International 2004

Winter population size: BirdLife International 2004

Greece

Winter population size: Midwinter Counts Database, Hellenic Ornithological Society

Winter short-term trend: Midwinter Counts Database, Hellenic Ornithological Society

Winter long-term trend: Midwinter Counts Database, Hellenic Ornithological Society

Greece: Black Sea & Mediterranean

Breeding population size: Kazantzidis, S. & G. Yfantis. 2012. Heronries in Greece - 2nd national Census. Oionos (Hellenic Ornithological Society's 3-monthly edition) 49: 8-9.

Breeding short-term trend: Kazantzidis, S. & T. Naziridis, 1999. National Action Plan for the Pygmy Cormorant. LIFE II Project: "Protection of Pygmy Cormorant and Lesser White-fronted Goose in Greece". WWF Greece, Hellenic Ornithological Society, Society for the Protection of Prespa

Breeding long-term trend: Handrinos, G. & Akriotis, T. 1997. The Birds of Greece. Helm.

Hungary: Black Sea & Mediterranean

Breeding population size: National Park Directorates databases. Breeding bird (MME RTM) database.

Breeding short-term trend: National Park Directorates databases. Breeding bird (MME RTM) database. Szinai P. (szerk.) (2013): Kis kárókatona fajmegőrzési terv. Unpublished.

Breeding long-term trend: MME Nomenclator Bizottság (2008): Magyarország madarainak névjegyzéke. Nomenclator avium Hungariae. Magyar Madártani és Természetvédelmi Egyesület, Budapest. P. 278. Magyar, G., Hadarics, T., Waliczky, Z., Schmidt, A., Nagy, T. & Bankovics, A. (1998): Nomenclator avium Hungariae. Magyarország madarainak névjegyzéke. KTM Természetvédelmi Hivatal Madártani Intézete – Magyar Madártani és Természetvédelmi Egyesület – Winter Fair, Budapest – Szeged. P. 202. Szinai P. (szerk.) (2013): Kis kárókatona fajmegőrzési terv. Unpublished.

Italy: Black Sea & Mediterranean

Breeding population size: Costa M., Ceccarelli P., Gellini S., Casini L., Volponi S. (eds.) 2009. Atlante degli uccelli nidificanti nel parco del Delta del Po, Emilia Romagna (2004-2006). Provincia di Ravenna, Parco Delta del Po, ISPRA, Provincia di Ferrara, pp. 399. Scarton F., Mezzavilla F., Verza E. (eds.). In stampa. Progetto Aironi del Veneto: 2009-2010. Associazione Faunisti Veneti. Gambelli P., Malanga G., Sebastianelli C., Silvi F., Belfior D. 2010. Prima nidificazione del marangone minore Phalacrocorax pygmaeus nella Riserva Naturale Regionale Ripa Bianca di Jesi (Ancona). Avocetta 34:69-70 Volponi S., Caldarella M., Cosolo M., personal communication

Breeding short-term trend: Serra L., Bricchetti P. 2002. Popolazioni di uccelli acquatici nidificanti in Italia - Resoconto 2000. Avocetta, 26: 123-129. see field 2.6

Breeding long-term trend: Volponi S., Emiliani D. 1995. The Pygmy Cormorant breeds again in Italy. Riv. Ital. Orn., 65:87-89. Voskamp P., Volponi S., van Rijn S. 2005. Global population development of the Pygmy Cormorant Phalacrocorax pygmaeus. Overview of available data and appeal to set up a network of national specialists. IUCN - Wetlands International Cormorant Research Group Bulletin, 6:21-34. Fasola M., Barbieri F. 1981. Prima nidificazione di Marangone minore Phalacrocorax pygmeus in Italia. Avocetta, 5:155-156.

Winter population size: Volponi S. (a cura di), in prep. - Piano d'azione nazionale per il Marangone minore (phalacrocorax pygmeus). Quad. Cons. Natura, Ministero dell'Ambiente e della Tutela del Territorio e del Mare - ISPRA

Winter short-term trend: IWC ISPRA; Eugenio Dupré in litt. 04-Aug-2014

Winter long-term trend: IWC ISPRA; Eugenio Dupré in litt. 04-Aug-2014; 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: 1-240

The Former Yugoslav Republic of Macedonia

Breeding population size: Veleviski, M., B. Hallmann, B. Grubač, T. Lisičanec, E. Stoynov, E. Lisičanec, V. Avukatov, L. Božič, and B. Stumberger. 2010. Important Bird Areas in Macedonia: Sites of Global and European Importance. Acrocephalus 31:181-282.

Winter population size: Wetlands International database, and unedited data of the Macedonian Ecological Society

Winter short-term trend: Wetlands International database, and unedited data of the Macedonian Ecological Society

Microcarbo pygmaeus (Pygmy Cormorant)

The Former Yugoslav Republic of Macedonia

Winter long-term trend: Fremuth, W., T. Bino, F. Bego, G. Jorgo, B. Micevski, V. Anastasovski, T. Tzvetkov, I. Hristov, M. Schneider-Jacoby, and S. Shumka. 2000. Four years of simultaneous wintering waterbird census at the Ohrid and Prespa Lakes 1997-2000. Pages 28–38 in G. Grupche Lj. & Kungulovski, editors. Proceedings of the International Symposium "Sustainable development of Prespa Region." MES Catsadorakis, G. et al. 2013. Waterbirds wintering at the Prespa lakes as revealed by simultaneous counts in the three adjoining littoral states. *Macedonian Journal of Ecology and Environment* 15:23–31

Moldova

Breeding population size: Cojan C. Particularitățile biologice și etologice ale avifaunei acvatice și semiacvatice din bazinul Prutului Inferior. Teza de doctorat. Chișinău. 2010. 172p. The Atlas of the Breeding Birds of Republic of Moldova. 2010. 100p.

Breeding short-term trend: The Atlas of the Breeding Birds of Republic of Moldova. 2010. 100p.

Breeding long-term trend: Штирбу В. И. Современное состояние фауны водно-болотных птиц в Молдове и практические меры по ее увеличению/ Экология и охрана птиц и млекопитающих. Кишинев. Штимнца. 1992. P 80-92 Cojan C. Particularitățile biologice și etologice ale avifaunei acvatice și semiacvatice din bazinul Prutului Inferior. Teza de doctorat. Chișinău. 2010. 172p.

Montenegro

Breeding population size: Saveljić, D (2006): Breeding of Pygmy Cormorant *Phalacrocorax pygmeus* in Montenegro. *Acrocephalus* 27 (130/131): 123-129, Slovenia

Breeding short-term trend: 1. Monitoring of biodiversity of Montenegro. Reports: Environmental protection Agency and Institute for Protection of Nature of Montenegro

Breeding long-term trend: Puzovic, S., Simic, D., Saveljić, D., Gergelj, J., Tucakov, M., Stojnic, N., Hulo, I., Ham, I., Vizi, O., Sciban, M., Ruzic, M., Vucanovic, M., Jovanovic, T. (2004): Birds of Serbia and Montenegro – Size of nesting populations. I trends: 1990-2002. *Ciconia* 12,

Winter population size: IWC reports (2003-2012): Dubak, Vešović, N., Jovičević, M., Vizi O., Vizi, A.

Winter short-term trend: Puzovic, S., Simic, D., Saveljić, D., Gergelj, J., Tucakov, M., Stojnic, N., Hulo, I., Ham, I., Vizi, O., Sciban, M., Ruzic, M., Vucanovic, M., Jovanovic, T. (2004): Birds of Serbia and Montenegro – Size of nesting populations. I trends: 1990-2002. *Ciconia* 12,

Winter long-term trend: Puzovic, S., Simic, D., Saveljić, D., Gergelj, J., Tucakov, M., Stojnic, N., Hulo, I., Ham, I., Vizi, O., Sciban, M., Ruzic, M., Vucanovic, M., Jovanovic, T. (2004): Birds of Serbia and Montenegro – Size of nesting populations. I trends: 1990-2002. *Ciconia* 12,

Romania: Black Sea & Mediterranean

Breeding population size: SOR database

Breeding short-term trend: BirLife International (2004) Birds in Europe: population estimates, trends and conservation status. Cambridge, UK Papp T., Fântână C. – editors 2008, Ariele de Importanță Avifaunistică din România, Publicație Comună a Societății Ornitologice Române și a Asociației „Grupul Milvus” BirLife International (2004) Birds in Europe: population estimates, trends and conservation status. Cambridge, UK Papp T., Fântână C. – editors 2008, Ariele de Importanță Avifaunistică din România, Publicație Comună a Societății Ornitologice Române și a Asociației „Grupul Milvus”

Breeding long-term trend: Munteanu D. (ed) 2002: Atlasul păsărilor clocitoare din România, ediția a II-a, Publicațiile Societății Ornitologice Române, nr. 16, Cluj-Napoca. Weber P. et al. 1994: Atlasul provizoriu al păsărilor clocitoare din România, Publicațiile Societății Ornitologice Române, nr. 2, Mediaș Papp T., Fântână C. – editors 2008, Ariele de Importanță Avifaunistică din România, Publicație Comună a Societății Ornitologice Române și a Asociației „Grupul Milvus” Victor Ciochia: Dinamica și migrația păsărilor. Ed. Științifică și Enciclopedică, București, 1984

Winter population size: International Waterbird Census, Romania SOR Database Milvus Database

Winter short-term trend: International Waterbird Census, Romania SOR Database Milvus Database

Winter long-term trend: International Waterbird Census, Romania SOR Database Milvus Database

Russia

Breeding population size: Lugovoj A.E. 2011. Pygmy Cormorant. In: Priklonskiy S.G., Zubakin V.A., Koblik E.A. (eds.). Birds of Russia and adjacent regions. Pelecaniformes, Ciconiiformes, Phoenicopteriformes. Moscow, KMK: 133-142 (in Russian). Belik V.P., unpublished. vpbelik@mail.ru

Breeding short-term trend: Belik V.P. et al. 2003. Recent population trends of breeding birds in the Southern Russia. - *Strept* 1: 10-30 (in Russian). Belik V.P., unpublished. vpbelik@mail.ru Zavjalov E.V., Yakushev N.N., Tabachishin V.G., Mosolova E.Yu. 2008. The Pygmy Cormorant *Phalacrocorax pygmaeus* – a new bird species for the Saratov Oblast. - *Russian Ornithological Magazine, express-issue* 17 (439): 1351-1354 (in Russian).

Breeding long-term trend: Litvinova N.A. 1991. Pygmy Cormorant. In: - Pavlov D.S., Flint V.E. (eds.). Red Data Book of Russian Federation. Moscow: 376-377 (in Russian). Belik V.P. et al. 2003. Recent population trends of breeding birds in the Southern Russia. - *Strept* 1: 10-30 (in Russian). Belik V.P., unpublished. vpbelik@mail.ru

Serbia

Breeding population size: BPSSS (2014) Unpublished data

Breeding short-term trend: BPSSS (2014) Unpublished data

Breeding long-term trend: BPSSS (2014) Unpublished data

Winter population size: Ščiban M, Đapčić D, Sekereš O, Đorđević I, Ružić M, Stanković D, Radišić D, Gergelj J, Janković M, Radaković M, Rudić B, Agošton A, Dajović M. & Simić D. (2011): Rezultati Međunarodnog cenzusa ptica vodenih staništa u Srbiji 2012. godine. *Ciconia* 20: 120–1

Winter short-term trend: Ščiban M, Đapčić D, Sekereš O, Đorđević I, Ružić M, Stanković D, Radišić D, Gergelj J, Janković M, Radaković M, Rudić B, Agošton A, Dajović M. & Simić D. (2011): Rezultati Međunarodnog cenzusa ptica vodenih staništa u Srbiji 2012. godine. *Ciconia* 20: 120–1

Winter long-term trend: BPSSS (2014) Unpublished data

Slovakia: Black Sea & Mediterranean

Breeding population size: Danko Štefan, Darolová Alžbeta, Krištín Anton: Rozšírenie vtákov na Slovensku. VEDA, vyd. SAV Bratislava, 2002. SNC SR

Breeding short-term trend: Danko Štefan, Darolová Alžbeta, Krištín Anton: Rozšírenie vtákov na Slovensku. VEDA, vyd. SAV Bratislava, 2002.

Breeding long-term trend: Danko Štefan, Darolová Alžbeta, Krištín Anton: Rozšírenie vtákov na Slovensku. VEDA, vyd. SAV Bratislava, 2002.

Winter population size: Slabeyová K., Ridzoň J., Karaska D., Topercer J. & Darolová A. 2011: Správa zo zimného sčítania vodného vtáctva na Slovensku 2009/10, SOS/ BirdLife Slovensko, Bratislava, 160 s. Ridzoň, J., Darolová, A. Karaska, D., Fulín, M.

Microcarbo pygmaeus (Pygmy Cormorant)

Slovakia: Black Sea & Mediterranean

Winter short-term trend: Slabeyová K., Ridzoň J., Karaska D., Topercer J. & Darolová A. 2011: Správa zo zimného sčítania vodného vtáctva na Slovensku 2009/10, SOS/ BirdLife Slovensko, Bratislava, 160 s.

Winter long-term trend: Slabeyová K., Ridzoň J., Karaska D., Topercer J. & Darolová A. 2011: Správa zo zimného sčítania vodného vtáctva na Slovensku 2009/10, SOS/ BirdLife Slovensko, Bratislava, 160 s.

Slovenia: Black Sea & Mediterranean

Winter population size: <http://www.natura2000.gov.si/index.php?id=211> Božič, L. (2008): Monitoring populacij izbranih vrst ptic – zimsko štetje vodnih ptic 2002-2008. Končno poročilo. Društvo za opazovanje in preučevanje ptic Slovenije, Ljubljana. 167 str. Božič, L. (2009): Monitoring populacij izbranih vrst ptic – Rezultati zimskega štetja vodnih ptic 2009, rezultati popisov preleta ujed v jesenski sezoni 2008. 2. vmesno poročilo. Društvo za opazovanje in preučevanje ptic Slovenije, Ljubljana. 35 str. Božič, L. (2010): Monitoring populacij izbranih ciljnih vrst ptic – zimsko štetje vodnih ptic 2010. Končno poročilo. Društvo za opazovanje in preučevanje ptic Slovenije, Ljubljana. 28 str. Božič, L. (2011): Monitoring populacij izbranih ciljnih vrst ptic – zimsko štetje vodnih ptic 2011. Končno poročilo. Društvo za opazovanje in preučevanje ptic Slovenije, Ljubljana. 28 str. BOŽIČ, L. (2008A): Rezultati januarskega štetja vodnih ptic leta 2008 v Sloveniji. – *Acrocephalus* 29 (136): 39–49. BOŽIČ, L. (2008B): Rezultati januarskega štetja vodnih ptic leta 2009 v Sloveniji. – *Acrocephalus* 29 (138/139): 169–179. BOŽIČ, L. (2010): Rezultati januarskega štetja vodnih ptic leta 2010 v Sloveniji. – *Acrocephalus* 31 (145/146): 131–141. BOŽIČ, L. (2011): Rezultati januarskega štetja vodnih ptic leta 2011 v Sloveniji. – *Acrocephalus* 32 (148/149): 67–77. BOŽIČ, L. (2012): Rezultati januarskega štetja vodnih ptic leta 2012 v Sloveniji. – *Acrocephalus* 33 (152/153): 109–119.

Winter short-term trend: DOPPS

Winter long-term trend: SOVINC, A. (1994): Zimski ornitološki atlas Slovenije. – Tehniška založba Slovenije, Ljubljana.

Turkey

Breeding population size: Güven Eken personal communication. Birdlife International (2004) Birds in Europe: population estimates, trends and conservation status, Cambridge UK: Birdlife International (Birdlife Conservation series no: 12) www.kusbank.org

Breeding short-term trend: Doğa Derneği, Eken G., Bozdoğan M., İsfendiyaroğlu S., Kılıç D.T., Lise Y. (2006) Key Biodiversity Areas of Turkey (Türkiye'nin Önemli Doğa Alanları) Doğa Derneği, Ankara, KILIÇ, T., EKEN, G. 2004, Türkiye'nin Önemli Kuş Alanları Güncellemesi, Doğa Derneği. Ankara.

Breeding long-term trend: Birdlife International (2004) Birds in Europe: population estimates, trends and conservation status, Cambridge UK: Birdlife International (Birdlife Conservation series no: 12)

Winter population size: Kurt, B., Ozağdatlı, N., Bozkurt, A.K., Arslangundoğdu, Z. ve Gursoy, A. 2002. Türkiye Sulakalanları Kış Ortası Sucusu Sayımı, Doğal Hayatı Koruma Derneği, İstanbul, Türkiye. Çağlayan, E., Kılıç, D.T., Per, E. ve Gem, E. 2005. Türkiye Kış Ortası Sucusu Sayımları 2005. Doğa Derneği, Ankara, Turkey Suseven, B., Onmus, O. ve İsfendiyaroğlu, S. 2006. Kış Ortası Sucusu Sayımı (KOSK) Raporu, Doğa Derneği, Ankara Onmus, O. 2007. Türkiye Kış Ortası Sucusu Sayımları 2007, Doğa Derneği, Ankara Akarsu, F. ve Balkız, Ö. 2010. Türkiye Kış Ortası Sucusu Sayımları 2008-2009-2010, Doğa Derneği, Ankara Erciyas Yavuz, K., Kartal E. 2011. Türkiye Kış Ortası Sucusu Sayımları, 2011, Ornitoloji Araştırma Merkezi, Samsun Erciyas Yavuz, K., İsfendiyaroglu S. 2013. 2012 Türkiye Kış Ortası Sucusu Sayımları, Doğa Derneği, Ankara Birdlife International (2004) Birds in Europe: population estimates, trends and conservation status, Cambridge UK: Birdlife International (Birdlife Conservation series no: 12) www.kusbank.org

Winter short-term trend: Doğa Derneği

Ukraine

Breeding population size: 1. Hagemajjer W.J.M., Blair M.J. The EBCC Atlas of European Breeding Birds: Their Distribution and Abundance. Poyser. - London. 1997. 903 p. 2. Heath M.F., Evans M.I. Important birds areas in Europe. Priority sites for conservation. // Southern Europe. BirdLife International. - Cambridge. Vol.2., 2000. P. 691-724. 3. European birds populations; Estimates and trends Compiled by M. Heath, C. Borggreve, N. Peet, W. Hagemajjer/ BirdLife International/EBCC. 2000. Cambridge, UK: BirdLife Conservation Series N10, 160 p. 4. Численность и размещение гнездящихся околоводных птиц в водно-болотных угодьях Азово-Черноморского побережья Украины. Под ред. В.Д. Слюхин / Wetland International Киев. 2000. 476 с. 5. Birds in Europe: Population Estimates, Trends and Conservation Status. BirdLife Conservation Series 12; 2004. 374 p.

Breeding short-term trend: 1. Directory of Azov – Black Sea Coastal Wetlands / Ed. By G. Marushevsky – Kyiv, 2003, Wetland International, 235 p. 2. Directory of Ukraine's Wetlands / Ed. By G. Marushevsky & I. Zarak. – Kyiv, 2006, Wetland International Black Sea Programme. - 312 с. 3. Birds in Europe: Population Estimates, Trends and Conservation Status. BirdLife Conservation Series 12; 2004. 374 p. 4. Rusev I.T. Status of the Pygmy Cormorant (*Phalacrocorax pygmaeus*) in the Dniester delta // Ornithological research priorities. – Lviv. - 2003. – P.167- 168.

Breeding long-term trend: 1. Tucker G.M., Heath M.F. Birds in Europe: their conservation status. - Cambridge. U.K. Bird Life Conservation Series №. 3. 1994. 600 p. 2. Hagemajjer W.J.M., Blair M.J. The EBCC Atlas of European Breeding Birds: Their Distribution and Abundance. Poyser. - London. 1997. 903 p. 3. Heath M.F., Evans M.I. Important birds areas in Europe. Priority sites for conservation. // Southern Europe. BirdLife International. - Cambridge. Vol.2., 2000. P. 691-724. 4. Численность и размещение гнездящихся околоводных птиц в водно-болотных угодьях Азово-Черноморского побережья Украины. Под ред. В.Д. Слюхин / Wetland International Киев. 2000. 476 с. 5. Горбань І. Оцінка чисельності гніздових птахів України. Вісник Львівського університету. Серія біологічна. Випуск 34. 2003. с. 147 – 158. 6. Rusev I. Status of the Dniester delta cormorants populations // Abstract of 6 International Conference on cormorant. – 10-14 september 2003. – Odessa. – Ukraine. – 2003. – P.75-82. 7. Rusev I.T. Status of the Pygmy Cormorant (*Phalacrocorax pygmaeus*) in the Dniester delta // Ornithological research priorities. – Lviv. - 2003. – P.167- 168. 8. Directory of Ukraine's Wetlands / Ed. By G. Marushevsky & I. Zarak. – Kyiv, 2006, Wetland International Black Sea Programme. - 312 с.

Winter population size: 1. Русев И.Т., Корзюков А.И., Сацык С.Ф. Мониторинг зимующих птиц в Северо-Западном Причерноморье в 1999 г. Сб. Зимние учеты птиц на Азово-Черноморском побережье Украины, Алушта-Киев, 1999, выпуск 2, С.46-60. 2. Heath M.F., Evans M.I. Important birds areas in Europe. Priority sites for conservation. // Southern Europe. BirdLife International. - Cambridge. Vol.2., 2000. P. 691-724. 3. European birds populations; Estimates and trends Compiled by M. Heath, C. Borggreve, N. Peet, W. Hagemajjer/ BirdLife International/EBCC. 2000. Cambridge, UK: BirdLife Conservation Series N10, 160 p. 4. Birds in Europe: Population Estimates, Trends and Conservation Status. BirdLife Conservation Series 12; 2004. 374 p. 5. Горбань І. Розміри популяцій зимуючих птахів України. Вісник Львівського університету. Серія біологічна. Вип. 35. 2004. С.23-39. 6. Directory of Ukraine's Wetlands / Ed. By G. Marushevsky & I. Zarak. – Kyiv, 2006, Wetland International Black Sea Programme. - 312 с. 7. Бескаравайный М.М. Птицы морских берегов Южного Крыма. Симферополь. «Н.Орианда», 2008. 160 с. 8. Kostyushyn V., Andryuschenko Yu., Goradze I., Abuladze A., Mamuchadze J., Erciyas K. Wintering Waterbird Census in the Azov – Black Sea Coastal Wetlands of Ukraine, Georgia, and Turkey. – Wetlands International Black Sea Program. – 2011. – 130 pp.

Microcarbo pygmaeus (Pygmy Cormorant)

Ukraine

Winter short-term trend: 1. Русев И.Т., Корзюков А.И., Сацык С.Ф. Мониторинг зимующих птиц в Северо-Западном Причерноморье в 1999 г. Сб. Зимние учеты птиц на Азово-Черноморском побережье Украины, Алушта-Киев, 1999, выпуск 2, С.46-60. 2. Heath M.F., Evans M.I. Important birds areas in Europe. Priority sites for conservation. // Southern Europe. BirdLife International. - Cambridge. Vol.2., 2000. P. 691-724. 3. European birds populations; Estimates and trends Compiled by M. Heath, C. Borggreve, N. Peet, W. Hagemeyer/ BirdLife International/EBCC. 2000. Cambridge, UK: BirdLife Conservation Series N10, 160 p. 4. Birds in Europe: Population Estimates, Trends and Conservation Status. BirdLife Conservation Series 12; 2004. 374 p. 5. Горбань І. Розміри популяцій зимуючих птахів України. Вісник Львівського університету. Серія біологічна. Вип. 35. 2004. С.23-39. 6. Directory of Ukraine's Wetlands / Ed. By G. Marushevsky & I. Zaruk. – Kyiv, 2006, Wetland International Black Sea Programme. - 312 с. 7. Бескаравайный М.М. Птицы морских берегов Южного Крыма. Симферополь. «Н.Орианда», 2008. 160 с. 8. Kostiusyn V., Andryuschenko Yu., Goradze I., Abuladze A., Mamuchadze J., Erciyas K. Wintering Waterbird Census in the Azow – Black Sea Coastal Wetlands of Ukraine, Georgia, and Turkey. – Wetlands International Black Sea Program. – 2011. – 130 pp.

Winter long-term trend: 1. Русев И.Т., Корзюков А.И., Сацык С.Ф. Мониторинг зимующих птиц в Северо-Западном Причерноморье в 1999 г. Сб. Зимние учеты птиц на Азово-Черноморском побережье Украины, Алушта-Киев, 1999, выпуск 2, С.46-60. 2. Heath M.F., Evans M.I. Important birds areas in Europe. Priority sites for conservation. // Southern Europe. BirdLife International. - Cambridge. Vol.2., 2000. P. 691-724. 3. European birds populations; Estimates and trends Compiled by M. Heath, C. Borggreve, N. Peet, W. Hagemeyer/ BirdLife International/EBCC. 2000. Cambridge, UK: BirdLife Conservation Series N10, 160 p. 4. Birds in Europe: Population Estimates, Trends and Conservation Status. BirdLife Conservation Series 12; 2004. 374 p. 5. Горбань І. Розміри популяцій зимуючих птахів України. Вісник Львівського університету. Серія біологічна. Вип. 35. 2004. С.23-39. 6. Directory of Ukraine's Wetlands / Ed. By G. Marushevsky & I. Zaruk. – Kyiv, 2006, Wetland International Black Sea Programme. - 312 с. 7. Бескаравайный М.М. Птицы морских берегов Южного Крыма. Симферополь. «Н.Орианда», 2008. 160 с. 8. Kostiusyn V., Andryuschenko Yu., Goradze I., Abuladze A., Mamuchadze J., Erciyas K. Wintering Waterbird Census in the Azow – Black Sea Coastal Wetlands of Ukraine, Georgia, and Turkey. – Wetlands International Black Sea Program. – 2011. – 130 pp.

Bibliography

BirdLife International. 2004. *Birds in Europe: population estimates, trends and conservation status*. BirdLife International, Cambridge, U.K.

Crivelli, A.J., Nazirides, T., Catsadorakis, G., Hulea, D., Malakou, M., Marinov, M. and Shogolev, I. 2000. Status and population development of Pygmy Cormorant *Phalacrocorax pygmaeus* breeding in the Palearctic. In: Yesou, P. and Sultana, J. (ed.), *Monitoring and conservation of birds, mammals and sea turtles in the Mediterranean and Black Seas: Proceedings of the 5th Medmaravis Symposium, Gozo, Malta, 29 September - 3 October 1998*, pp. 49-60. Environment Protection Department, Valetta.

Eken, G. and Magnin, G. 1999. *A preliminary biodiversity atlas of the Konya Basin, Central Turkey*. Dogal Hayat Koruma Dernegi, Istanbul.

Johnsgard, P.A. 1993. *Cormorants, darters, and pelicans of the world*. Smithsonian Institution Press, Washington.

Kazantzidis, S. and Nazirides, T. 1999. *National Action Plan for the Pygmy Cormorant (Phalacrocorax pygmaeus)*, Pallas 1993. WWF/HOS/Society for the Protection of Prespes, Athens.

Nelson, J.B. 2005. *Pelicans, cormorants and their relatives*. Pelecanidae, Sulidae, Phalacrocoracidae, Anhingidae, Fregatidae, Phaethontidae. Oxford University Press, Oxford, U.K.

Orta, J., Christie, D.A., Jutglar, F., Garcia, E.F.J. and Kirwan, G.M. 2014. Pygmy Cormorant (*Microcarbo pygmaeus*). In: del Hoyo, J., Elliott, A., Sargatal, J., Christie, D.A. and de Juana, E. (eds.) 2014. *Handbook of the Birds of the World Alive*. Lynx Edicions, Barcelona

Žydelis, R., Small, C. and French, G., 2013. The incidental catch of seabirds in gillnet fisheries: A global review. *Biological Conservation* 162: 76–88.