



NATIONAL REPORTS FROM THE 2012  
BREEDING CENSUS OF GREAT CORMORANTS  
*PHALACROCORAX CARBO*  
IN PARTS OF THE WESTERN PALEARCTIC  
IUCN/Wetlands International Cormorant Research Group Report

Technical Report from DCE – Danish Centre for Environment and Energy

No.22

2013



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- Abstract: This report compiles national reports from 23 European countries where a total of 755 breeding colonies of Great Cormorants *Phalacrocorax carbo* were monitored in 2012. Each national presentation includes a description of the total size of the breeding population and the numbers, sizes and distribution of the breeding colonies. Information is also given about the extent of human intervention in breeding colonies.
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## Preface and acknowledgements

This report presents the first results from the project 'Cormorant counts in the Western Palearctic'. The project has been conducted as a collaboration between the European Commission project 'Sustainable management of Cormorant populations' (with the acronym 'CorMan'), the IUCN/Wetlands International Cormorant Research Group and relevant national organizations, institutions and individual key persons.

The overall objective of the project has been to organize surveys of the breeding and wintering populations of Great Cormorants *Phalacrocorax carbo* in the Western Palearctic. The focus has been on the continental subspecies of the Great Cormorant *P. c. sinensis*.

In a first step the size and distribution of the breeding population of Great Cormorants was monitored in 31 countries in 2012 (though one country only monitored in 2011).

This report is a collection of national reports from 23 of the participating countries. In these countries a total of approximately 700 people counted nests in 755 breeding colonies located throughout most of Europe.

A second report will include additional national reports and a description of the overall results and trends in numbers and distribution based on a comparison with the previous Pan-European count of breeding colonies, organized by the IUCN/Wetlands International Cormorant Research Group in 2006.

More information about the project 'Cormorant counts in the Western Palearctic', the EC project 'CorMan' and former counts organized by the Cormorant Research Group can be found at:

- <http://www.cormocount.eu/>
- <http://ec.europa.eu/environment/nature/cormorants.htm>
- <http://cormorants.freehostia.com/index.htm>

The success in achieving the objectives of the counts has depended entirely on the commitment from the National Coordinators and their counting teams, of which many have been highly motivated volunteers. Therefore, we warmly thank them for their valuable contribution. We would also like to acknowledge the contribution from the National Coordinators who found the time to collaborate with us in preparing the country by country presentations included in this report.

We are pleased that the European Commission was able to collaborate with The IUCN/Wetlands International Cormorant Research Group and the individual countries through the EC funded 'CorMan' project. The CorMan project facilitated meetings in the Counts Steering Group, communication, organization of count results and collation of the reporting from the individual countries.

## Summary

This report is a compilation of national reports from 23 of the countries that conducted national surveys of the sizes and distribution of breeding colonies of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic in 2012 (though one country covered only in 2011). The national surveys were conducted in coordination with the Pan-European project '*Cormorant counts in the Western Palearctic*', which is a collaborative project between the IUCN/Wetlands International Cormorant Research Group and the European Commission project 'CorMan' contracted by Aarhus University, Denmark and the Centre for Ecology and Hydrology, United Kingdom.

The count project provided support and guidance on methods of how to monitor the breeding colonies and developed a web-based tool for entering results and denoting locations of breeding colonies by use of Google Maps. The coordinators from the overall project were responsible for establishing and maintaining contact with national coordinators in each of the participating countries.

The results presented here are based on nest counts in 755 breeding colonies. For all the countries, except for Iceland, the monitored breeding birds belong to the continental subspecies *P. c. sinensis*. The birds breeding in Iceland belongs to the nominate subspecies *P. c. carbo*. Each of the national presentations includes descriptions of the total size of the breeding population and presents information about numbers, sizes and distribution of breeding colonies. Information includes the extent of human intervention in the breeding colonies.

The countries included in the present report had the following numbers of occupied nests and colonies, given in order of descending numbers of breeders: Sweden - 40,598 nests in 169 colonies; Denmark - 27,237 nests in 64 colonies; Poland - 26,600 nests in 54 colonies; Germany - 22,550 in 150 colonies; Finland - 17,208 nests in 40 colonies; Estonia - 13,000 in 18 colonies; Greece - 6,978 nests in 13 colonies; Iceland - 4,772 nests in 49 colonies; Russian part of the Gulf of Finland - 4,605 nests in 7 colonies; Italy - 3,914 nests in 48 colonies; Belarus - 3,250 nests in 20 colonies; Lithuania - 3,200 nests in 6 colonies; Latvia - 3,106 nests in 9 colonies; Bulgaria - 2,775 nests in 15 colonies; Norway - 2,500 nests in 14 colonies; Serbia - 2,000 nests in 15 colonies; Spain - 1,605 nests in 21 colonies; Belgium - 1,584 nests in 28 colonies; Croatia - 1,331 nests in 2 colonies; Montenegro - 1,156 nests in 1 colony; Switzerland - 1,037 nests in 13 colonies; Bosnia and Herzegovina - 154 nests in 2 colonies; Austria - 65 nests in 3 colonies. No cormorants were recorded breeding in Portugal, Luxembourg and Slovenia in 2012.

The IUCN/Wetlands International Cormorant Research Group will, together with the CorMan project, publish a second report before the end of 2013. The second report will present an overview of all the results from the breeding counts and it will include a comparison with results from a Pan-European survey of breeding colonies in 2006. The second report will also include national reports from countries that were unable to meet the deadline for the present report or had to postpone their survey of breeding colonies to 2013.

## Introduction

There continues to be considerable interest in Great Cormorants and their numbers in the Western Palearctic area. This is partly due to the fact that increasing populations of the continental subspecies *Phalacrocorax carbo sinensis* is considered a pressure on fisheries, aquaculture and angling activities. The interactions between the birds' activities and human interests have created various types of social and socioeconomic conflicts. On the basis of the concerns from the various social and economic sectors affected, the European Parliament requested the European Commission to take action.

A basic understanding of the status, trends and distribution of the Great Cormorant throughout the Member States is fundamental to resolving management and conflict issues within the European Union. Based on this, the Commission decided as one of its actions to hire a contractor to collaborate with the IUCN/Wetlands International Cormorant Research Group and the individual countries, in order to monitor the breeding and wintering population of cormorants in Europe. It was decided that determining the population size and distribution of the continental subspecies *P. c. sinensis* should be given priority.

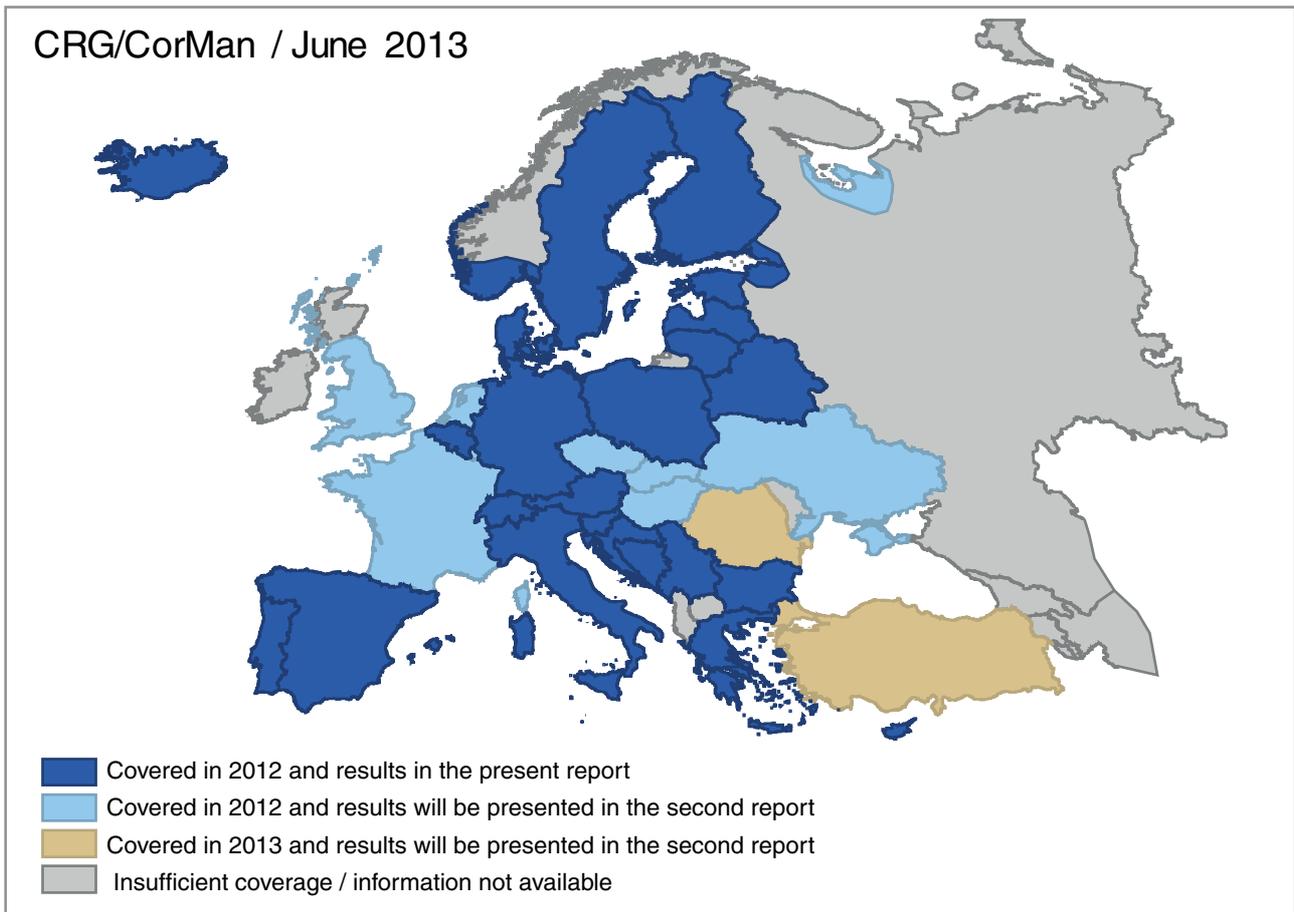
For these reasons, the IUCN/Wetlands International Cormorant Research Group (hereafter referred to as the Cormorant Research Group) has collaborated with the European Commission project 'CorMan' through its contractor, Aarhus University and the Centre for Ecology and Hydrology. The Cormorant Research Group and the EC contractors formed a specific count project '*Cormorant counts in the Western Palearctic*' and subsequently contacted a large number of organizations, institutions and key persons in countries throughout the Western Palearctic.

The count project has been led by representatives from the Cormorant Research Group and the EC contractor. It provided support and guidance for all countries participating on how to organize and monitor the breeding colonies and the winter night roosts so that by the end of the project finally all results obtained can be aggregated on a Pan-European level (for details, see <http://www.cormocount.eu/instructions.aspx>). A project home page and a web-based tool offering facilities for entering count results directly and denoting the location of the counted site using Google Maps were also developed. Coordinators from the overall project were responsible for establishing and maintaining contact with national coordinators in each country (<http://www.cormocount.eu/instructions/area-coordinators.aspx>).

After the counting season, all national coordinators provided information on a national level for their country about a) coverage, b) numbers of colonies/roosts counted, c) total numbers of nests/birds counted and d) best estimate of total numbers in case coverage was incomplete.

This report presents the first results of the monitoring of the breeding population that took place in spring and summer of 2012.

All countries monitored their breeding population by identifying all the sites that had breeding colonies and by counting all nests occupied by breeders.



**Figure 1.** Overview of the countries where breeding colonies of Great Cormorants were counted in relation to the project 'Cormorant counts in the Western Palearctic'. For the majority of countries, coverage of all breeding colonies were obtained in 2012. Most of these countries describe their results in the present report. For the other countries, not included in the present report but counted in 2012 (England-Wales, The Netherlands, France, Czech Republic, Slovakia, Hungary, Ukraine), results will be presented in the second report. The second report will also include results from countries where counts of the most important colonies took place only in 2013 (Romania, Turkey). The coverage of coastal breeding colonies with breeders of the subspecies *P. c. carbo* was far from complete in Ireland, United Kingdom and Norway. For some countries with breeding colonies of the subspecies *P. c. sinensis* (Albania, FYRO Macedonia, Moldova, parts of Russia, Georgia, Armenia, Azerbaijan), we have incomplete or no information about breeding numbers in 2012 or 2013.

Most colonies were counted once around the time of the season when nest numbers were at their maximum. The precision of the counts was generally high, because the locations of the majority of the breeding sites were known in advance. Furthermore, in many of the colonies the nests were fairly easily counted. Though for a minority of breeding colonies it was necessary to estimate the number of occupied nests as it was impossible to count all the nests present, e.g. because of insufficient visibility from the observation points. Due to a lack of personnel to cover all relevant breeding sites, some countries had to supplement the results from their 2012 count with information collected in 2010 and/or in 2011.

The majority of the countries were able to provide a complete report from their counts before the deadline of the present report (March 2013), whereas a few countries were in need of more time to retrieve data from certain countries and/or to verify the correctness of all their count results.

The present report includes national reports from 23 countries based on nest counts in 755 breeding colonies by more than 700 people. The national

presentations include descriptions of the total size of the breeding population and presents information about numbers, sizes and distribution of breeding colonies. Information is also given about the extent of human intervention in the breeding colonies.

Some of the countries have published results of their counts in journals, newsletters or in reports after the end of the count. References and/or links to some of these more detailed descriptions are given at the end of each national report.

The Cormorant Research Group will together with the CorMan project publish an update of this breeding report before the end of 2013. This second report will present a complete overview of all the results from all countries participating in the breeding count project and it will also include a comparison with results from a similar Pan-European survey of breeding colonies organized by the Cormorant Research Group in 2006 (IUCN/Wetlands International Cormorant Research Group 2008, Bregnballe et al. 2011). The coming report will also include national reports from countries that were unable to meet the deadline for the present report or had to postpone their survey of breeding colonies to 2013.

## References

IUCN/Wetlands International Cormorant Research Group 2008: Cormorants in the western Palearctic. – Leaflet.

[http://ec.europa.eu/environment/nature/cormorants/files/Leaflet\\_CRG\\_Count\\_2003-2006.pdf](http://ec.europa.eu/environment/nature/cormorants/files/Leaflet_CRG_Count_2003-2006.pdf)

Bregnballe, T., V. Stefano, M.R. van Eerden, S. van Rijn & Lorentsen, S.-H. 2011: Status of the breeding population of Great Cormorants *Phalacrocorax carbo* in the Western Palearctic in 2006. – Pages 8-20 in: Proceedings 7th International Conference on Cormorants, Villeneuve, Switzerland November 2005. van Eerden, M.R., S. van Rijn & V. Keller (eds). Wetlands International-IUCN Cormorant Research Group. Available through:

<http://cormorants.freehostia.com/index.htm>

Unusual cliff breeding of Great Cormorants of the subspecies *P. c. sinensis*. West Sardinia, Italy 2011. Photo: Egidio Trainito.



# 1 Status of the breeding population of Great Cormorants in Austria in 2012

Rosemarie Parz-Gollner<sup>1</sup>, Thomas Zuna-Kratky<sup>2</sup>, Walter Niederer<sup>3</sup> & Erwin Nemeth<sup>4</sup>

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## To be cited as:

Parz-Gollner, R., T. Zuna-Kratky, W. Niederer & E. Nemeth, 2013: Status of the breeding population of Great Cormorants in Austria in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 10-13. <http://dce2.au.dk/pub/TR22.pdf>

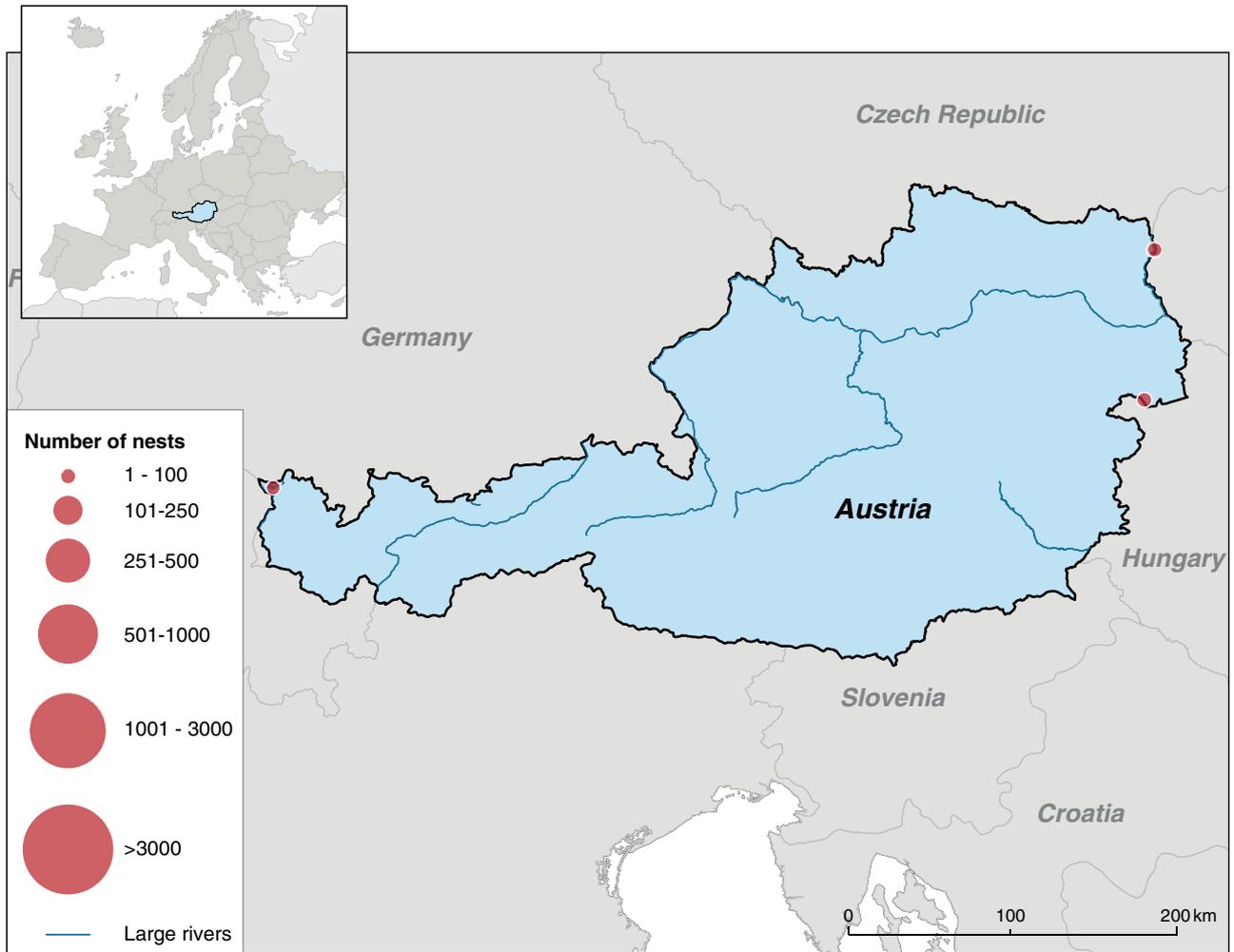
## National summary

In the summer of 2012, Austria had 65 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in a total of three colonies. For the second year in a row this shows a decrease in the number of occupied nests compared to 2011 (85 nests) and 2010 (170-180 nests). Complete coverage of all known breeders was obtained in the 2012 count.

## Distribution

The Great Cormorant disappeared as a breeding species in Austria due to a variety of factors including strong human persecution. In the years 2001 and 2003 respectively the Great Cormorant started to breed successfully again in two locations in Austria. In 2012 a third location was detected as a new breeding site. One of the three colonies with breeding cormorants in 2012 is located close to the national borders towards Germany and Switzerland in the west of the country and the two other colonies are located at the borders towards Slovakia and Hungary in the east of the country (Fig. 1.1).

The majority of cormorants were breeding in Droesing, in the north-eastern part of the state Lower Austria. Here cormorants nested within a Grey Heron (*Ardea cinerea*) colony in floodplain forests along the river March. This river forms the border between Austria and Slovakia. In the most western corner of Austria a small group of breeders were nesting on an island in the Fussacher Bucht at Lake Constance (state Vorarlberg). A third colony was located close to the Hungarian border in the east at Neusiedler See (Lake Neusiedl, state Burgenland).



**Figure 1.1.** Distribution and size of breeding colonies of Great Cormorants in Austria in 2012. Source: Nemeth & Dvorak (2012), Niederer (2012), Zuna-Kratky & Pöhacker (2012).

All three colonies are located within nature protected areas, designated either as a National Park area or Special Protected Areas (SPAs). Almost all breeding cormorants in Austria nest in trees. Only the small number of breeding pairs at Lake Neusiedl build their nests on the ground in reed beds close to Spoonbills (*Platalea leucorodia*) and Great White Egrets (*Casmerodius albus*).

### Colony size

The three cormorant breeding colonies in Austria contain 5, 11 and 49 occupied nests. The largest colony in Droesing, holding 49 pairs in 2012, was founded in 2003 when birds moved from a former colony in the floodplain area on the Slovakian side of the border to Austrian territory. After the colony was established, numbers fluctuated at around 50-60 pairs between 2006 and 2009 and the colony reached a peak with 121 pairs in 2010. During the following two years there was a strong decline in nests counted. The spring of 2012 was noticeable dry without the usual flooding of the surrounding wetlands. This may have had also negative effects on the food availability of the cormorants, and may have contributed to the decline in colony size (Zuna-Kratky & Pöhacker 2012).

Great Cormorant and Eurasian Spoonbill breeding in a mixed colony at Lake Neusiedl, Austria, May 2012. Photo: Nemeth Erwin.



The second colony, holding only 11 successful breeding pairs in 2012, is located in the Fussacher Bucht at Lake Constance (Niederer 2012). This colony was founded in 2001 and was the first record of a cormorant colony in Austria after extinction. The colony held 20 breeding pairs in 2002. Numbers increased to 60-80 pairs between 2003 and 2005 and reached 130-200 pairs in 2008.

A third colony with about five nests was discovered at Neusiedler See in 2012. Here cormorants are breeding within a mixed waterbird colony (see photo) on a large island covered with reed beds in the core area of the National Park (Nemeth & Dvorak 2012).

### **Human intervention in colonies**

Actions which target the breeding cormorants take place in one area, at the Fussacher Bucht, where conflicts with fisheries are intense. Almost since the establishment of the colony at the Fussacher Bucht at Lake Constance, conflicts with commercial fisheries have been an issue. Since 2004 fishermen have carried out various management actions to reduce the size of the breeding colony. Bird protection organizations have raised objections against these activities.

The main aim of these harassment actions is to reduce the number of cormorant breeding pairs to an upper limit of about 30-60 pairs. Actions include tree felling and shooting cormorants during the mating and breeding season to reduce the number of breeding pairs and to prevent the foundation of new nest sites along the lakeshore on Austrian territory. As a consequence of the severe interventions the number of breeding pairs in the Fussacher Bucht colony dropped from about 200 pairs in 2008 to zero in 2011 when the cormorants abandoned the colony. In the following year (2012) a small group of 11 successful breeders built nests in trees in a different place on the same islet. No disturbance or management is taking place in the other two breeding colonies in Austria.

## Acknowledgements

Data collection would not have been possible without the continued engagement and assistance of a well experienced team of dedicated field workers: Manuel Denner, Michael Dvorak, Dietmar Hollenstein, Robert Klein, Erwin Nemeth, Walter Niederer, Jakob Pöhacker, Martin Riesing, Alwin Schoenenberger, Werner Steiner and Thomas Zuna-Kratky.

## References and further information

Nemeth, E. & Dvorak, M. 2012: Bestandsentwicklung der Zwergscharbe (*Phalacrocorax pygmeus*) 2007-2011 und erster Brutnachweis des Kormorans (*Phalacrocorax carbo*) am Neusiedler See. – Vogelkundl. Nachrichten aus Ostösterreich 23: 14-15.

Niederer, W. 2012: Der Kormoran im Naturschutzgebiet Rheindelta. – Jahresbericht 2012. Naturschutzverein Rheindelta.

Zuna-Kratky, T. & Pöhacker, J. 2012: Die Situation der Fischfresser-Kolonien in den March-Thaya-Auen im Jahr 2012. – Bericht des AURING - Biolog. Station Hohenau - Ringelsdorf, Wien.

[www.auring.at/auring/](http://www.auring.at/auring/)

[www.birdlife.at](http://www.birdlife.at)

[www.bodensee-ornis.de](http://www.bodensee-ornis.de)

[www.rheindelta.com](http://www.rheindelta.com)

## 2 Status of the breeding population of Great Cormorants in Belarus in 2012

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<http://dce2.au.dk/pub/TR22.pdf>

### National summary

In 2012 the breeding population of Great Cormorants (*Phalacrocorax carbo sinensis*) in Belarus was estimated at 3,250 occupied nests. This is an increase of ca. 20% compared to 2005. Current estimates are based on almost full coverage in the 2012 count, where the majority of breeders were surveyed in known breeding areas. During the census 2,314 occupied nests (1,849-2,914 nests) were recorded in 20 colonies. Of these 20 colonies 14 were counted in the breeding season in 2012 and information about another five colonies was obtained from local people or during field investigations that took place after the end of the breeding season. For the long-living colony in the Chernobyl zone, we used data on breeding numbers collected in 2011. It was not possible to obtain complete coverage in 2012 as breeding took place in areas which were difficult to investigate and as well as within the Chernobyl zone.

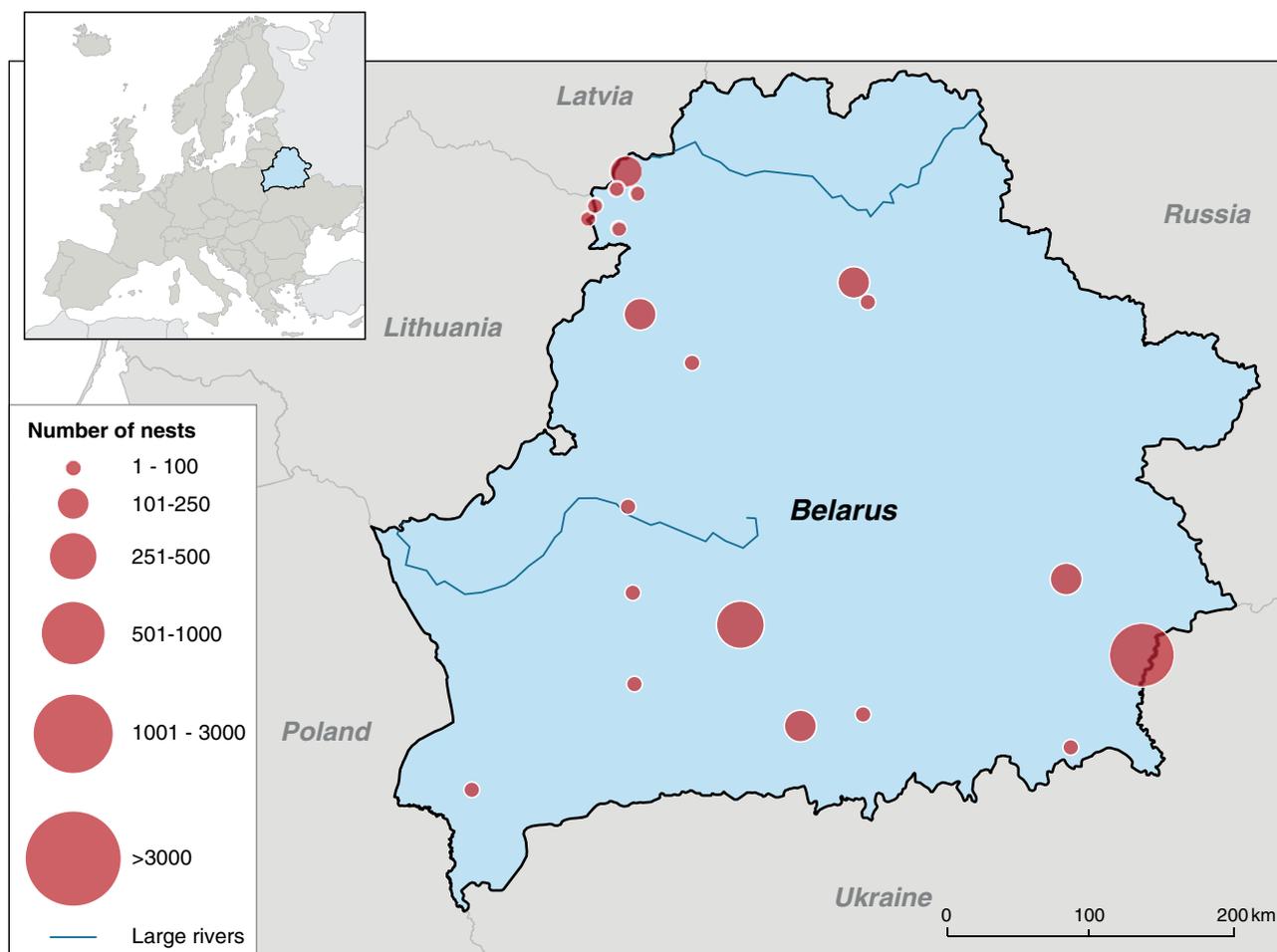
This Great Cormorant colony, located on an islet in a pond at the Krasnaya Sloboda fish farm, was destroyed 1-2 years before 2012, June 2009. Photo: Irina Samusenko.



## Distribution

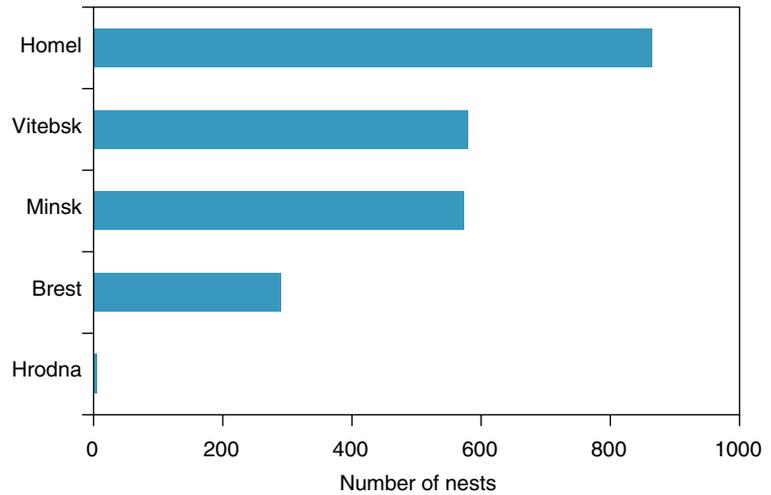
Cormorants are widely distributed across Belarus with breeding taking place in five out of the six provinces (Fig. 2.1). Over one third (37%) of the population was breeding in the south-eastern province of Homel (865 nests, four colonies). Both the central Minsk and the northern Vitebsk province contained approximately one quarter (25%) of breeders (Minsk 574 nests, four colonies; Vitebsk 580 nests, four colonies). The remaining breeders were found in the south-western Brest province (290 nests, 4 colonies) and the western province of Hrodna (5 nests, one colony) (Fig. 2.2).

Cormorants in Belarus bred exclusively in trees and shrubs, with more than half of all nests located above 5 m. The majority of cormorants bred on lakes and reservoirs (51%) and river floodplains (47%). A total of nine colonies (1,004 nests) were located on lakes with an area of more than 100 ha, while three colonies (180 nests) were located on smaller lakes. Cormorants nested in floodplains in three areas (750 nests in two colonies at Dnieper, 315 nests in three colonies at Pripjat, and 5 nests in a colony at Neman). A small percentage of breeders was found breeding at a fish farm (15 nests) and on a flooded bog after peat extraction (45 nests).



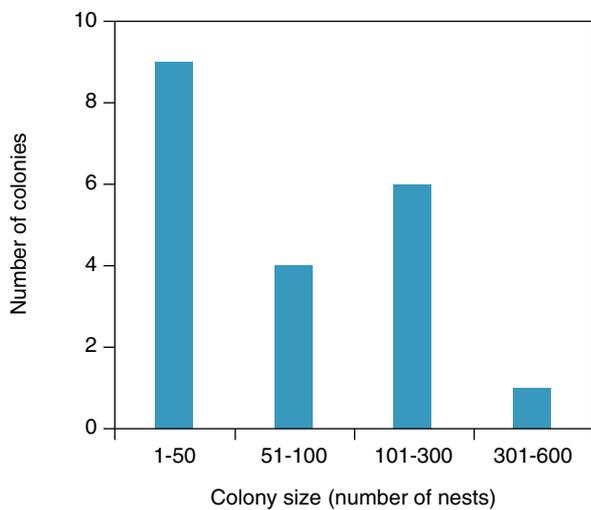
**Figure 2.1.** Distribution and size of breeding colonies of Great Cormorants in Belarus in 2012. Source: I. Samusenko, Institute of Zoology, NASB, Belarus.

**Figure 2.2.** Regional distribution of the breeding population of Great Cormorants in Belarus in 2012. Source: I. Samusenko, Institute of Zoology, NASB, Belarus.

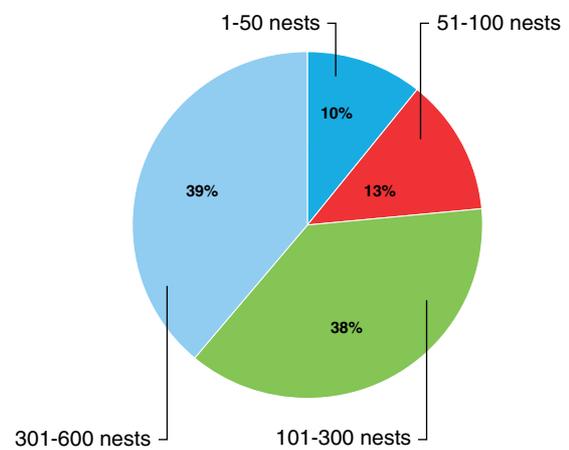


### Colony size

In 2012, the cormorant population in Belarus bred in 20 colonies. The largest colony contained over a quarter of the population (26%, 600 pairs) and was located in Dnieper river floodplain near the mouth of the river Sozh in the south-eastern province of Homel. Of the remaining 19 colonies, six colonies contained between 101 and 300 nests, four contained 51-100 nests and there were nine small colonies with less than 50 nests (Fig. 2.3). More than half of the breeding population (51%) was found in colonies with between 101 and 300 nests (Fig. 2.4).



**Figure 2.3** Size distribution of Great Cormorant colonies in Belarus in 2012. Source: I. Samusenko, Institute of Zoology, NASB, Belarus.



**Figure 2.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Belarus in 2012. Source: I. Samusenko, Institute of Zoology, NASB, Belarus.

### Human actions in colonies and other factors

Cormorants are considered game birds in Belarus and it is included in the list of so-called ‘undesirable animal species’ in the current edition of the Law on hunting management and hunting. Therefore regulation of cormorant

numbers is carried out according to hunting legislation. Hunters are allowed to eliminate such undesirable animals without special permission if they appear at their hunting grounds in the open season, and they can use any legal means of hunting allowed at that time of the year. During periods of the year when no hunting is allowed, a special license for specific hunting on undesirable animals can be obtained.

At fish farms, special cormorant elimination programs are implemented where the Ministry of Nature Resources and Environmental Protection permits shooting of cormorants throughout the year. Fish farm administrations pay a reward for each cormorant eliminated, and this increases the chances of keeping reliable records of the extent of culling. However, the only information about culling collected is the culling at fish farms. In 2011 a total of 9,833 birds were shot at 12 fish farms.

Cormorant management was carried out in 2012 in areas where conflicts with fisheries were intense: on fish ponds, areas with commercial fishing or in the vicinity. The main aims of the management are to reduce cormorant numbers in total, to reduce juvenile production and to avoid successful establishment of new colonies. Human disturbance affects almost all the colonies, but in varying degrees. Evaluating the impact of management actions is not possible as permission to carry out these measures is not required, except when hunters claim reward from fish farms. In general the majority of management actions are not officially registered or publicized. According to our estimates (taking into account the dynamics of known breeding colonies) there has been a significant increase in cormorant culling initiated by fish farms administrations, and the impact has increased in comparison with previous years.

In 2012 management was carried out in total at 11 colonies. This included four colonies in the Vitebsk region, three colonies in the Minsk region and two colonies in both the Brest and Homel regions. Shooting of adult cormorants took place in nine colonies in 2012. In four such colonies there was very intense shooting in spring during the first half or the breeding period, in other five colonies cormorants were shot periodically, and much less intensively. In four colonies in the Vitebsk region mainly cormorant nests were destroyed. In one colony in the Brest region, eggs were removed from nests, while in two colonies in the Brest and Vitebsk region, nestlings were killed. In more than half of all known colonies breeders were scared away from their nests by fishermen, hunters etc.

Illegal actions took place in at least one colony in 2012. At Lukoml lake in the northern province of Vitebsk several dozen juvenile cormorants had upper mandible removed. As a result the juveniles were unable to feed and most of them were caught and culled by local nature conservation inspectorate or slowly died of starvation. This illegal action was investigated by the Ministry of Environment and other governmental authorities. The person responsible for the mistreatment of cormorants has been fined under the law.

Starting from 2012, amendments to the current Law on hunting management and hunting are being discussed. It is expected, that the term "undesirable animal species" will be excluded from the law, and regulation of cormorants will be implemented in two ways: on the territory of the fish farms according to the old practice and using common approaches to regulation of any species, as allowed by the Law on protection of wild animals, when special permission

for a concrete number of animals is issued by Ministry of Environment to individual game managers based on scientific justification and their request.

## Acknowledgements

I would like to thank all people who took part in field studies: Ivan Bogdanovich, Yaugen Slizh, Dmitry Zhuravliov, Maxim Koloskov, Egor Korzun, Vitaly Koshcheev, Viktor Fenchuk, Nikolay Lavnikovich, Vasily Gritschik, Pavel Pinchuk, Oleg Ostrovsky, Nikolay Yakovets, Marina Dmitrenok, Yeugenia Lutchik, Alexander Zyatikov, Oleg Pareiko, Valery Yurko, Viktor Demianchik. Thanks also to Thomas Bregnballe and Jennifer Lynch for the help in preparation of this review – useful comments and producing of map and figures.

At the national level, the census was coordinated by the Institute of Zoology (The State scientific and production amalgamation “Scientific and practical centre of the National Academy of Sciences of Belarus for biological resources”). APB-Bird Life Belarus was also involved in the census (technical and information support). Field-work activities were financially supported by IUCN/Wetlands International Cormorant Research Group and the EC initiative *CorMan* who coordinated the project ‘Great Cormorant counts in the Western Palearctic’.

## References and further information

Samusenko, I.E. 2012: Current status and population dynamics of Great Cormorant in Belarus – Proc. of II int. Conf. “The problems of biodiversity conservation and use of biological resources”, Minsk, 22-26 October 2012. Minsk. P. 216-219. (In Russian).

<http://birdwatch.by/sites/default/files/Samusenko%202012.pdf>

<http://www.birdwatch.by/news/5249>

The author counting nests in the oldest Great Cormorant colony in Belarus, Lan River Mouth, Pripyat River floodplain, July 2008. Photo: Oleg Pareiko.



### 3 Status of the breeding population of Great Cormorants in Belgium in 2012

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#### To be cited as:

Devos, K. & Paquet, J-Y., 2013: Status of the breeding population of Great Cormorants in Belgium in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 19-22. <http://dce2.au.dk/pub/TR22.pdf>

#### National summary

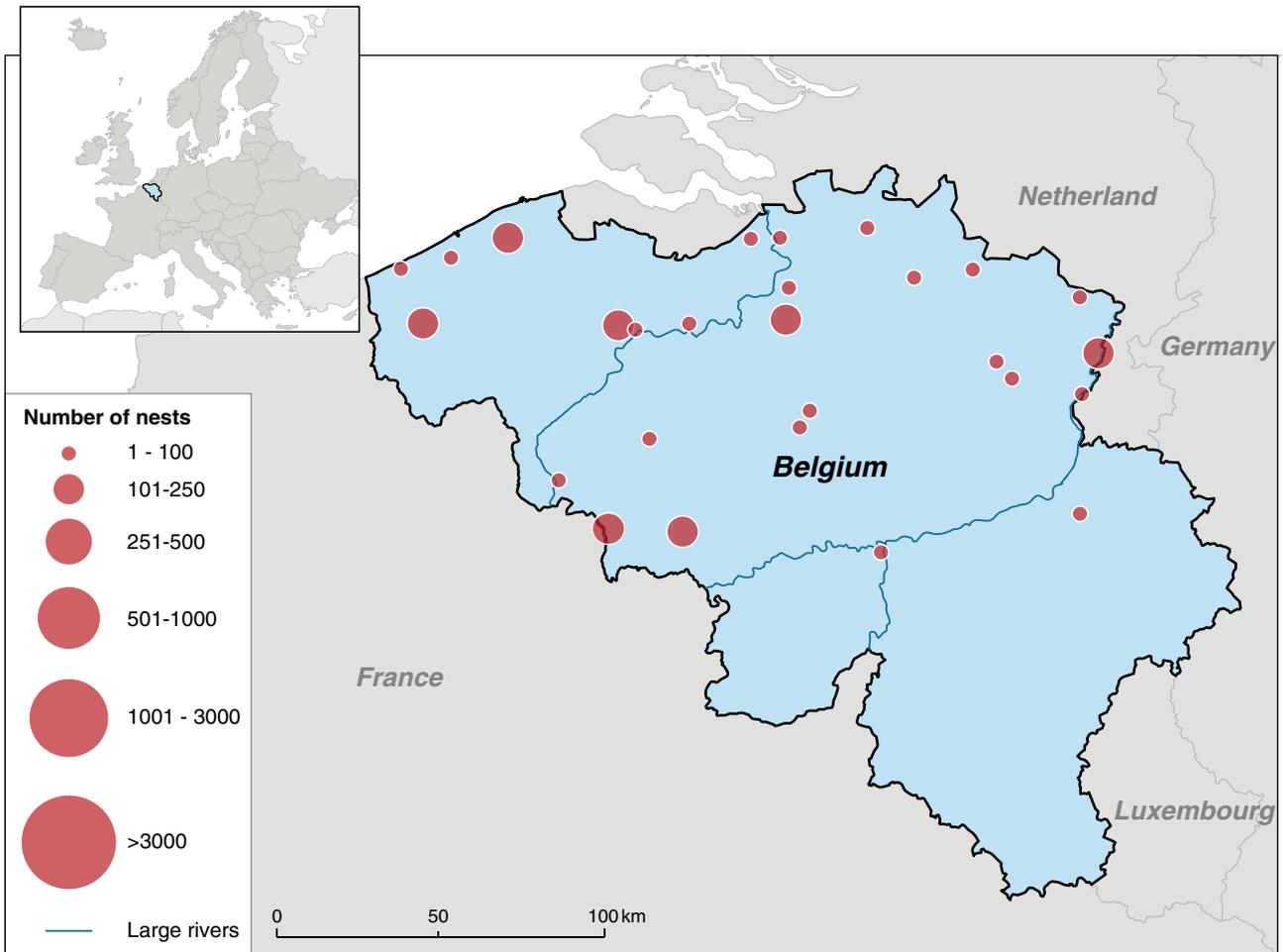
In 2012, Belgium had 1,584 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in a total of 28 colonies. Count coverage is considered complete. The breeding population re-established itself in 1992 and a rapid increase in breeding numbers was seen between 1992 and 2005 (Devos 2011, Jenard et al. 2010). Since 2006 breeding numbers have been stable.

#### Distribution

Colonies are mostly found in the low-lying northern and western parts of the country (Fig. 3.1). Almost three quarters of all breeding pairs were located in five provinces in the Flemish region (1,146 nests, 72%) (Fig. 3.2), with the remainder found in three provinces in the Wallonia region (438 nests, 28%). Almost all pairs were found breeding in trees. A few pairs were using a cliff in an old quarry.

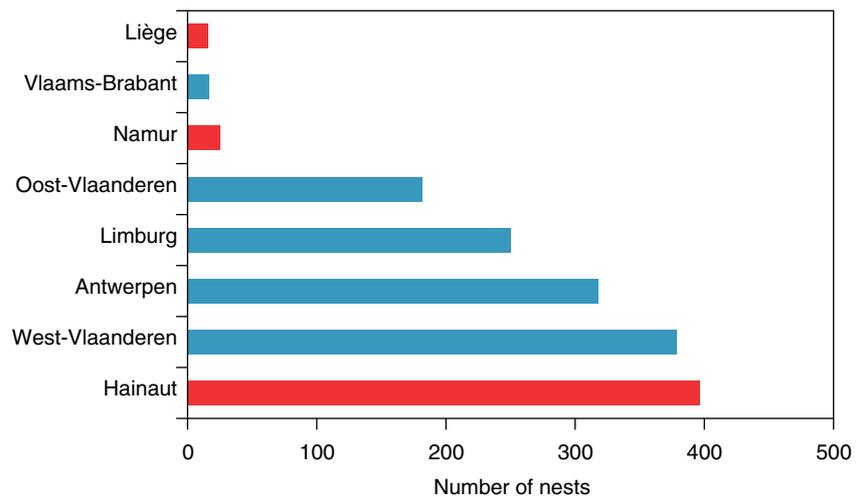
#### Colony size

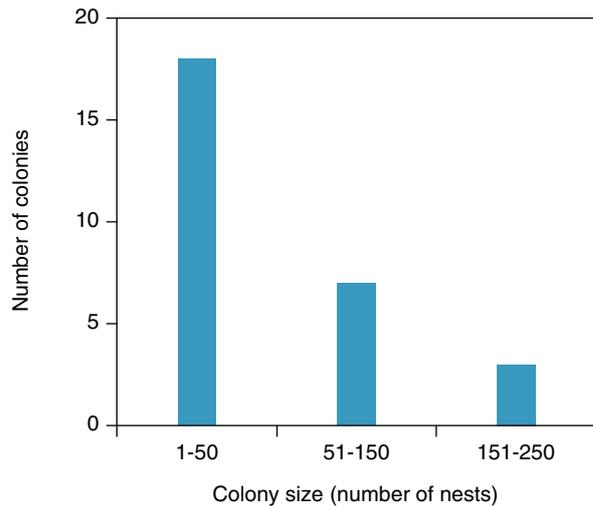
There were 28 breeding colonies in Belgium in 2012. The largest colony housed 213 pairs and was located in the Hensies marshes, the only Ramsar site in Wallonia. Only three colonies contained more than 150 nests in 2012 (Fig. 3.3) and these three colonies contained ca. one third of the population (Fig. 3.4). Over half of all colonies had less than 50 breeding pairs and contained only 21% of the national population.



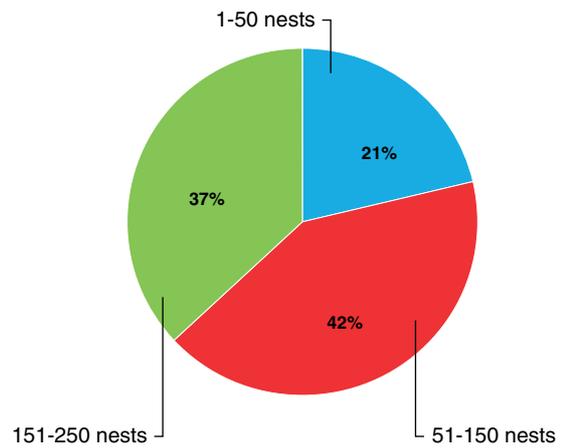
**Figure 3.1.** Distribution and size of breeding colonies of Great Cormorants in Belgium in 2012.

**Figure 3.2.** Regional distribution of the breeding population of Great Cormorants in Belgium in 2012. Regions in Flanders displayed in blue and Wallonia displayed in red.





**Figure 3.3.** Size distribution of Great Cormorant colonies in Belgium in Belgium in 2012.



**Figure 3.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Belgium in 2012.

### Human intervention in colonies

Management is currently not carried out in colonies. Most colonies are located in areas with a protected status or in private areas (e.g. quarry). In 2012, one small colony was heavily disturbed after a legal shooting of adult cormorants occurred on the nearby river (breeding success was close to 0 in this particular colony).

### Acknowledgements

The following observers contributed to the 2012 colony count: Philippe Jenard, Marcel Moncousin, Vincent Leirens, Francis Pourignaux, Jean-Pierre Reginster, Paul Van Damme, Frank De Scheemaeker, Jozef Van Steenkiste, Paul Lingier, Geert Spanoghe, Joris Everaert, Wouter Faveyts, Ludo Benoy, Alain Reygel, Jef Sas, Marc Lodewijckx, Carlo Vanderydt, Gerrit Stockx, Ingrid Nel, Kris Van Scharen, Jan Gabriëls and Peter Gabriëls.

### References and further information

Devos K., 2011. Populatieontwikkeling van Aalscholvers in Vlaanderen, periode 2009-2011. Vogelnieuws INBO 16: 4-9.

Jenard, P., Moncousin, M., Pourignaux, F. & Paquet, J.Y. (2010): Grand Cormoran, *Phalacrocorax carbo*. in Jacob, J.P., Dehem, C., Burnel, A., Dambiermont, J.L., Fasol, M., Kinet, T., Van der Elst, D. & Paquet, J.Y.: Atlas des oiseaux nicheurs de Wallonie 2001-2007. Série "Faune - Flore - Habitat" n°5. Aves et Région Wallonne, Gembloux: 156-157.



A few pairs of Great Cormorant breeding on a cliff created by extracting activities in a stone quarry in western Belgium. It is rare to find Great Cormorants of the subspecies *P. c. sinensis* breeding on cliffs. Photo: Marcel Moncousin.

## 4 Status of the breeding population of Great Cormorants in Bosnia and Herzegovina in 2011

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### To be cited as:

Sjeničić, J. & Kotrošan, D. 2013: Status of the breeding population of Great Cormorants in Bosnia and Herzegovina in 2011. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 23-25. <http://dce2.au.dk/pub/TR22.pdf>

### National summary

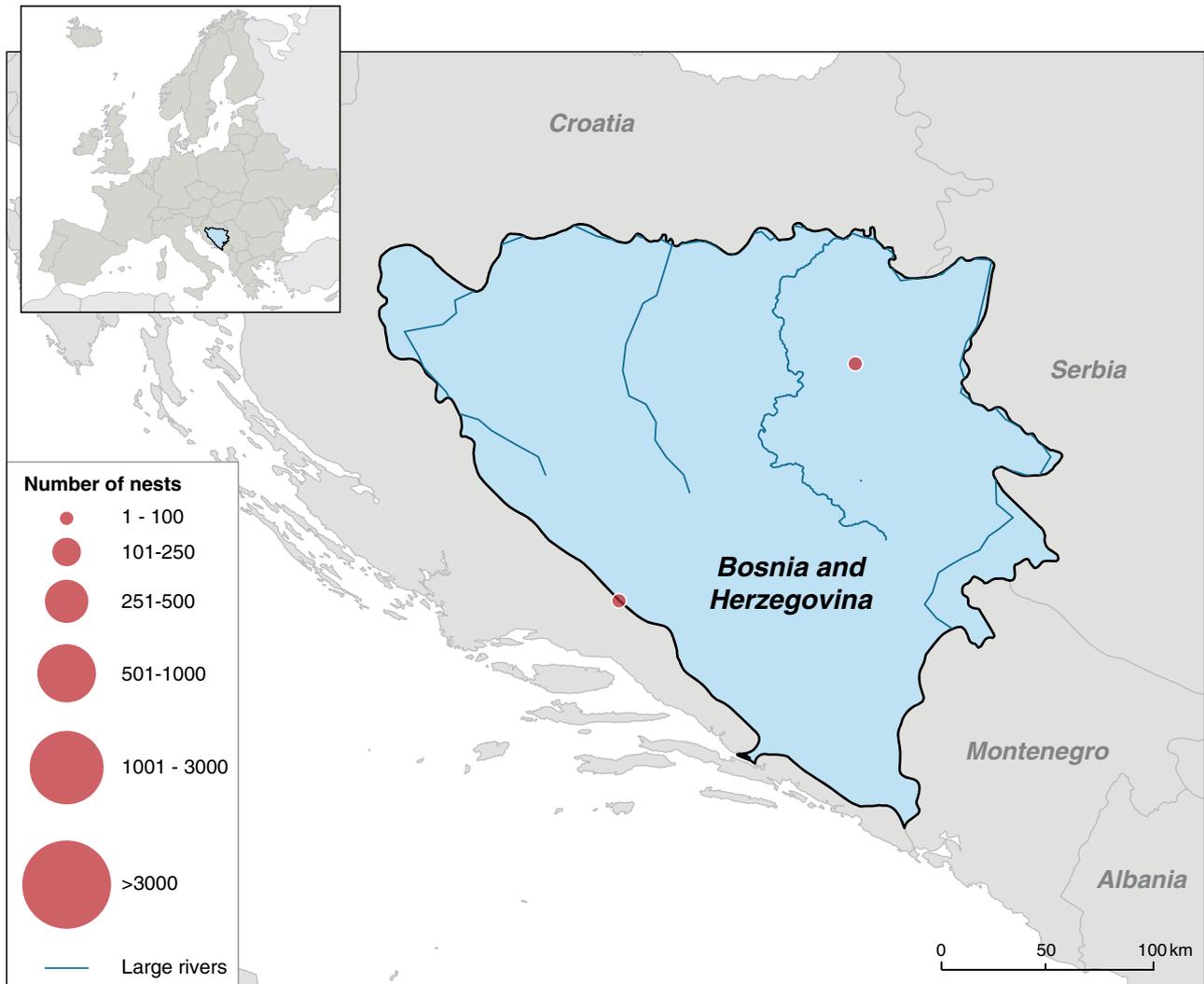
In 2011, Bosnia and Herzegovina had an estimated 154 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in two colonies. The 2011 survey visited sites where breeding colonies of cormorants were reported in previous years (between 2005 and 2010). The breeding population was not surveyed in 2012, but a count will take place in 2013.

### Distribution

In the 1970's the first breeding cormorants were reported in Bosnia and Herzegovina but these nesting sites quickly disappeared. By the end of the 20th century, colonies disappeared at Hutovo Blato and Bardača and cormorants were declared a nationally extinct species. Since 2005 cormorants have been surveyed as a part of regular ornithological research. Between 2006 and 2010, cormorants were breeding at three locations in Bosnia and Herzegovina. At Hutovo Blato, cormorants began breeding again in 2008, when five nests were recorded.

In 2011 breeding took place in two locations in Bosnia and Herzegovina (Fig. 4.1). The largest colony was located in north-western Bosnia at Prokosovići on Modrac Lake and was estimated to have between 120-150 occupied nests (108 nests counted). Additionally, visibility was limited during the colony count due to dense tree cover. The nests were located in the tree tops among a Grey Heron (*Ardea cinerea*) colony. The information available suggests that the colony was established in 2003, but nests were not counted until 2010 when 80 nests were recorded.

The second colony was located in northern Herzegovina (Buškolake) and contained four nests. The nests were located in tree tops near the edge of the lake. According to the information available, this colony was founded in 2009.



**Figure 4.1.** Distribution and size of breeding colonies of cormorants in Bosnia Herzegovina in 2011. Source: J. Sjeničić, Ornitološkodruštvo 'Našepce'.

### Human intervention in colonies and other factors

In the period from 2002-2009 cormorants were protected from shooting by hunting laws adopted in Bosnia and Herzegovina. Legal protection of cormorants prohibits deliberate killing. Despite this, cormorants are killed across Bosnia and Herzegovina, especially in fish pond areas, but as far as we know, no actions took place in the breeding colonies in 2011. However, human interference in cormorant colonies has been recorded in areas where commercial or sport fishing is popular. On Modrac Lake, apart from direct conflicts with fishermen, harassment with speedboats and other motor boats was recorded. The colony at Buško Lake is exposed to disturbance due to its location in the vicinity of the beach and bathers.

Culling of adult birds takes place in Bosnia and Herzegovina but there are no records of numbers culled. We have records of cases of cormorants being shot in Central Bosnia (Visoko), Northern Bosnia (Modriča, Čelinac), Western Bosnia (Šipovo) and North-East Bosnia (Tuzla). In most cases a single cormorant was found shot. The only exception was in Visoko where four cormorants were found shot.

## Acknowledgements

We thank to Ilhan Dervović, Ena Hatibović, Dejan Kulijer, Mato Gotovac and Andrija Vrdoljak who participated in gathering the data.

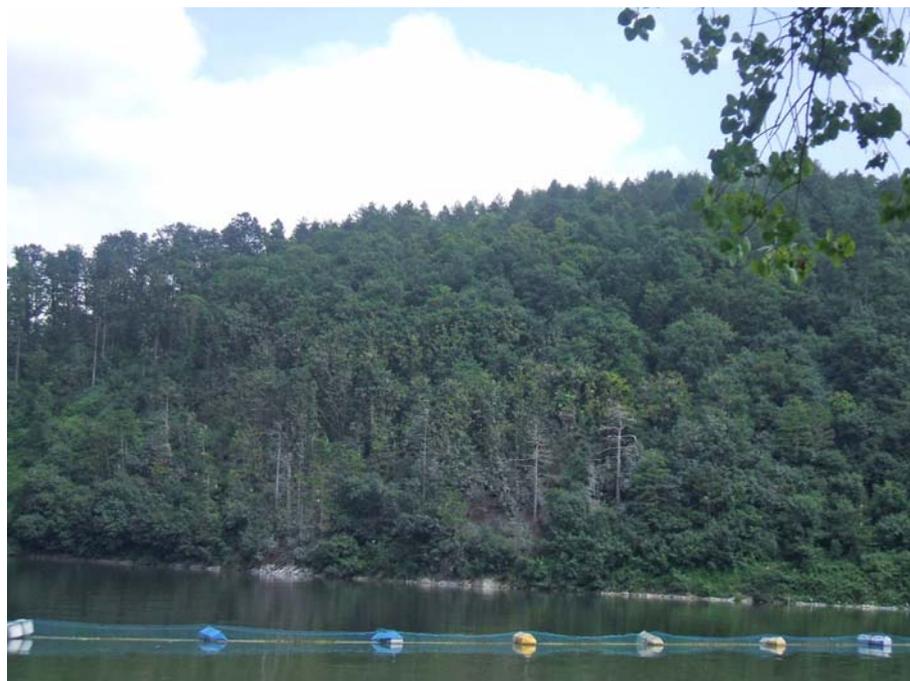
## National publications

Milanović, Đ. & Kotrošan, D., 2012: Ptice i šaševi Livanjskog polja. priručnik za praćenje stanja šaševa (*Carex* sp.) i indikatorskih vrsta ptica u širem području Ždralovca. Centra mladih Livno i Ornitološko društvo „Naše ptice“, interna publikacija projekta “Monitoring populacije ptica i biljnih zajednica u Livanjskom polju”. Contact [kotrosan@bih.net.ba](mailto:kotrosan@bih.net.ba) to obtain a copy of the report.

Kotrošan, D., Dervović, I., Hatibović, E. & Kulijer, D. 2012: New findings on the breeding habitats of the Great Cormorant (*Phalacrocorax carbo* L.) in Bosnia and Herzegovina. – Glasnik Zemaljskog muzeja Bosne i Hercegovine, PN (NS) 33: 39-46.

Kotrošan, D., Šimić, E., Sjeničić, J. & Topić, G. 2011: Great Cormorant (*Phalacrocorax carbo*) population status in Bosnia and Herzegovina - report for the period 2005-2011. – Wetlands International, Cormorant Research Group Bulletin 7: 33-38.

A Great Cormorant colony on Modrac Lake. Photo: Dejan Kulijer.



## 5 Status of the breeding population of Great Cormorants in Bulgaria in 2012

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### To be cited as:

Nikolov, I., Shurulinkov, P. & Borisov, B. 2013: Status of the breeding population of Great Cormorants in Bulgaria in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 26-29. <http://dce2.au.dk/pub/TR22.pdf>

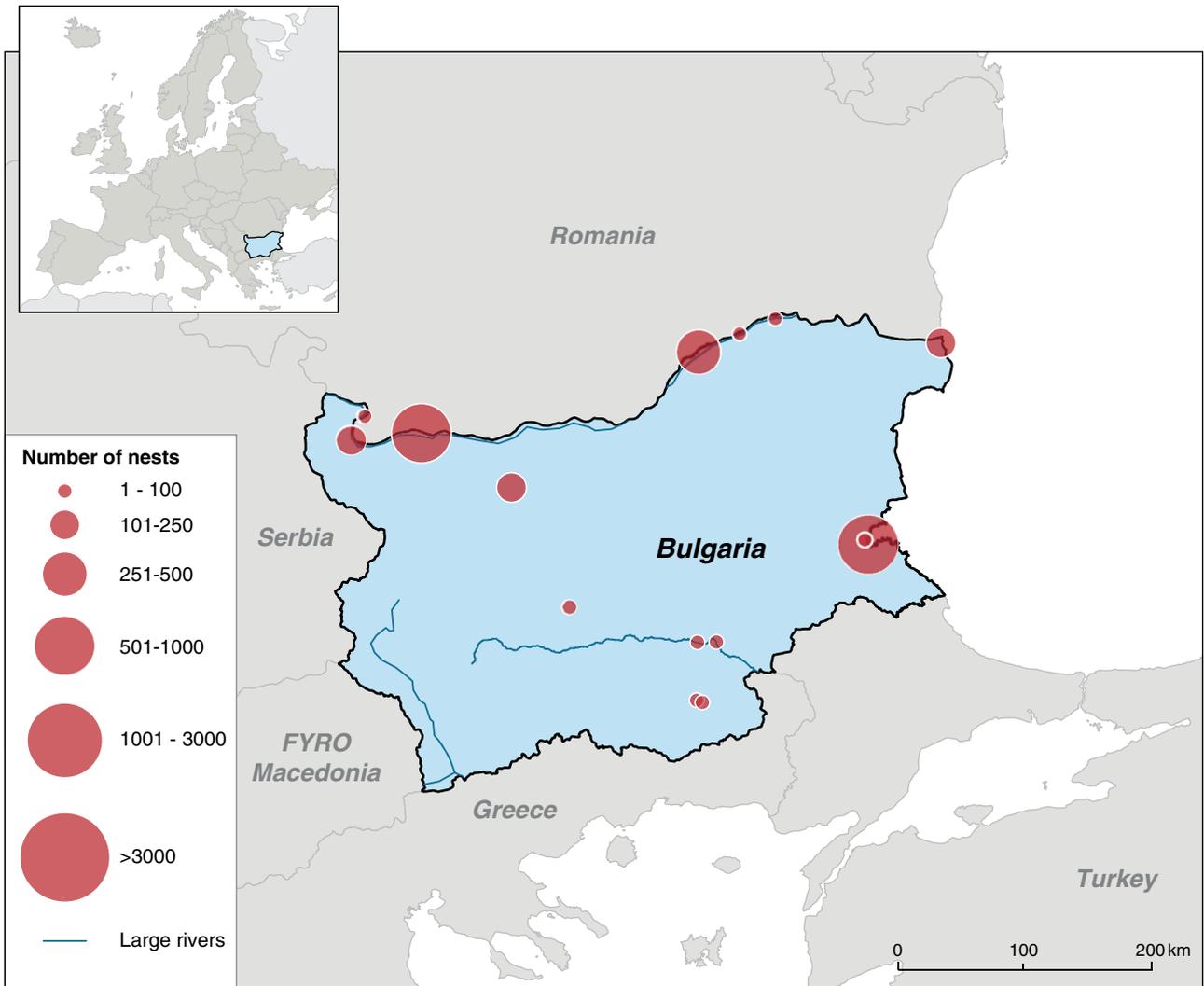
### National summary

In 2012, Bulgaria had an estimated 2,775 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in 15 colonies. It is judged that an almost complete coverage was achieved. We counted 2,658-2,677 nests and our best estimate is that there were 2,700-2,850 occupied nests in Bulgaria in 2012 (i.e. ca. 93-95% were counted). The recent census showed an increase of ca. 700 nests (approx. 35%) compared to the last complete national survey of breeding cormorants in 2006 (Shurulinkov et al. 2007). The number of colonies has also increased: from 10 in 2006 to 15 in 2012.

Most of the colonies along the Danube River were counted twice during the breeding season (at the end of April and the end of May) and variations were reported in the breeding numbers due to a large number of fallen trees, caused by storms following the first count. In this report we use the highest number of nests recorded in the individual colonies (in most colonies the highest number of nests were recorded at the first count in April).

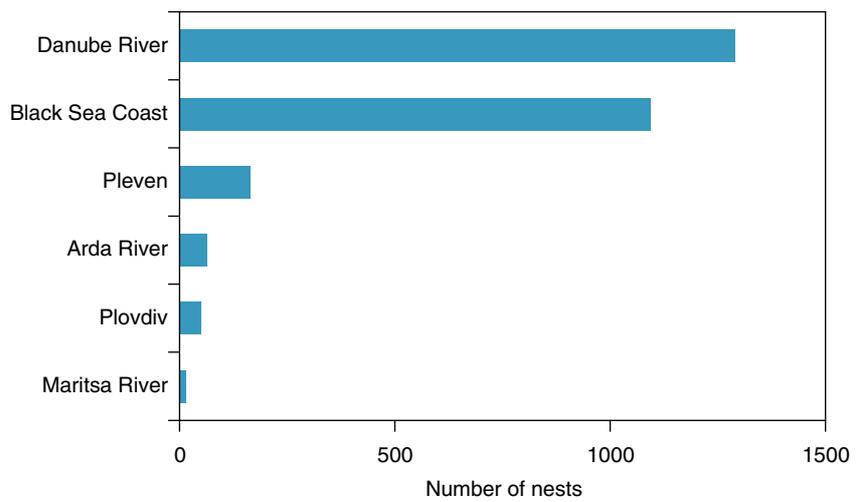
### Distribution

Cormorants bred in 15 colonies in 2012 (Fig. 5.1). The majority of breeders (89%) were located in the northern (Danube River) and eastern (Black Sea coast) regions (Fig. 5.2). In the north cormorants bred along the Danube River in six colonies containing 48% of the national population (1,292 nests). In the east along the Black Sea coast a further three colonies contained 41% of the population (1,088 nests). The remaining 11% of breeders were located in four regions across the country.



**Figure 5.1.** Distribution and size of breeding colonies of Great Cormorant in Bulgaria in 2012.

**Figure 5.2.** Regional distribution of the breeding population of Great Cormorant in Bulgaria in 2012.



We also recorded a few colonies on islets in the Romanian part of the Danube (these are not included in the maps and figures for Bulgaria). All Bulgarian colonies were situated on hybrid/black poplars or willow trees with the exception of the largest colony on the Black Sea coast, where more than half of all breeders used electric pylons.

**Table 5.1.** Details of the regional distribution and size of the Great Cormorant colonies in Bulgaria in 2012. Source: I. Nikolov, P. Shurulinkov & B. Borisov.

Region	Colony Name	Nests
Danube River	Kutovo Island	100
Danube River	Malak Bliznak Island	125-130
Danube River	Dolni Tsibar Island	700
Danube River	Mishka Island	260
Danube River	Malak Kosui	100
Danube River	Srebarna Lake	3-5
Arda River	Studen Kladenets Dam Lake	50-60
Arda River	Arda River	3-4
Pleven	Gorni Dabnik Dam Lake	165
Maritsa River	Zlato Pole	4-5
Maritsa River	Simeonovgrad	10
Plovdiv	Panicheri Dam Lake	50
Black Sea Coast	Bourgas (Vaya) Lake	3
Black Sea Coast	Mandra Dam Lake + Poda	910
Black Sea Coast	Durankulak Lake	175

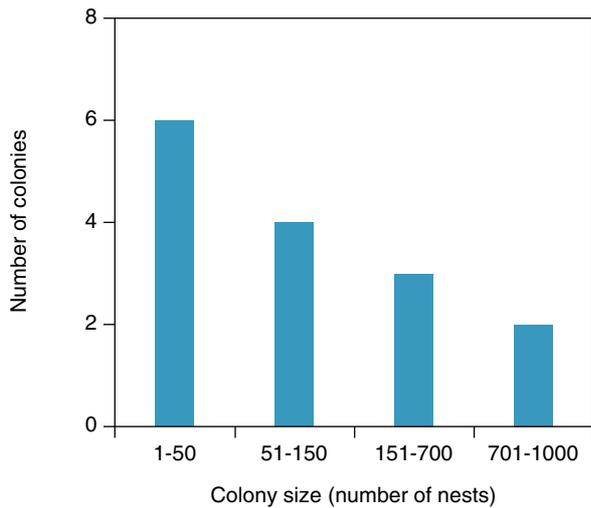
### Colony size

A total of 15 cormorant colonies were counted during the 2012 breeding season in Bulgaria (Table 5.1). The total number of colonies is estimated at 15-20. We believe that the unknown colonies (if any) have had only a low number of pairs because the probability of detection of colonies with more than 50 pairs is judged to be high. Colonies ranged from the smallest containing three nests to the largest containing 910 nests. The largest colony was located at Mandra Dam Lake and Poda along the Black Sea coast.

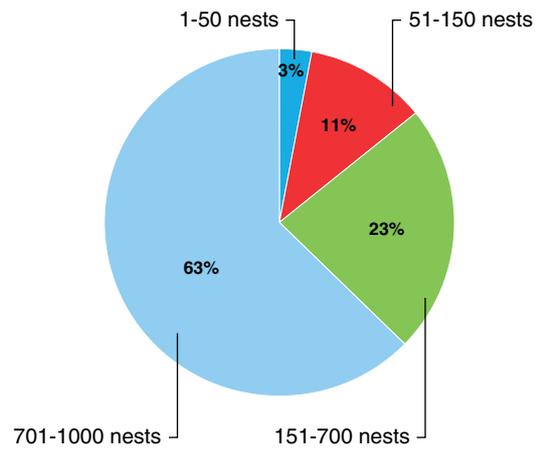
Two colonies had more than 700 nests in 2012 (Fig. 5.3). Almost two thirds (60%) of the national breeding population was found in these two colonies (Fig. 5.4). In the remaining 13 colonies, six had fewer than 50 nests, but housed only 3% of all breeders (74 nests). The remaining seven colonies of intermediate size (51-700 nests) held 33% of the breeding population.

### Human intervention in colonies and other factors

Forestry management as well as river-bed management activities have been reported to cause a decrease or complete eradication of some colonies along the Danube. Although rarely, poaching also occurs in some recreational/commercial fishing areas (i.e. fish ponds) close to existing colonies. Intentional felling of trees, which cormorants use to nest in, also happens in otherwise flooded areas, that remain dry in summer/autumn.



**Figure 5.3.** Size distribution of Great Cormorant colonies in Bulgaria in 2012.



**Figure 5.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Bulgaria in 2012.

### Acknowledgments:

The count of the breeding population of Great Cormorants in Bulgaria in 2012 was partially supported by WWF – Danube-Carpathian Programme.

### References and further information

Shurulinkov, P., Nikolov, I., Demerdzhiev, D., Bedev, K., Dinkov, H., Daskalova, G., Stoychev, S., Hristov, I. & Ralev, A. 2007: Die aktuelle Brutverbreitung und die Bestände koloniebrütender Reiher und Kormorane in Bulgarien. – *Ornithol. Mitt.* 59: 370-378.

Great Cormorant. Photo: Thomas Bregnballe.



## 6 Status of the breeding population of Great Cormorants in Croatia in 2012

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### To be cited as:

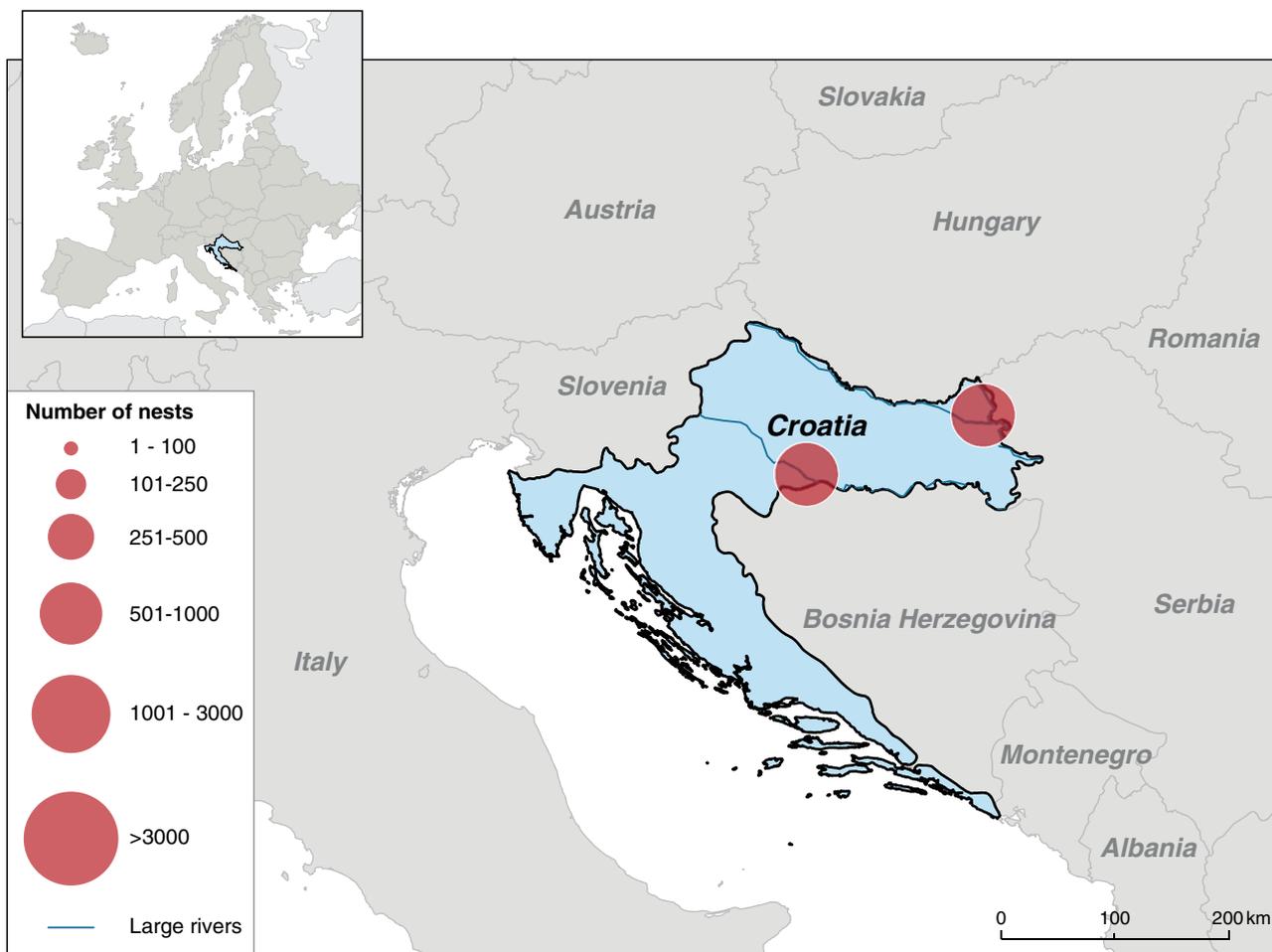
Mikuska T., Rožac V., Šetina N., Šetina M. & Hima V. 2013: Status of the breeding population of Great Cormorants in Croatia in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 30-33. <http://dce2.au.dk/pub/TR22.pdf>

### National summary

In the summer of 2012, Croatia had 1,331 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in two colonies. This is a decrease of over 800 nests compared to 2008 (2,156 nests). This is primarily a result of the decrease of breeding numbers in the main colony at Kopacki rit, where many years of breeding has caused the degradation of nesting trees, as well as two subsequent dry seasons without appropriate flooding of the wetlands that possibly negatively affected the amount of fish available for the cormorants.

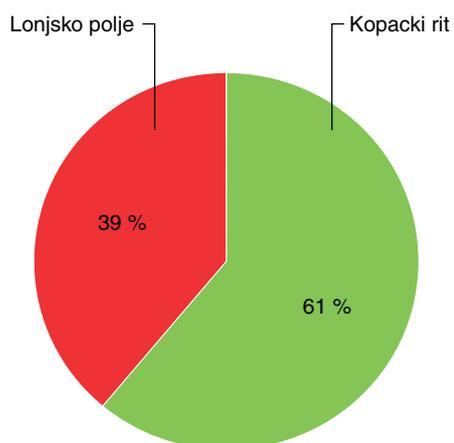
### Distribution and colony size

In 2012, the cormorants bred in two colonies. The largest colony housed 813 pairs and was located in the Kopacki rit Special Zoological reserve situated in north-eastern Croatia (Fig. 6.1). This colony contained almost two thirds of the national breeding population (Fig. 6.2). Breeding at Kopacki rit was confirmed since late 19<sup>th</sup> century (Mojsisovics 1883, Schenk 1918, 1929). Regular annual censuses started during 1963. The lowest breeding numbers were reached during the 1960ties and the mid 1970ties with 23-133 pairs per year and irregular breeding (Mikuska & Lakatos 1977). The population started to expand exponentially from 1977 reaching a peak in 1988 (Mikuska & Mikuska 1994). A decline in the number of breeding pairs occurred in 1990 when adults and chicks were intentionally killed by fishermen. During the last 14 years numbers have fluctuated (between ca. 1,000 and ca. 2,000 pairs), but over the last six years a constant decline in the breeding numbers has been observed, presumably due to deterioration of the nesting habitat.



**Figure 6.1.** Distribution and size of breeding colonies of Great Cormorants in Croatia in 2012. Source: Croatian Society for Bird and Nature Protection.

**Figure 6.2.** Percentage (%) of breeding population located in each cormorant colony in Croatia in 2012. Source: Croatian Society for Bird and Nature Protection



The second colony contained 518 breeding pairs (39% of the population) and was located at Lonjsko polje Nature Park (near Puska village) along the Sava river floodplain. Breeding has taken place at this colony since 2007. The breeding numbers in this colony fluctuated from 350 to 600 pairs in the past six years. The breeding of cormorants in the Lonjsko polje Nature park has

been recorded since 1986 when two colonies were present (Schneider 1989). The first colony at Mokro polje held 124 and 181 nests during 1986 and 1987, respectively (Schneider 1989). The second at Lonjsko polje had 182 nests during 1987 (Schneider 1989). Since these two colonies do not exist nowadays, it is very likely that birds from these colonies have started to breed at a single site.

A third location, Sakadas lake at the Kopacki rit Special Zoological reserve, was surveyed in 2012, but breeding did not occur. This site, known for decades as one of the main wintering roosts for cormorants in Croatia, occasionally serves as a breeding place for up to 15 pairs. It is located 2.5 km from the existing large colony.

Cormorants bred exclusively on softwood trees in Croatia, primarily White willows (*Salix alba*), White and Black poplars (*Populus alba*, *P. nigra*).

### **Human intervention in colonies**

No management actions are carried out to control breeding numbers of cormorants in Croatia. The Croatian breeding population is listed in the Croatian Red Book as Vulnerable (Radović et al. 2003) and it is consequently strictly protected. This protection applies during the breeding season and within a 50 km radius from the existing colonies. Outside the breeding season cormorants are protected on the rivers and in other wetlands and they should not be harassed or persecuted. However, as an exception, they are not protected on commercial fish ponds and fishermen can apply all appropriate methods (including shooting of adults) in order to protect their stock from predation.

### **Acknowledgements**

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### **References and further information**

Mikuska J. & Lakatos J. 1977: Data on the distribution and ecology of the Cormorant, *Phalacrocorax carbo* (L. 1758) in Yugoslavia. – *Larus* 29-30: 141-151.

Mikuska J. & Mikuska T. 1994: Ptice Dunava na području Hrvatske. – *Anali Zavoda za znanstveni rad u Osijeku* 10: 109-175.

Mojsisovics A. 1883: *Zur Fauna von Bellye und Darda*. Verlag des Naturwissenschaftlichen Vereines für Steiermark, Graz.

Radović D., Kralj J., Tutiš V., Čiković D. 2003: *Red book of Endangered Birds in Croatia*. – Ministry of Environmental Protection and Physical Planning. 179 pp. (in Croatian with English summary).

Schenk J. 1918: *Fauna regni Hungariae, Aves*. 1-114. Budapest.

Schenk J. 1929: *Aves in Brehm: Az állatok világa*. Tom 10. Güttenberger könyvkiadó vállalat. Budapest.

Schneider M. 1989: Endangered and rare birds in the alluvial wetlands of the Sava river on the Posavina/Croatia. – *Larus* 40: 167-178.

State institute for Nature Protection [www.dzrp.hr](http://www.dzrp.hr)

Kopacki rit Nature park <http://www.kopacki-rit.hr/>

Lonjsko polje Nature park <http://www.pp-lonjsko-polje.hr/>

Croatian NATURA 2000 <http://www.natura2000.hr/>



Great Cormorant colony at Lonjsko polje, spring 2012. Photo: Nenad Setina.

## 7 Status of the breeding population of Great Cormorants in Denmark in 2012

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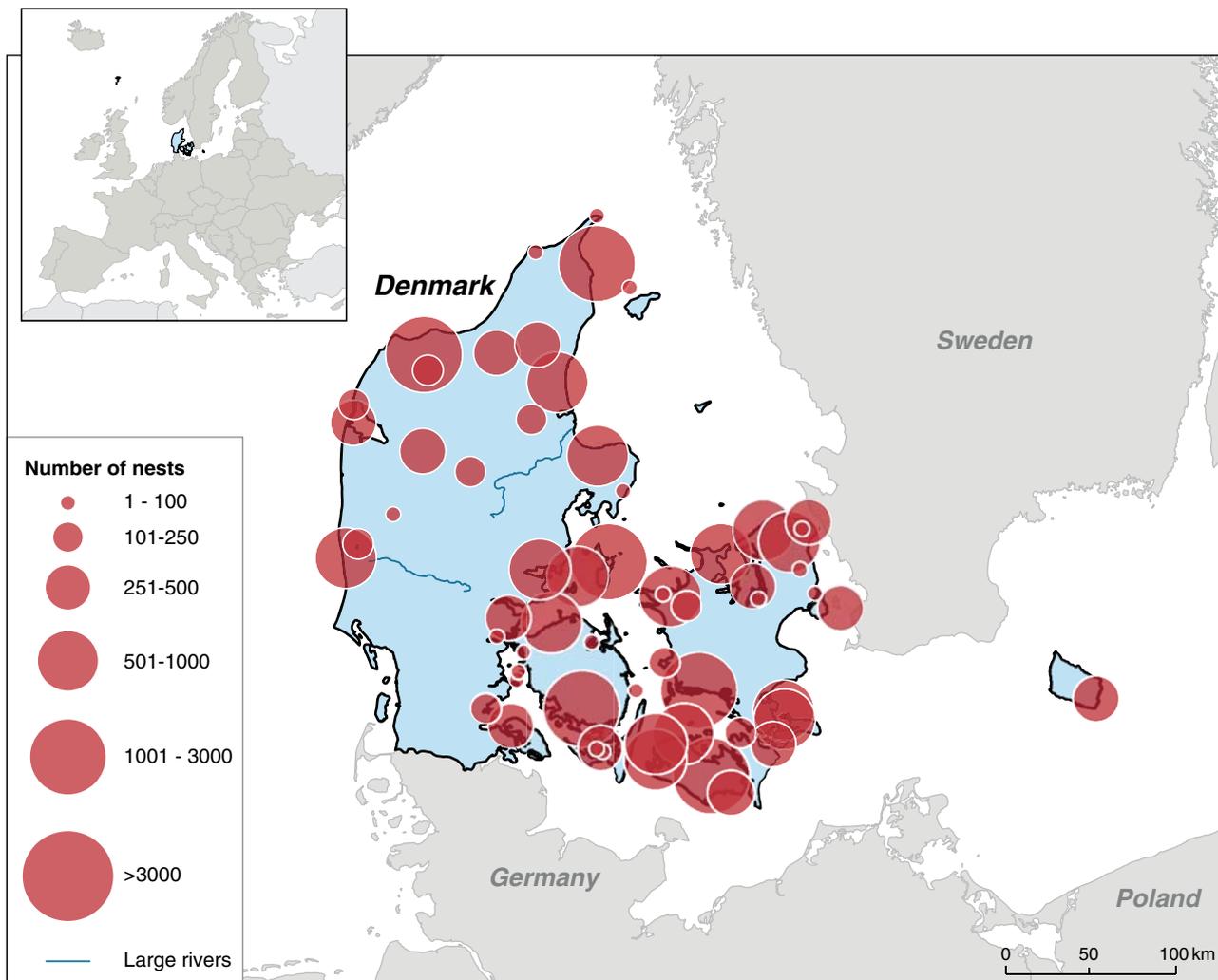
### National summary

There were 27,237 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in the summer of 2012 in Denmark. This is an increase of ca. 1,700 nests compared to 2011. The cormorants had colonies or attempted to found colonies at 64 locations in 2012. This is close to the highest number of colonies recorded in Denmark to date (65 in 2010). It is believed that complete coverage of all known breeders was obtained during the 2012 count.

### Distribution and colony size

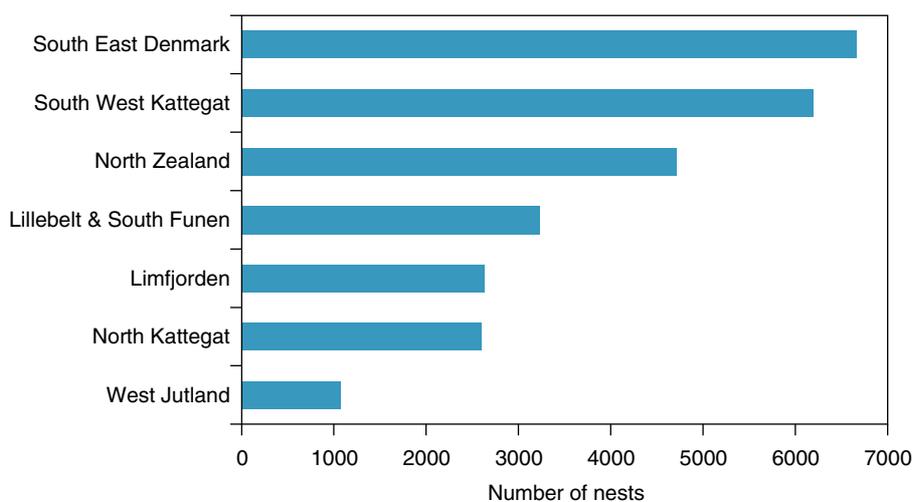
Colonies were found across the country, but the larger colonies were located in coastal areas or within 6 km of the coast (Fig. 7.1). The majority of cormorants were breeding in south west Kattegat and in south east Denmark (Fig. 7.2). Together these two regions housed almost half of the breeding population.

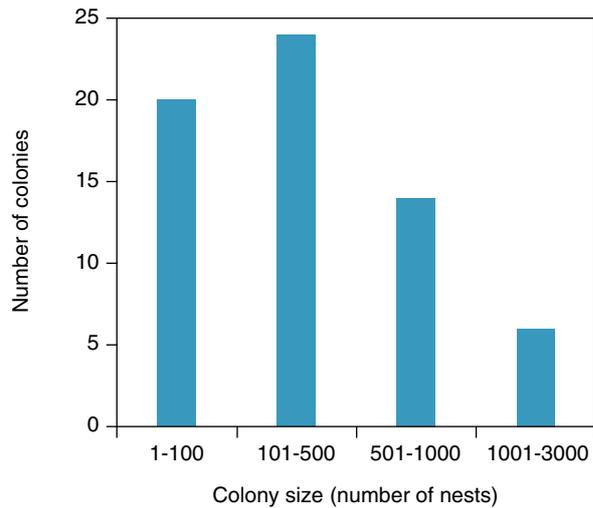
The breeding population in Denmark has gradually become more and more evenly dispersed over the last 30 years. Denmark had large colonies with up to 7,500 nests in earlier years, but the largest colony found in 2012 contained 2,640 nests. A total of six colonies had more than 1,000 nests in 2012 (Fig.7.3). One third of the breeding population was found in these six colonies (Fig. 7.4). Most of the colonies (44 out of all 64 colonies) had less than 500 nests, and these colonies housed 28% of all breeders in Denmark. The 14 colonies of intermediate size (500-1,000 nests) held 39% of the breeding population. Around 50% of all the cormorants breeding in Denmark were nesting on the ground on small islets in 2012.



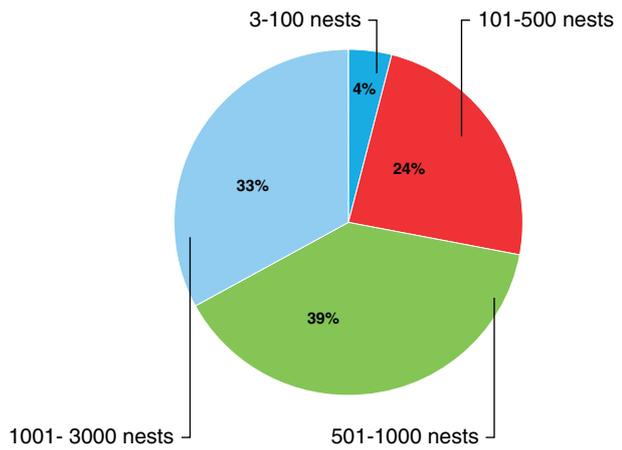
**Figure 7.1.** Distribution and size of breeding colonies of cormorants in Denmark, 2012.

**Figure 7.2.** Regional distribution of the breeding population of cormorants in Denmark in 2012.





**Figure 7.3.** Size distribution of Great Cormorant colonies in Denmark in 2012.



**Figure 7.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Denmark in 2012.

### Human intervention in colonies

In some of the areas where conflicts with fisheries are intense management of breeding colonies were carried out by the Ministry of Environment. Some of the management actions were aimed at avoiding successful establishment of new colonies. Other actions were aimed to further reduce the size of existing colonies by limiting the production of juveniles. The production of juveniles is limited by spraying eggs with vegetable oil whereby the embryo dies but the adults continue to incubate.

As in the previous two years a total of app. 3,000 nests were exposed to such management actions. Up to 7,000 nests have been exposed to management in earlier years. Oiling of eggs took place in seven colonies in 2012 affecting a total of 2,607 nests. Eggs were removed in two colonies (271 nests) and breeders were scared away from their nests in one colony (35 nests).

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## References and further information

Bregnballe, T. & Therkildsen, O.R. 2012: Danmarks ynglebestand af skarver i 2012. – Notat fra DCE - Nationalt Center for Miljø og Energi, Aarhus University.

[http://dce.au.dk/fileadmin/dce.au.dk/Udgivelser/Danmarks\\_ynglebestand\\_af\\_skarver\\_i\\_2010.pdf](http://dce.au.dk/fileadmin/dce.au.dk/Udgivelser/Danmarks_ynglebestand_af_skarver_i_2010.pdf)

[http://www.dmu.dk/dyrplanter/dyr/skarv\\_-\\_udvikling\\_i\\_bestande/](http://www.dmu.dk/dyrplanter/dyr/skarv_-_udvikling_i_bestande/)

The Great Cormorant colony at Mågeøerne near Bogense, April 2011. Photo: Thomas Bregnballe.



Malurtholm at Møn, June 2006. Photo: Kjeld T. Pedersen.



## 8 Status of the breeding population of Great Cormorants in Estonia in 2012

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### To be cited as:

Rattiste, K. 2013: Status of the breeding population of Great Cormorants in Estonia in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 38-41.

<http://dce2.au.dk/pub/TR22.pdf>

### National summary

In 2012, Estonia had an estimated 13,000 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in 18 colonies. A total of 12,880 nests were counted during the breeding season. This is a slight underestimate as storms prevented complete counts to take place on two dates. A total of 12,930 nests were recorded in 2011, so there was no change in breeding numbers from 2011 to 2012.

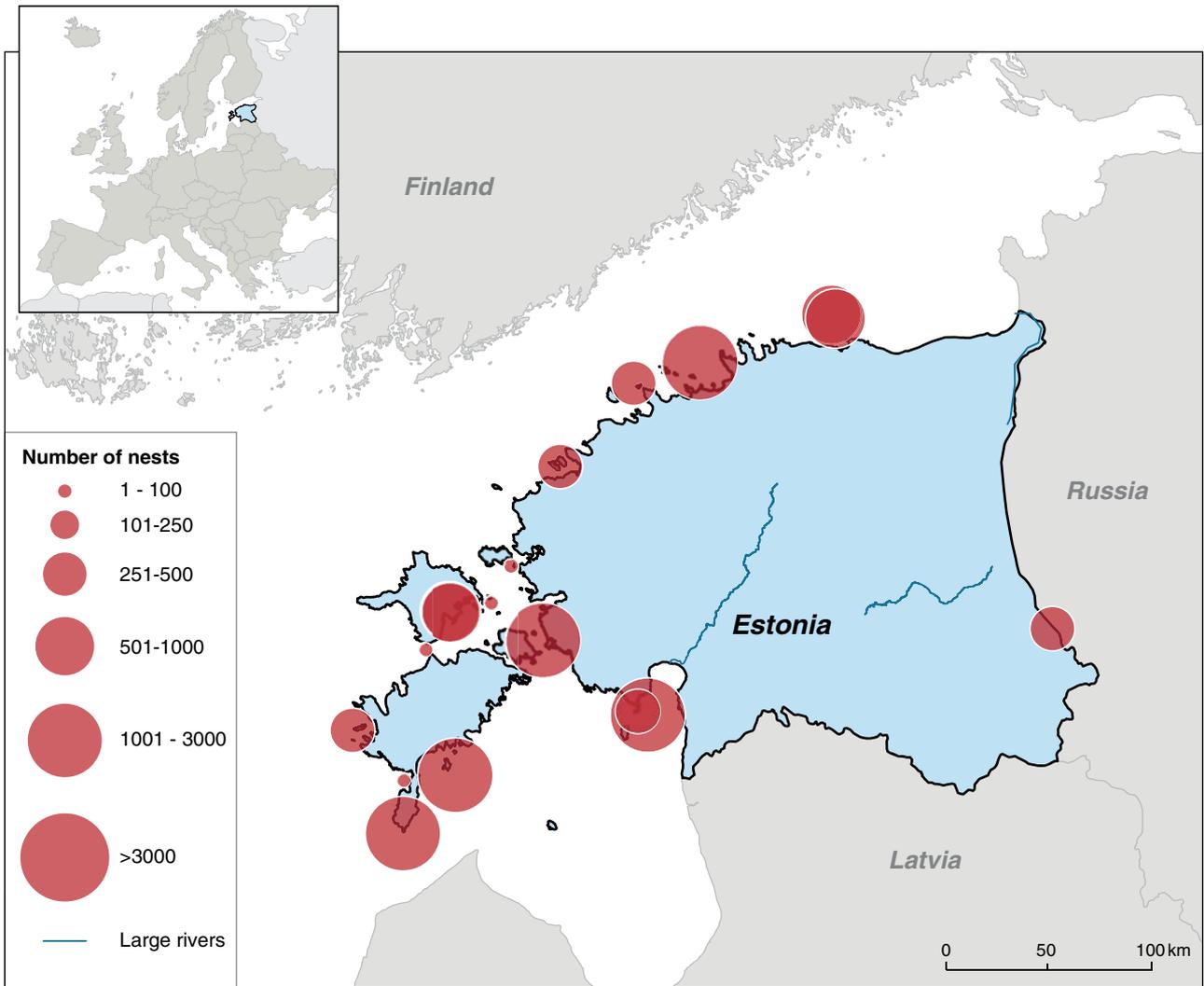
### Distribution

All colonies except one were found in coastal areas of Estonia. One inland colony was located on Lake Peipsi (Fig. 8.1). The majority of cormorants were breeding on islets of the Gulf of Riga and Gulf of Finland (Fig. 8.2). Together these regions housed 73% of the breeding population. The Moonsund Archipelago was home to 22% of the breeding population. A large percentage (87%) of cormorants breeding in Estonia were nesting on the ground on small islets in 2012.

### Colony size

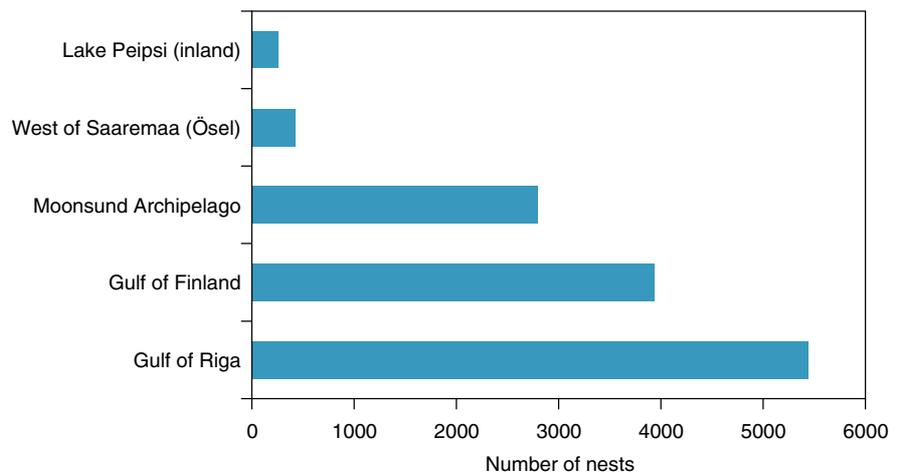
In 2012, the cormorants bred in 18 colonies in Estonia. This is 12 colonies less than in 2011. The largest colony housed 2,057 pairs and was located on Kerju islet in the Gulf of Riga. A total of five colonies had more than 1,000 nests in 2012 (Fig. 8.3) and 62% of the breeding population was found in these five colonies (Fig. 8.4). Half of the colonies (nine out of all 18 colonies) had fewer than 500 nests, and these colonies housed 15% of all breeders in Estonia. The four colonies of intermediate size (501-1,000 nests) held 23% of the breeding population.

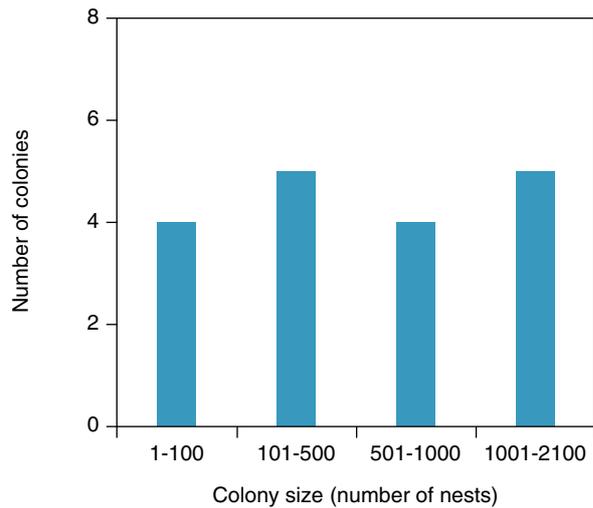
In 2012, the breeders were in good condition with an average clutch size of 3.65 eggs (in 8,249 nests sampled). In previous years, following harsh winter conditions clutch sizes were 3.00 in 2010 (in 4,045 nests sampled) and 3.27 in 2011 (in 5,794 nests sampled).



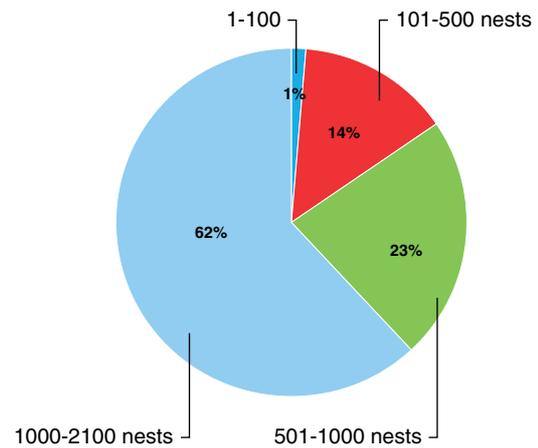
**Figure 8.1.** Distribution and size of breeding colonies of Great Cormorants in Estonia, 2012. Source: Environmental Board, Estonia.

**Figure 8.2.** Regional distribution of the breeding population of Great Cormorants in Estonia in 2012. Source: Environmental Board, Estonia.





**Figure 8.3.** Size distribution of Great Cormorant colonies in Estonia in 2012. Source: Environmental Board, Estonia.



**Figure 8.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Estonia in 2012. Source: Environmental Board, Estonia.

### Human intervention in colonies and other factors

Management is carried out in areas where conflicts with fisheries are intense. The main aim of the management is to reduce juvenile production. Oiling of eggs took place in three colonies (two colonies in the Gulf of Finland and one colony in the Gulf of Riga) in 2012 affecting a total of ca. 2,000 nests. In many cormorant colonies, especially in those at the Gulf of Riga, people have systematically destroyed cormorant nests. This is the main reason for a particularly high mobility of colonies in this region.

There are increasing levels of predation pressure by White-tailed Eagles in cormorant colonies in Estonia. For example, on June 29<sup>th</sup> 2012, 43 eagles were present in two nearby (0.6 km apart) cormorant colonies in Käina Bay (observation by Leho Aaslaid and Vello Tarning). In Estonia, the number of White-tailed Eagle breeding pairs is estimated at 220-250 and the total numbers (breeders and non-breeders together) at 900-1,250 individuals.

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## References and further information

Ojaste, I., Rattiste, K., Lilleleht, V., Mägi, E. & Leito, A. 2012: Kormorani (*Phalacrocorax carbo*) eestiasurkonnakujunemine. (Population development of the Great Cormorant (*Phalacrocorax carbo*) in Estonia) – Hirundo 25: 1-33.

Available in Estonian

[http://www.eoy.ee/hirundo/sisukorrad/2012\\_1/Ojaste\\_et\\_al\\_25\\_1.pdf](http://www.eoy.ee/hirundo/sisukorrad/2012_1/Ojaste_et_al_25_1.pdf)

Available in English

[http://www.eoy.ee/hirundo/English/sisukorrad/2012\\_1/Ojaste\\_25\\_1.pdf](http://www.eoy.ee/hirundo/English/sisukorrad/2012_1/Ojaste_25_1.pdf)

Rattiste, K. 2012: Kormorani levik ja arvukus Eestis 2012.

[http://eelis.ic.envir.ee/seireveeb/aruanded/14000\\_Kormorani\\_levik\\_ja\\_arvukus\\_Eestis\\_2012.PDF](http://eelis.ic.envir.ee/seireveeb/aruanded/14000_Kormorani_levik_ja_arvukus_Eestis_2012.PDF)

White-tailed Eagles are common visitors in Great Cormorant colonies in Estonia. Tondirahu colony, June 2009. Photo: Arne Ader.



In Estonia Great Cormorants prefer to breed on small marine islets. Tondirahu colony, June 2009. Photo: Arne Ader.



## 9 Status of the breeding population of Great Cormorants in Finland in 2012

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<http://dce2.au.dk/pub/TR22.pdf>

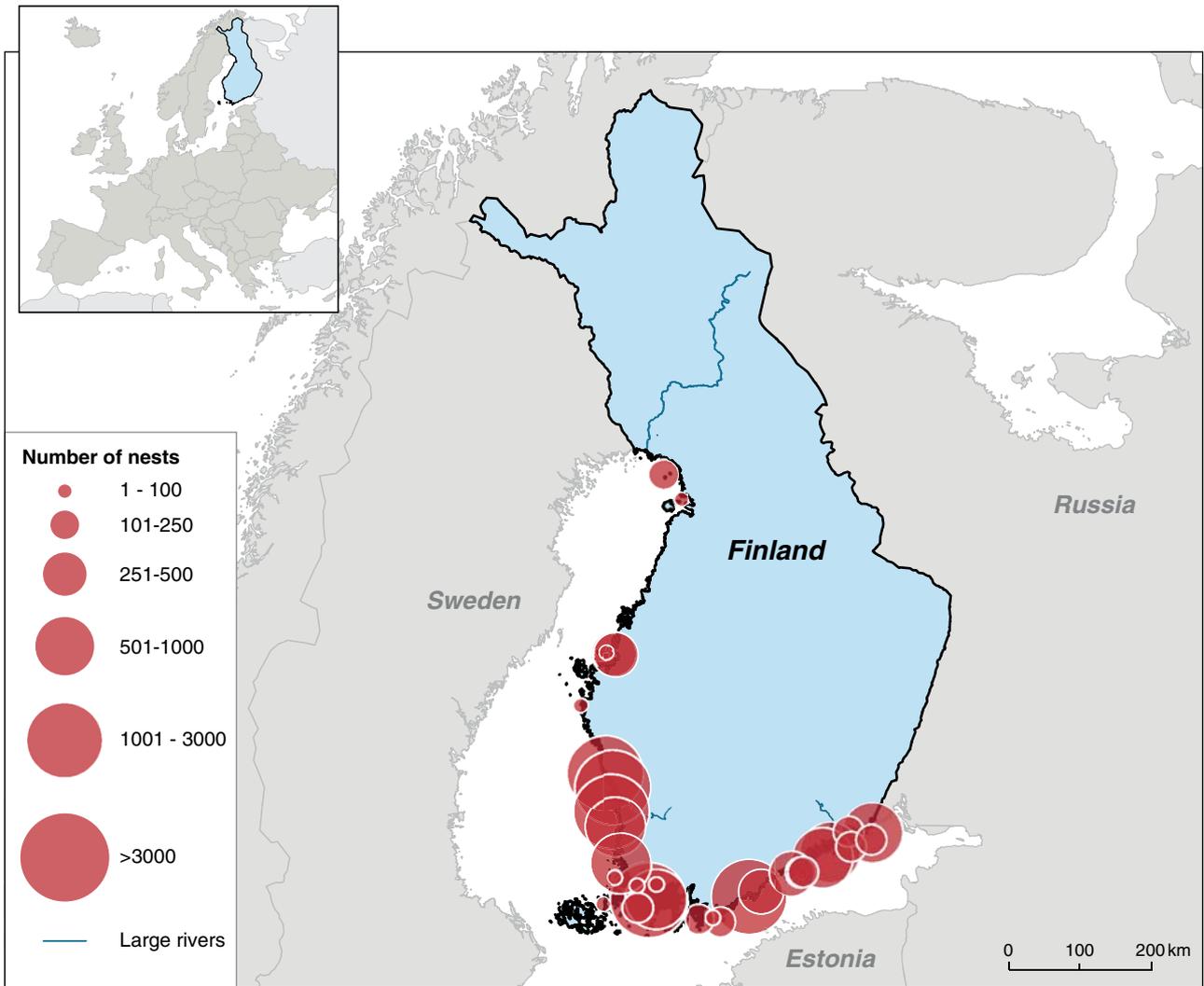
### National summary

In 2012, there were 17,208 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in Finland. This is a decrease of ca. 500 nests (3%) compared to 2011. However in 2012 there was an increase in the number of breeding colonies. Cormorants established colonies in 40 locations in 2012, including eight new sites. This is the third highest number of colonies recorded in Finland (50 in 2009 and 41 in 2008) since breeding started in 1996. Overall the Finnish cormorant population has been fluctuating between ca. 14,400 and 17,700 nests since 2009.

### Distribution

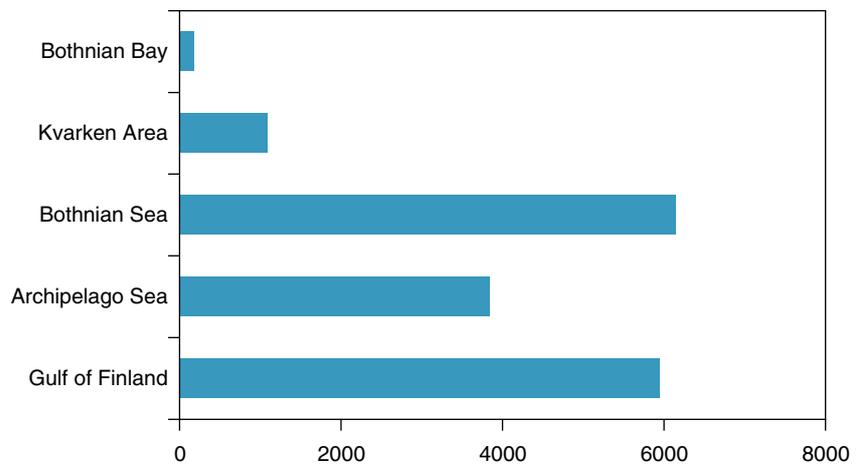
As in previous years cormorants bred exclusively in the coastal archipelagos and cormorants have now colonized most Finnish sea areas, being practically absent only in Åland and in parts of northern sea areas (Fig. 9.1). In 2012, the majority of the breeding population (57%) and colonies (65%) were found in the southernmost sea areas (Fig. 9.2): from the Gulf of Finland (5,945 nests) to the Archipelago Sea (3,838 nests). The Bothnian Sea held over one third of the population (6,151 nests), concentrated in four larger colonies. A small percentage was breeding in the northernmost sea areas: from the Kvarken Area (1,096 nests) to the Bothnian Bay (178 nests).

The majority of cormorants nest on rocky, almost treeless islets in the outer archipelagoes (Ryttäri 2011). In total, 60 small islets were inhabited by breeding cormorants. The mean size of islets was 0.9 hectares (0.1-5.2 ha). Additionally one colony was breeding on a larger island (118 ha). This was the first time that cormorants were breeding on a larger island in Finland. Also the first attempt to breed on an estuary islet was reported in 2012. The largest colonies (>1,000 nests) were located 0.7-4.6 km from the mainland. The majority of the breeding population, 74% of cormorant pairs and 60% of colonies, were located in nature conservation areas.



**Figure 9.1.** Distribution and size of breeding colonies of Great Cormorants in Finland in 2012. Source: Finnish Environment Institute SYKE.

**Figure 9.2.** Regional distribution of the breeding population of Great Cormorants in Finland in 2012. Source: Finnish Environment Institute, SYKE.

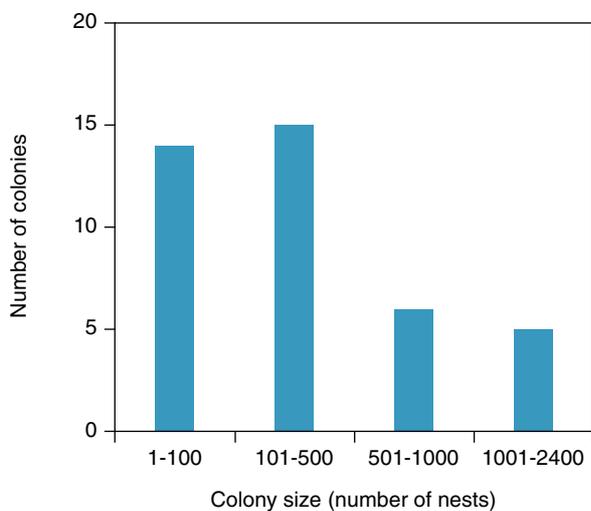


Cormorants were nesting on the ground in the majority of colonies (63%). In 18% of the colonies all cormorants bred in trees and in 19% of the colonies some cormorants nested on the ground and some in trees. In total, 82% of all nests were located on the ground.

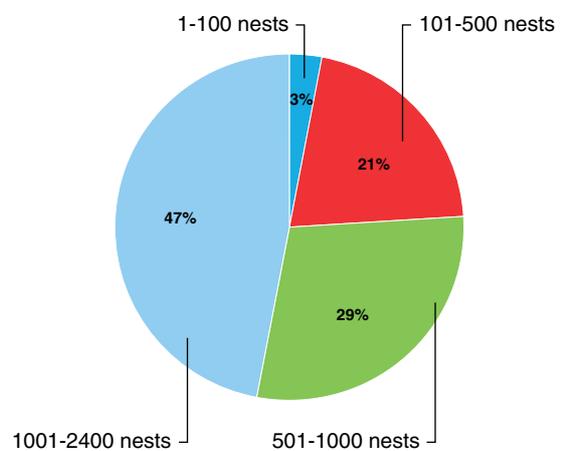
The presence of an increasing number of White-tailed Eagles (*Haliaeetus al-bicilla*) and a more frequent occurrence of predation from these is probably the reason for the observed reduction in 2012 in the number of cormorants breeding in the south-western sea areas (from the westernmost part of the Gulf of Finland to the Archipelago Sea). In this region the number of nests declined by 12% compared to 2011, while on the eastern part of the Gulf of Finland, where the White-tailed Eagle is still quite uncommon, the number of nests increased by 14% compared to 2011. We have observed up to 18 White-tailed Eagles staying simultaneously inside one large colony in the Archipelago Sea during the nesting period of cormorants in 2012. The number of cormorant nests in that particular colony declined by 30% in 2012 compared with 2011.

### Colony size

Nearly half (47%) of the Finnish population in 2012 was concentrated in the five largest colonies (>1,000 nests) (Fig. 9.3 and 9.4). The largest colony was located at Merikarvia in the Bothnian Sea and it had 2,371 nests, which is the largest colony ever reported in Finland. The six colonies of intermediate size (501-1,000 nests) contained 29% of the breeding population and the remaining 29 smaller colonies (<500 nests) contained 24%.



**Figure 9.3.** Size distribution of Great Cormorant colonies in Finland in 2012. Source: Finnish Environment Institute, SYKE.



**Figure 9.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Finland in 2012. Source: Finnish Environment Institute, SYKE.

### Human intervention in colonies

The illegal persecution of cormorants has tapered off markedly during the 2000's. In 2012, six small colonies (167 nests in total) failed totally during breeding; at least two of them due to persecution. In 2010-2011, 4-5% of all nests were destroyed illegally, while the proportion was much higher (11-17%) in 2008-2009.

Legal population management actions have taken place in Finland for only two years in a restricted area. In 2012, the Southwest Finland Centre for Economic Development, Transport and the Environment (ELY Centre) gave a special license to control breeding cormorants in one small fishing area of pikeperch in the inner part of the Archipelago Sea. The license limited the management actions to scaring cormorants away from the colonies before egg-laying. This took place in three small colonies and was unsuccessful in one case. In 2010, a similar license was issued, applying to four small colonies in the same area; additionally egg-pricking was carried out in one of the colonies which contained 325 nests. However an investigation into the diet of cormorants in the south coast of Finland showed that cormorants had no impact on the local populations of perch and roach, which were the main food of cormorants (Lehikoinen et al. 2011).

The ELY Centre also gave special licenses to shoot cormorants in a few fishing areas in south-western Finland during the autumn hunting seasons in 2010-2012. In the 2010-2011 seasons, licenses were issued to shoot 930 cormorants in total, although only 204 cormorants were shot. In 2012 licenses were issued only for 60 cormorants, but none were shot. From hunting samples obtained during 2010-2011 it was found that ca. 60% of birds shot were of the nominate subspecies (*P. c. carbo*), apparently originating from northern Norway (Rusanen et al. 2012).

Monitoring brood sizes in the Great Cormorant colony at Östergadden Islet, the Gulf of Finland, early June 2012. Photo: Heikki Kotiranta.



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## References and further information

Rusanen, P., Mikkola-Roos, M. & Rytteri, T. 2012: Merimetsokannan kehitys ja vaikutuksia. – Linnut-vuosikirja 2011:116-123. (Summary: Population development of cormorant and effects in Finland.) Available at <http://www.birdlife.fi/suojelu/lajit/ladattavat/merimetsa-vuosikirja-2011.pdf>

Lehikoinen, A., Heikinheimo, O. & Lappalainen, A. 2011: Temporal changes in the diet of great cormorant (*Phalacrocorax carbo sinensis*) on the southern coast of Finland – comparison with available fish data. – Boreal Environment Research 16 (suppl. B): 61–70. Available at <http://www.borenv.net/BER/pdfs/ber16/ber16B-61.pdf>

Rytteri, T. 2011: Merimetsan kasvistovaikutukset Suomenlahden saaristossa 1998-2010. – Suomen ympäristö 20/2011. (Summary: The Impact of the Great Cormorant on Flora in the Archipelago in the Gulf of Finland 1998-2010). <http://www.ymparisto.fi/download.asp?contentid=128562&lan=fi>

Information on cormorants from the Finnish Environmental Institute [http://syke.fi/en-US/SYKE\\_Info/Communications\\_material/Press\\_releases/Growth\\_of\\_the\\_cormorant\\_population\\_comes\(3330\)](http://syke.fi/en-US/SYKE_Info/Communications_material/Press_releases/Growth_of_the_cormorant_population_comes(3330))



A typical ground- and tree-nesting colony of Great Cormorants in the outer archipelago in the Gulf of Finland. Östergadden, mid-June 2006. Photo: Terhi Rytteri.

# 10 Status of the breeding population of Great Cormorants in Germany in 2012

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## To be cited as:

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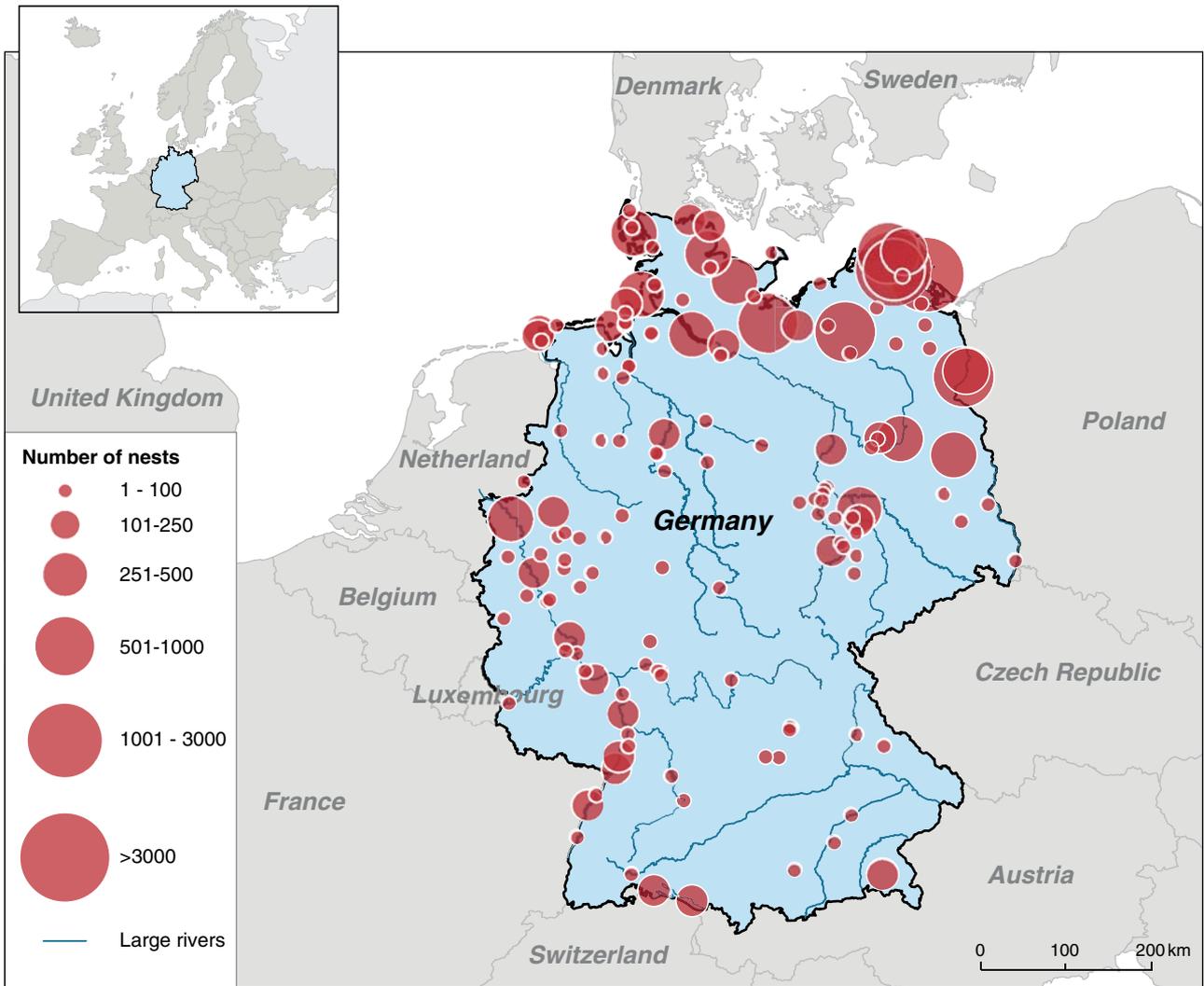
<http://dce2.au.dk/pub/TR22.pdf>

## National summary

In 2012, Germany had 22,550 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in 150 colonies. From three small colonies only preliminary numbers were available at the time of reporting in February 2013. It is judged that all breeding sites in Germany were covered during the 2012 count. After a period with strong increase, the number of breeding pairs in Germany reached a peak with 25,100 pairs in 2008. In the following years numbers decreased to less than 19,500 pairs in 2011 but increased again in 2012.

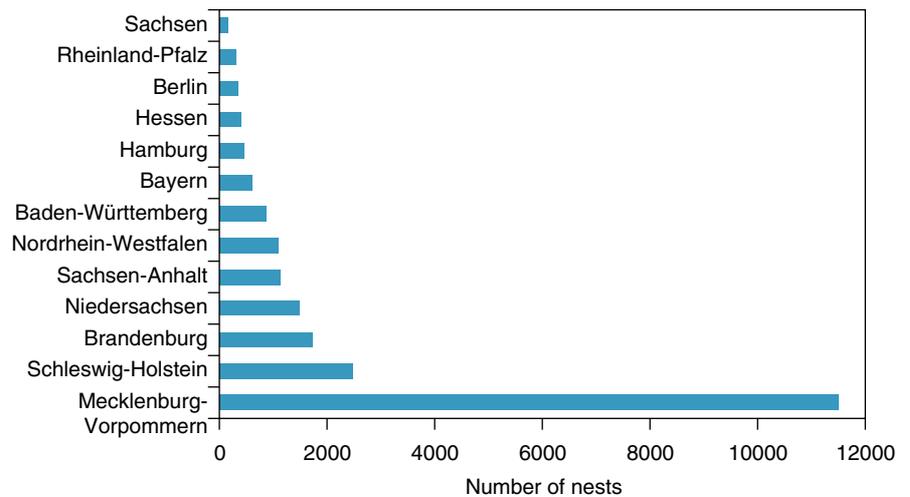
## Distribution

Cormorants bred across the country, but the largest colonies were located in coastal areas of the Baltic Sea, especially around the lagoons and estuaries of Mecklenburg-Western Pomerania (Fig. 10.1). The majority of cormorants were nesting in the northern parts of Germany in the federal states of Mecklenburg-Western Pomerania (51%), Schleswig-Holstein (11%) and Lower Saxony (7%) (Fig. 10.2). In the inland parts of Germany most cormorants are associated with the large river systems of Rhine, Weser, Elbe, Havel and Oder (Fig. 10.1). Together these inland regions hosted about 30% of the cormorant population. About 90% of all the cormorants breeding in Germany were nesting on trees and shrubs at sea shores, lakes and rivers, about 10% were breeding on the ground or on artificial structures (e.g. ship wrecks).



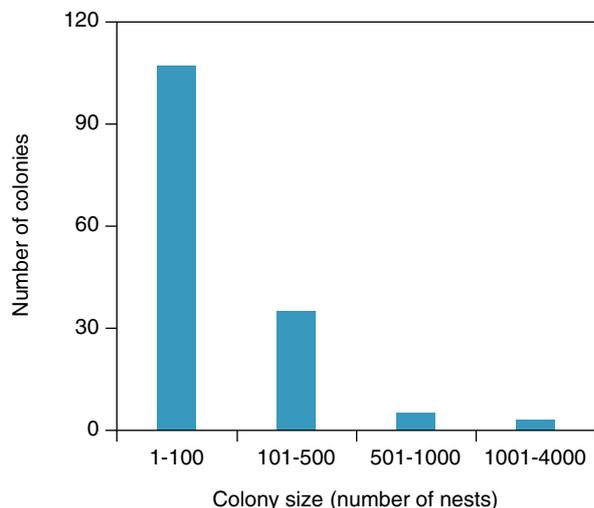
**Figure 10.1.** Distribution and size of breeding colonies of Great Cormorants in Germany in 2012.

**Figure 10.2.** Regional distribution (federal states) of the breeding population of Great Cormorants in Germany in 2012.

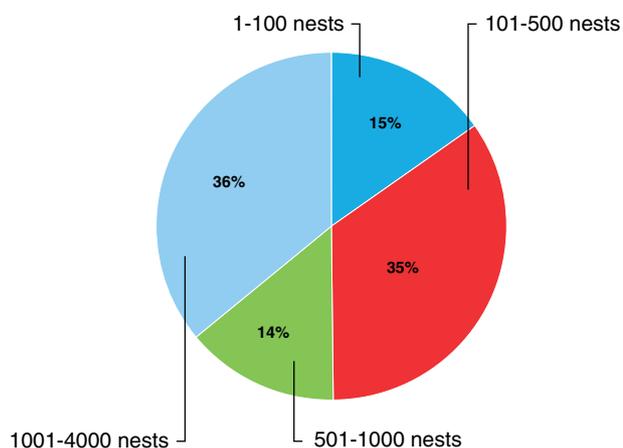


## Colony size

In 2012, the cormorants in Germany bred in 150 colonies. The largest colony hosted 3,856 pairs and was located in Anklamer Stadtbruch in the federal state Mecklenburg-Western Pomerania. Only three colonies had more than 1,000 nests in 2012 (Fig. 10.3). They were all located close to the Baltic Sea and 36% of the breeding population was found in these three colonies (Fig. 10.4). 71% of the colonies had less than 100 nests; these colonies hosted only 15% of all breeders in Germany.



**Figure 10.3.** Size distribution of Great Cormorant colonies in Germany in 2012.



**Figure 10.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Germany in 2012.

The Great Cormorant colony in Goitzsche See, a former open pit surface coal mine, May 2008.  
Photo: Stefan Fischer.



## Human intervention in colonies

Germany has no national cormorant management plan. Germany consists of 16 federal states and the authorities in the federal states are responsible for the conservation and management of species. 11 out of 16 federal states have so-called "cormorant decrees", which regulate measures to reduce damages

by cormorants on fish stocks, aquaculture facilities or impacts on threatened fish species. Legal actions within the scope of the decrees against the breeding population have been conducted only in a few federal states in recent years and only single colonies were affected.

### **Acknowledgements**

The survey of the breeding population of cormorants in Germany is a joint project of the Federal State Institutions for Bird Conservation (Staatliche Vogelschutzwarten) and of regional ornithological societies, which are joined up in the DDA (Federation of German Avifaunists). We would like to thank the many people who are involved in the counting of the nests in the colonies. The compilation of the federal states data was carried out by Martin Boschert, Thomas Dolich, Gunthard Dornbusch, Tobias Dürr, Stefan Fischer, Christof Herrmann, Michael Jöbges, Stefan Kluth, Bernd Koop, Alfons Kurz, Heinrich Pegel, Detlef Schlorf, Johannes Schwarz, Kareen Seiche, Matthias Werner and Horst Zimmermann.

### **References and further information**

Cormorant counts in Germany (website of DDA): <http://www.dda-web.de/index.php?cat=monitoring&subcat=kormorane&subsubcat=hintergrund>



Nests near the water in the Great Cormorant colony in Rietzer See, May 2006. Photo: Tobias Dürr.

# 11 Status of the breeding population of Great Cormorants in Greece in 2012

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## To be cited as:

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<http://dce2.au.dk/pub/TR22.pdf>

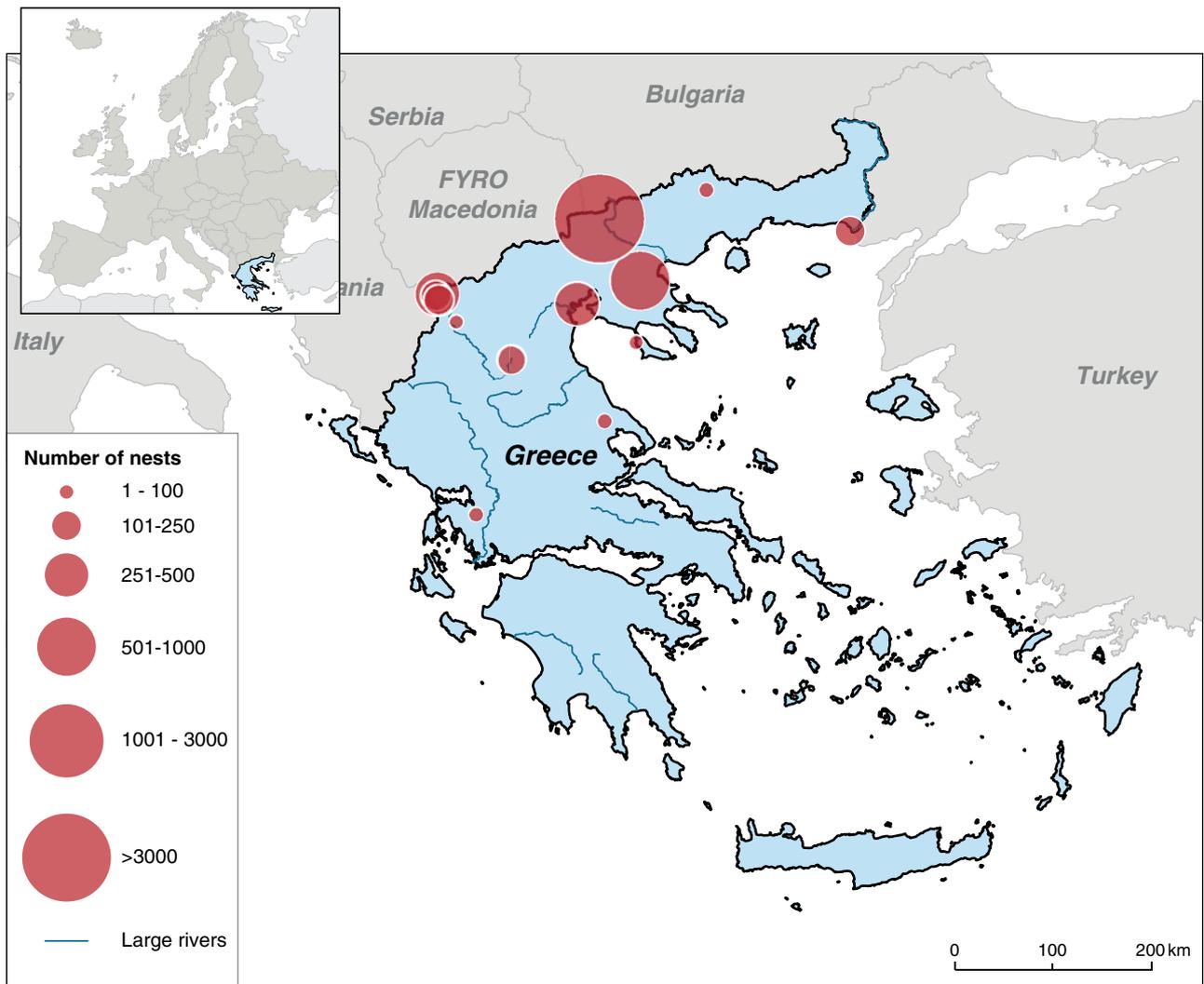
## National summary

In 2012, Greece had 6,978 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in 13 colonies. This is the highest breeding population of cormorants recorded in Greece since recording began. Breeding numbers increased by ca. 2,400 nests compared to 2006. For one colony we had to estimate breeding numbers from a count conducted in 2010. Besides this it is estimated that almost complete coverage of all known breeders was achieved in the 2012 count. It was not possible to count breeders in two small colonies (approx. 5-30 nests).

## Distribution

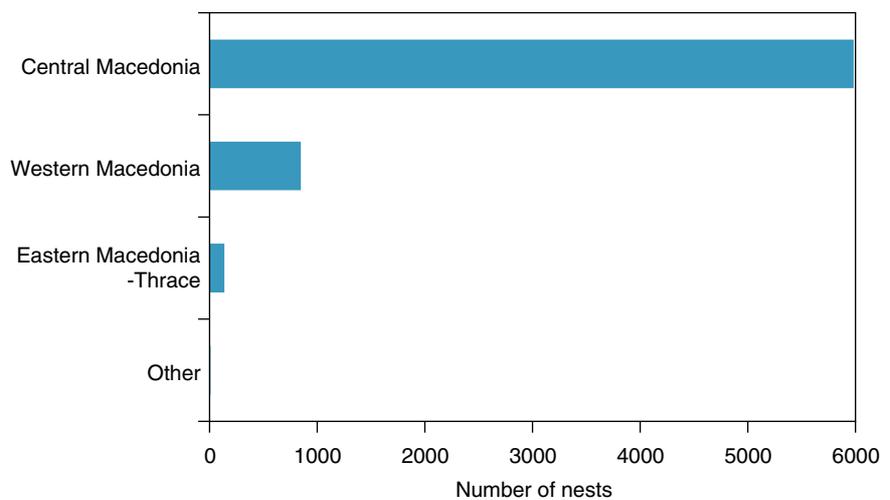
Colonies were located in central and northern continental Greece distributed across five different regions (Fig. 11.1). The great majority of breeding cormorants (86%) were nesting in Central Macedonia (5,983 nests in four colonies). (Fig. 11.2). A further 12% of the nesting population (848 nests in five colonies) were located in Western Macedonia. The remaining 2% were distributed across three regions: Eastern Macedonia - Thrace (137 nests in two colonies), Western Greece (six nests in one colony) and Thessaly (four nests in one colony).

Around 90% of all the cormorants breeding in Greece were nesting in trees. The remaining 10% were nesting on the ground in two colonies on sand islets and two colonies were in reed beds. The majority of colonies (eight), including the largest ones, were located on inland lakes, artificial and natural, lakes (Fig. 11.1). Three colonies were situated in coastal areas and two along river floodplains.



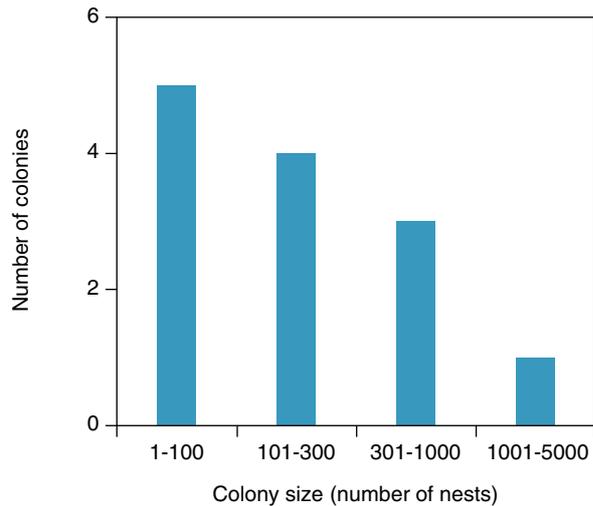
**Figure 11.1.** Distribution and size of breeding colonies of Great Cormorants in Greece in 2012. Source: S. Kazantzidis, Forest Research Institute, Greece.

**Figure 11.2.** Regional distribution of the breeding population of Great Cormorants in Greece in 2012. Source: S. Kazantzidis, Forest Research Institute, Greece.

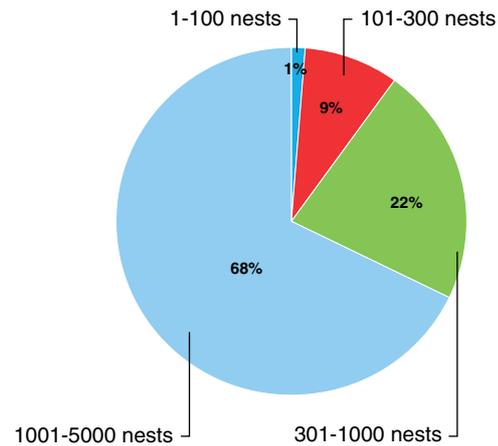


## Colony size

In 2012, the cormorant population bred in 13 colonies – that is the highest number of active cormorant colonies recorded in Greece, to date. The largest colony housed 4,730 pairs (68% of the total breeding population in 2012) and was located in Central Macedonia (Kerkini Lake). Three colonies had more than 300 nests (302-784 nests) (Fig. 11.3) and 22% of the total breeding population was found in these three colonies (Fig. 11.4). Five colonies had fewer than 100 nests (4-59 nests), and these colonies housed only 1% of all breeders in Greece. The remaining four colonies of 101-300 nests held 9% of the breeding population.



**Figure 11.3.** Size distribution of Great Cormorant colonies in Greece in 2012. Source: S. Kazantzidis, Forest Research Institute, Greece.



**Figure 11.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Greece in 2012. Source: S. Kazantzidis, Forest Research Institute, Greece.

## Human intervention in colonies and other factors

No management actions were carried out to control the numbers of nesting cormorants and there were no records of human interference in cormorant colonies in 2012 in Greece. However, occasionally, fishermen in certain sites (especially in lagoons at Thrace and western Greece) shoot cormorants when they approach fish wintering channels. These wintering channels, at Porto Lagos lagoon, in Thrace, are up to 2 km long and 40 m across and give shelter to up to 300 t of small fish (below market size) through the cold season. The number of birds shot is unknown since the shooting of cormorants is not legally permitted in Greece. One small colony in a recently restored lake (Karla Lake in Thessaly) failed in 2012 due to an increase in water levels which flooded all nests with their eggs or nestlings.

## Acknowledgements

The organizer of the 2012 Great Cormorant count in Greece would like to acknowledge the participation of the following volunteers: Olga Alexandrou, Nikos Boukas, Stratis Bourdakos, Giorgos Catsadorakis, Yannis Fakiadis, Yannis Gasteratos, Panayotis Ioannidis, Stavros Kalpakis, Lila Karta, Lambros Katerinopoulos, Irene Koutseri, Eleni Makriyanni, Anastasia Michailidou, Dimitris Michalakis, Sotiris Mountzelos, Theodoros Naziridis, Harris Nikolaou, Panayotis Nitas, Vassiliki Orfanou, Maria Panayotopoulou,

Nikos Panayotopoulos, Kostas Papadopoulos, Pantelis Sidiropoulos, Christos Toskos, Rigas Tsiakiris.

The organizer of the 2012 Great Cormorant count in Greece would like to acknowledge the participation of the Hellenic Ornithological Society, the Society for the Protection of Prespa and the Society for the Protection of Nature of Kastoria for supporting the survey as well as the management authorities of the following National Parks: Evros Delta, Eastern Macedonia and Thrace, Kerkini Lake, Koronia and Volvi Lakes, Axios River Delta, Pamvotis Lake, Kalamas and Acherontas Estuaries, Stroflilia and Kotychi lagoons and Karla Lake.



The Great Cormorant colony in the Axios Delta, June 2013. Note the presence of Pygmy Cormorants *Microcarbo pygmaeus* and a Eurasian Spoonbill *Platalea leucorodia*. Photo: S. Kazantzidis.

## 12 Status of the breeding population of Great Cormorants in Iceland in 2012

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<sup>2</sup>*Research Centre at Snæfellsnes, University of Iceland, Hafnargata 3, 340 Stykkishólmur, Iceland.*

### To be cited as:

Gardarsson, A. & Jónsson, J.E., 2013: Status of the breeding population of Great Cormorants in Iceland in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 55-58. <http://dce2.au.dk/pub/TR22.pdf>

### National summary

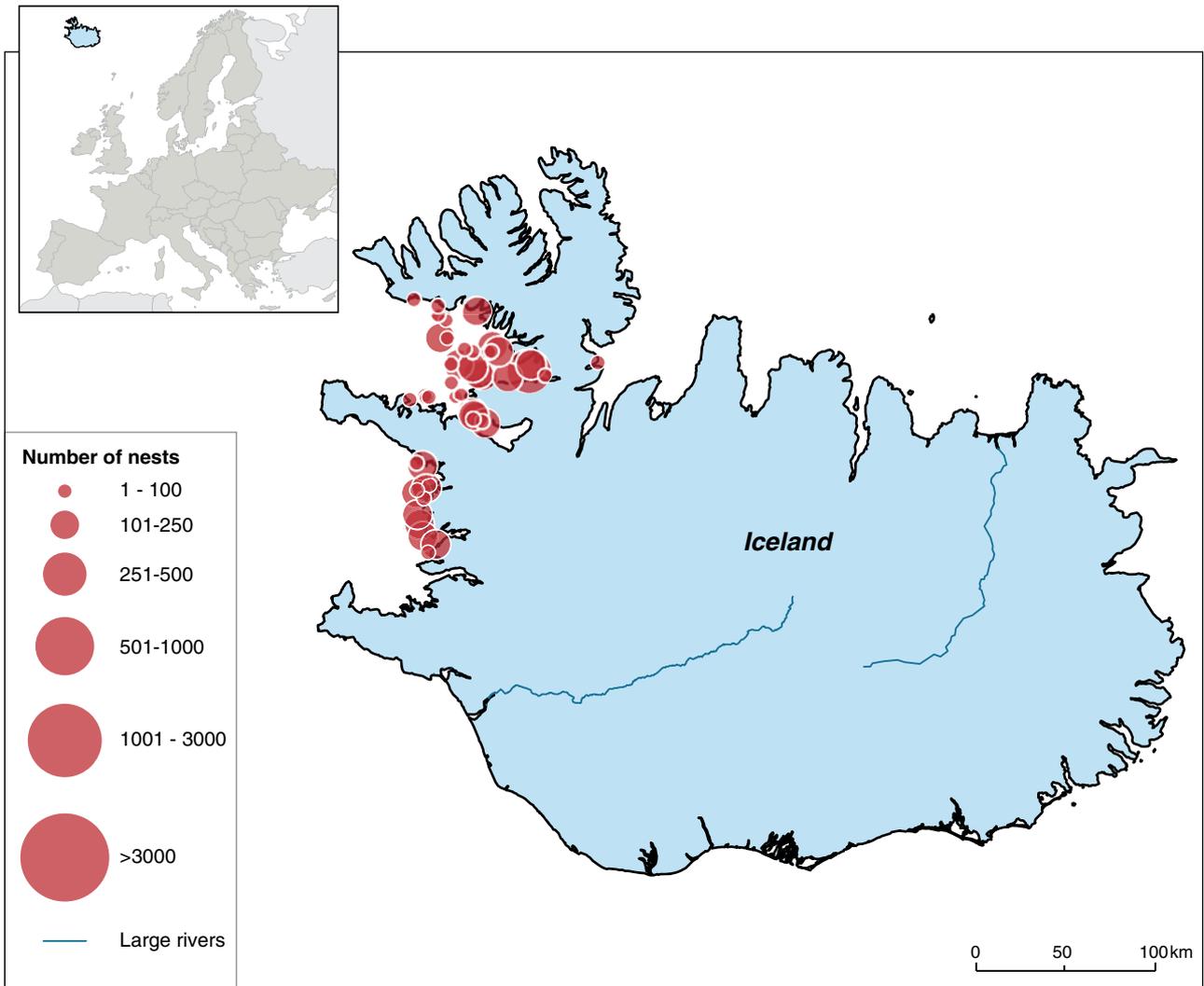
In the summer of 2012, Iceland had 4,772 occupied nests of Great Cormorants (*Phalacrocorax carbo carbo*) in 49 colonies. This is a continuation of the slight decline seen since the population peaked in 2010 (5,250 nests in 2010; 4,954 nests in 2011). Nests were surveyed using low level aerial photographs in June 2012. Full coverage is considered to have been achieved.

The cormorant population in Iceland has been censused using aerial photography since 1975. At first numbers appeared to be rather stable at ca. 3,000 nests and counts took place at irregular intervals, but after 1990 there were indications of a decline in the population and annual monitoring began in 1994. From then on, the total population has been increasing by an average of 3.7% per year, reaching a maximum of 5,250 nests in 2010.

Very recently, a new colony has been established on the north coast, perhaps an indication that space has become limiting in the west and that a range expansion is needed to accommodate further increases in the population. Probably what is happening now is a slow return to earlier conditions where the human factor is less important and food limitation has not yet become critical at the national scale.

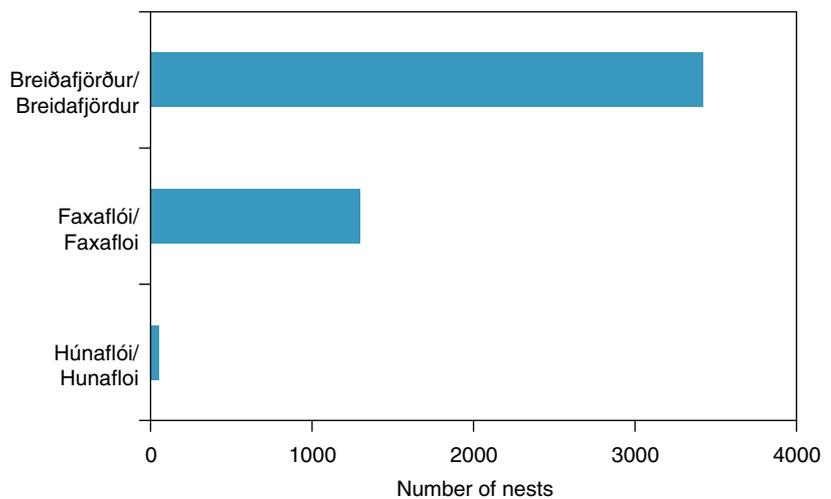
### Distribution

Cormorants were found breeding in 49 colonies along the western and north-western coasts of Iceland (Fig. 12.1). The majority of cormorants (72%) were found breeding in the Breidafjörður (Breiðafjörður) - a large bay on the west coast (Fig. 12.2). A total of 36 colonies were distributed throughout the bay, which all together hosted 3,426 nests. The Faxaflói located on the southwest coast was home to a further 27% of the breeding population (1,298 nests located in 12 colonies). A small proportion (1%) was found in a single colony in Húnaflói on the north coast.



**Figure 12.1.** Distribution and size of breeding colonies of cormorants in Iceland in 2012.

**Figure 12.2.** Regional distribution of the breeding population of cormorants in Iceland in 2012.

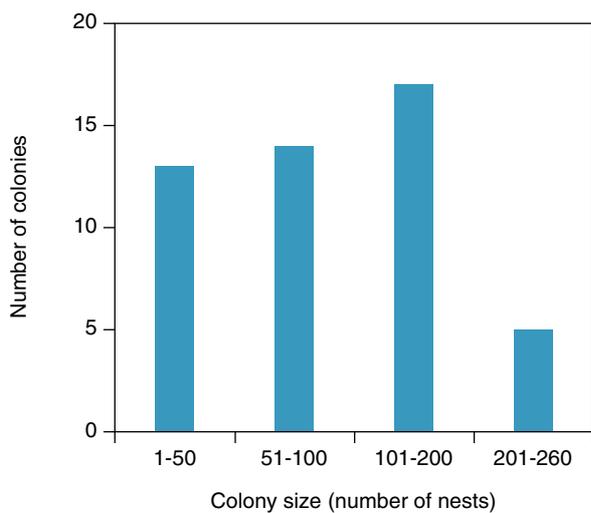


The Great Cormorant is an inshore seabird and a partial migrant in Iceland. In recent decades, its breeding distribution has been restricted to the west coast where low islets and rocks in the two large bays of Faxafloi and Breidafjörður have provided relatively safe colony sites surrounded by large areas of shallow sea. In the 19th century and the first half of the 20th century, cormorant colonies were also found on sea cliffs in other coastal areas but the last of these disappeared in the 1970s. The shift in cormorant distribution coincided with increased access to the west coast where a dispersed human population dependent on subsistence hunting, fishing and livestock farming was moving away and the economy was changing rapidly.

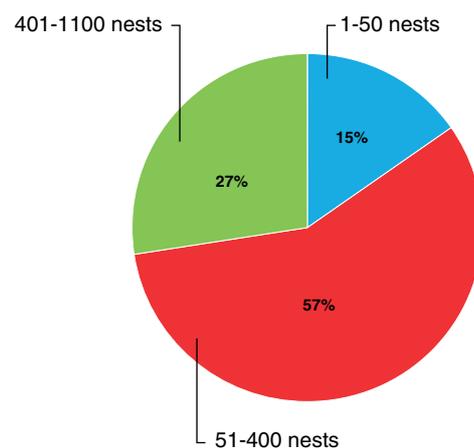
All the cormorants breeding in Iceland in 2012 nested on the ground on small treeless islets, which were surrounded by the sea. In 2012 most were on low islets or rocks between 2 m and 15 m above sea level, (on average 7 m). Most islets (67%) had less than 10% soil cover. Islets varied in area from 0.04 to 3.23 ha. Out of the 4,772 nests, 796 (17%) were on islets larger than 1 ha, 784 (16%) on islets 0.5-1.0 ha, 2790 (58%) on islets between 0.1 and 0.5 ha, and 402 (8%) on islets <0.1 ha. The minimum distance between colonies was 2000 m. However, one new settlement was defined as a colony and not as a sub-colony, even though their nearest neighbouring colony was located within a distance of 1,000 m.

### Colony size

In 2012, the cormorant population in Iceland bred in 49 separate colonies. The largest colony housed 254 pairs and was located on Hnífsker in the north east of Breidafjörður, while the smallest colony contained only four nests. Overall, cormorants bred in a large number of smaller colonies. A total of five colonies contained more than 200 nests in 2012 (Fig. 12.3) with almost one quarter of the breeding population (23%, 1,105 nests, Fig. 12.4). Almost half of the population (46%) bred in colonies of between 100 and 200 nests (17 colonies, 2,197 nests). A further 23% of the breeding population (14 colonies, 1,079 nests) bred in colonies of between 50 and 100 nests, while the remaining 8% of breeders (13 colonies, 391 nests) were found in colonies with less than 50 nests.



**Figure 12.3.** Size distribution of Great Cormorant colonies in Iceland in 2012.



**Figure 12.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Iceland in 2012.

## Human intervention in colonies

No management takes place in cormorant colonies in Iceland. Cormorants are legal quarry in Iceland with a shooting season from the 1st of September to the 15th of March. Traditional killing of fledglings and taking of eggs is also legal although quickly coming to an end.

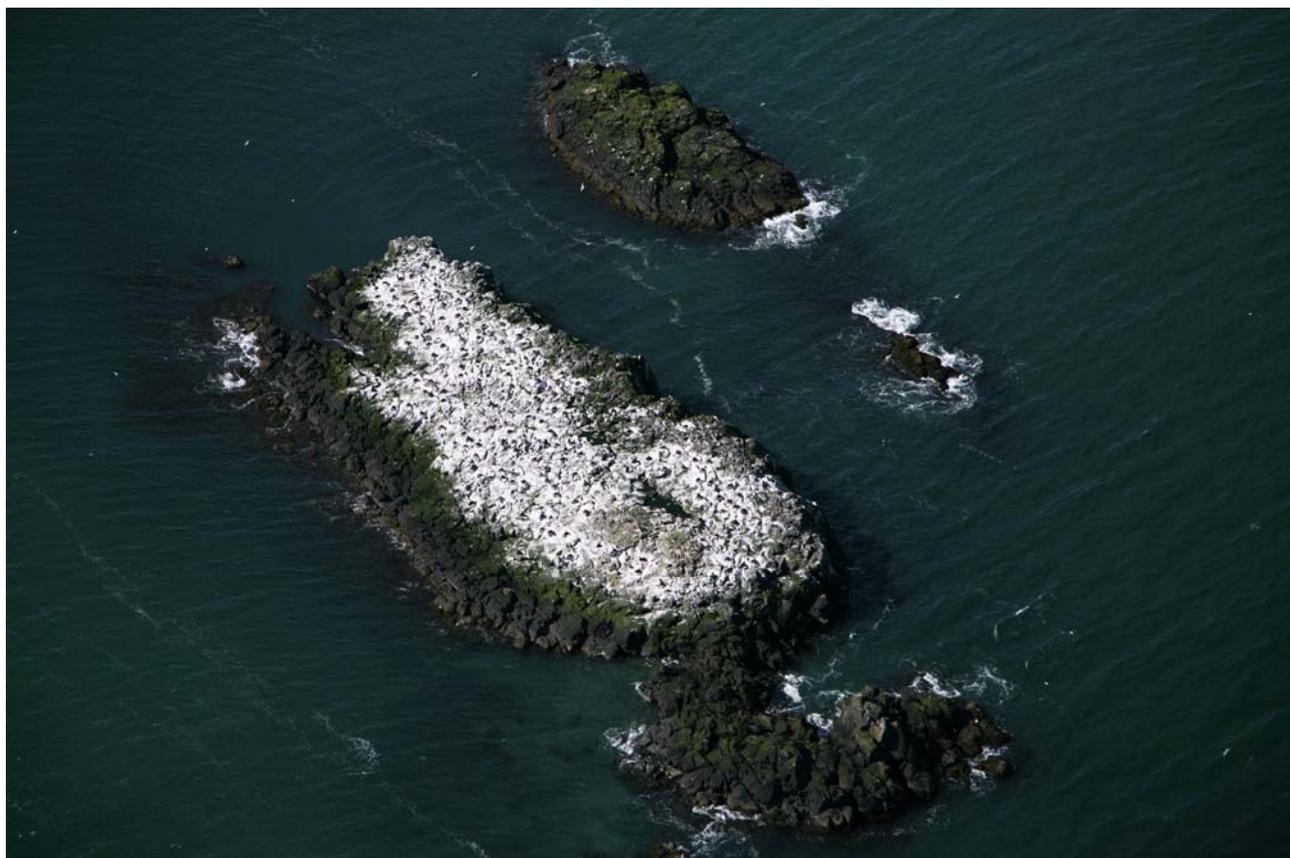
## Acknowledgements

We would like to acknowledge the contribution of Úlfar Henningsson for his expert piloting and enthusiastic participation in the development of the technique of low level aerial photography used in censusing Icelandic cormorant colonies.

## References and further information

[http://hs.hi.is/en/cormorant\\_population\\_dynamics](http://hs.hi.is/en/cormorant_population_dynamics)

Gardarsson, A. 2008: Dílaskarfsbyggðir 1994–2008. (Distribution and numbers of the Great Cormorant *Phalacrocorax carbo* in Iceland in 1994-2008). (In Icelandic with English summary). – Bliki 29: 1-10.



Aerial view of the Great Cormorant colony at Belgsholtshólmi, Iceland, May 2012. Photo: Arnthor Gardarsson.

## 13 Status of the breeding population of Great Cormorants in Italy in 2012

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### To be cited as:

Volponi, S. & CorMoNet.it, 2013: Status of the breeding population of Great Cormorants in Italy in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 59-64.

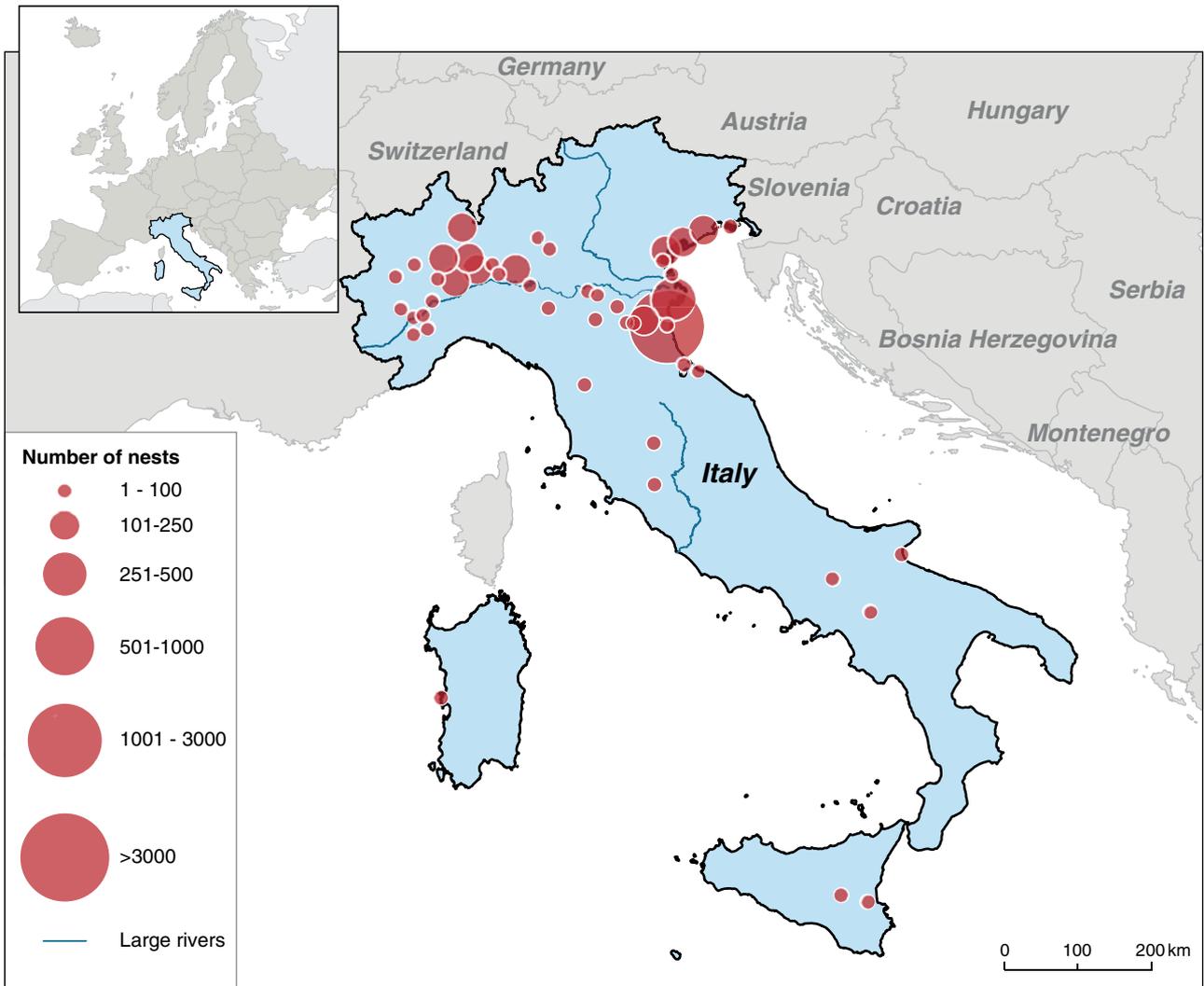
<http://dce2.au.dk/pub/TR22.pdf>

### National summary

In 2012, the breeding population of Great Cormorants (*Phalacrocorax carbo sinensis*) in Italy was estimated at 3,914 occupied nests (range 3,865-4,016) in a total of 48 colonies. This is an increase of ca. 750 nests (24%) compared to the breeding numbers from 2011 (3,170 nests, range 3,085-3,280 nests) and an increase of ca. 1,770 nests (82%) compared to 2006 (2,142 nests; Bregnballe et al. 2006). Two small colonies in Piedmont were not visited during the 2012 breeding season and data from the 2011 census are used in this report. It is estimated that almost complete coverage of all breeding cormorants was obtained during the 2012 census. In 2012 five new colonies were discovered, ranging in size from one to 25 nests. Furthermore two sites where breeding took place in 2011 (1-2 pairs) were abandoned in 2012.

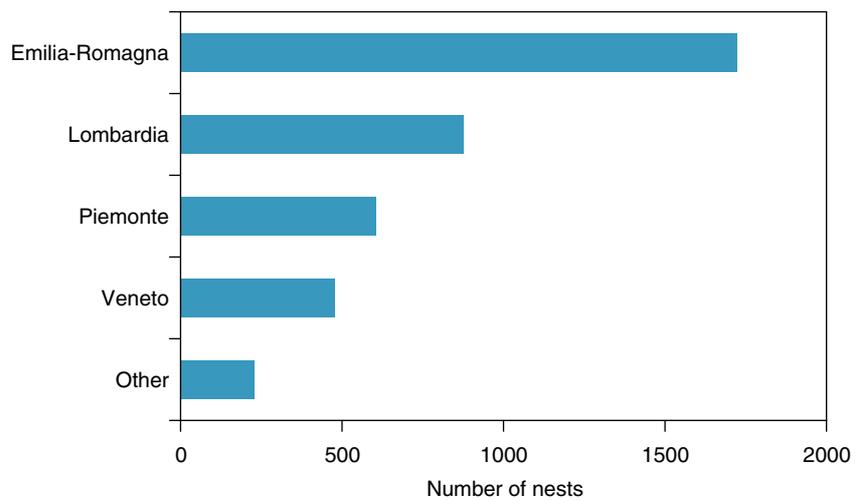
### Distribution

Colonies were found across the country, but the majority of colonies and of the entire breeding population were located in northern Italy, especially in the western Po plain along the Po River and its tributaries, and in freshwater wetlands and lagoons along the upper Adriatic coast (Fig. 13.1). Cormorants bred in 11 different regions with the largest number of breeders found in the Emilia-Romagna region. This region contained almost half of the total breeding population (44%, 1,724 nests in 13 colonies). Large numbers of breeders were also reported in Lombardy (22%, 878 nests), Piedmont (15%, ca. 600 nests) and Veneto (12%, ca. 480 nests) regions (Fig. 13.2). Colonies located in Friuli Venezia Giulia, Tuscany, Latium, Campania and Apulia have only been established in recent years and host only a small number of breeding pairs. Small colonies in Sardinia and Sicily were found in traditional breeding areas which have been occupied since the 1960s and early 1990s respectively. Breeding numbers in these colonies were more or less the same as recorded in earlier years.



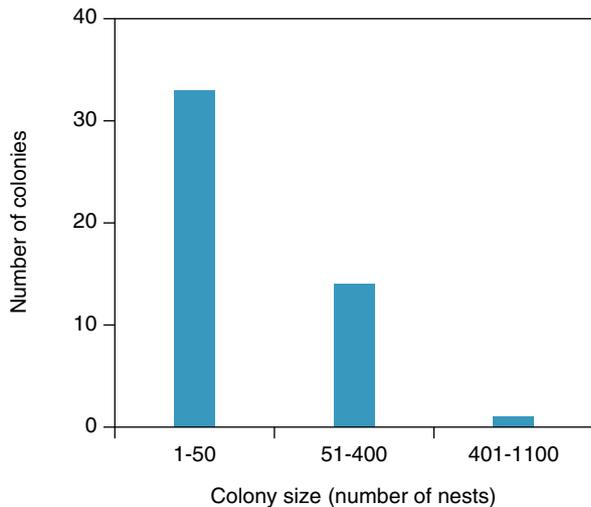
**Figure 13.1.** Distribution and size of breeding colonies of Great Cormorants in Italy in 2012. Source: S. Volponi & CorMoNet.It

**Figure 13.2.** Regional distribution of the breeding population of Great Cormorants in Italy in 2012. Source: S. Volponi & CorMoNet.It.

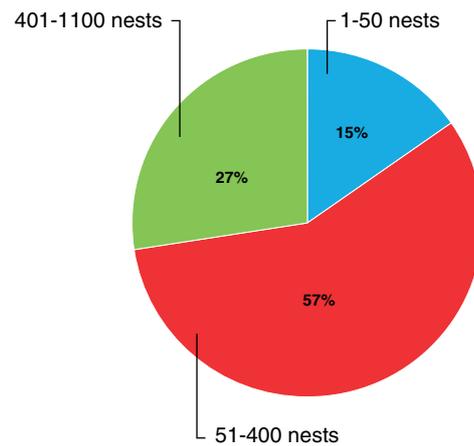


## Colony size

In 2012, the cormorant population in Italy bred in 48 colonies. The largest colony contained 1,075 nests and was located in the Punte Alberete nature reserve (see photo) on the southern side of the Po river delta. This single colony, founded in 1995, contained almost one third (27%) of the national breeding population. Since the end of the 1990s this colony has been the largest colony in Italy and the only one to house more than 400 nests. There were 14 colonies of intermediate size (i.e. with 51-400 nests) which held over half of the breeding population (57%, ca. 2,240 nests). The majority (33) of the Italian cormorant colonies contained less than 50 nests (Fig. 13.3) and together these had only 15% of the total population of breeders (Fig. 13.4).



**Figure 13.3.** Size distribution of Great Cormorant colonies in Italy in 2012. Source: S. Volponi & CorMoNet.It.



**Figure 13.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Italy in 2012. Source: Volponi & CorMoNet.It.

Almost all cormorants breeding in Italy were nesting on stand of hygrophilous vegetation. Breeding took place in flooded marshlands and on river banks or small islets in freshwater wetlands and lagoons. Cormorants built their nests on tall trees including white poplar (*Populus alba*), white willow (*Salix alba*), elm (*Ulmus* sp.) and ash (*Fraxinus* sp.) or hedgerows of bushy tamarisk (*Tamarix* sp.) and grey willow (*Salix cinerea*). The only exception is the colony located on the west coast of Sardinia (see photo) where cormorants build their nests on sea cliffs as is typical of shags (*P. aristotelis desmarestii*; also breeding in the area) and of the nominate subspecies of the Great Cormorant *P. c. carbo* breeding along the Atlantic coasts of France, United Kingdom, Ireland, Iceland and Norway.

## Human intervention in colonies and other factors

In Italy, the majority of the breeding colonies (85%) are located in areas protected by law and are not subject to any management actions aiming to reduce or stop cormorants from breeding. Most colonies are located in nature reserves (19 colonies) and/or regional or national parks (10 colonies). At least 40 colonies are found in areas which are part of the Natura 2000 network. Thus complete breeding failure is pretty rare and in 2012 occurred only in four small and recently established colonies. In two reservoirs nests were abandoned due to large changes in water levels, while in another colo-

ny cormorants abandoned the nests after being harassed by a helicopter involved in fire fighting. Finally, 3-4 pairs trying to breed in a fish pond area were discouraged by the land owner.

### **Discussion**

In the six-year period since the last national census in 2006 the number of cormorant colonies have tripled (from 16 to 48) and the number of nests counted almost doubled (from 1,770 to 3,914 nests). However, 26 years after cormorants established a colony in Val Campotto starting the colonization of continental Italy (Spina et al. 1986, Carpegna et al. 1997), the overall number of birds nesting in Italy is only about 1% of the overall estimated European population. So the breeding population is small compared with the number of cormorants wintering in Italy, estimated at 50,000-60,000 birds (i.e. 10-15% of the European population). The cormorants overwintering in Italy are found in a variety of habitats, from the Alps to the Mediterranean environment of Sicily and Sardinia, using several hundred night roosts and foraging in alpine lakes and rivers, inland freshwater wetlands, coastal brackish lagoons and shallow sea waters.



Great Cormorants nesting in trees on a cliff at Lake Bolsena, Italy 2011. Photo: Massimo Brunelli.

The size of the breeding population seems to be regulated mainly by two factors: food availability around the colony, which acts at a local level (e.g. the oldest colonies of Val Campotto, Punte Alberete, and those in West Sardinia and the upper Po River in Piedmont) and limited availability of protected breeding sites where cormorants can breed without being disturbed directly (e.g. colony harassment) or indirectly (e.g. hunting activities). Undisturbed areas are required for almost a six-month period lasting from the early stages of colony occupation and egg laying, starting in mid-January, to chick fledging occurring up to the end of July and later in new colonies. In the past direct actions to destroy nests or to prevent breeders from starting to nest were carried out in several colonies in the Lagoon of Venice and the Po Delta. These actions resulted in cormorants abandoning the breeding site or ceasing breeding activity (Serra & Brichetti 2002).

The effects of human activities on both the distribution and size of cormorant colonies seems rather clear. Several areas regularly occupied in winter by very large numbers of cormorants do not have any breeding colonies (i.e. natural lakes and reservoirs in central Italy, coastal wetlands in southern Sardinia and the core area of the Po Delta). Additionally almost all cormorant colonies are located in protected sites where long-established colonies of Grey Heron (*Ardea cinerea*) and other colonial species of Ciconiiformes (herons, egrets, spoonbill and ibis) exist. Probably the cormorants use the presence of colonies of these other species as an indication of safety against human disturbance.

Measures taken to scare away cormorants from aquaculture and other fishing areas, as well as from rivers and basins managed by anglers, are likely to continue in coming years. The number of cormorants breeding in Italy will therefore, probably, remain rather small compared to the number overwintering cormorants. Furthermore, most colonies are likely to remain within the range of 1-100 nests and new colonies will probably only be established in protected areas and/or inside colonies of Grey Herons and other colonial Ardeidae. Overall, the breeding population of cormorants in Italy will remain well below the potential natural carrying capacity of our wetlands.

## Acknowledgements

The two national censuses of breeding colonies carried out in Italy in 2011 and 2012 would not have been possible without the enthusiastic commitment and hard work in the field of a large number of volunteers, wildlife rangers and researchers who provided detailed information on cormorant numbers and distribution. Their involvement in the breeding counts and thus in the overall counts project organized by the EU project 'CorMan' and the IUCN-Wetlands International Cormorant Research Group allowed the establishment of a network of active people interested in monitoring cormorants during the breeding season and in winter. This informal network – named CorMoNet.it – can be seen as a national section of the IUCN-Wetlands International Cormorant Research Group (CRG) and, hopefully, will be active in future activities promoted by the CRG to monitor cormorant populations and study their ecology. We would like to thank the European Commission project 'CorMan' for providing financial support for the counts of breeding colonies in 2012.

The members of CorMoNet.it who were involved in counting Great Cormorant colonies in 2011-2012 were:

Giuseppe Albanese (Foggia), Egidio Bacchi (Mantova), Alessio Bartolini (Pistoia), Marco Basso (Padova), Angelo Battaglia (Piacenza), Romano Benassi (Modena), Andrea Benocci (Siena), Pier Luigi Beraudo (Cuneo), Anna Brangi (Pavia), Massimo Brunelli (Roma), Matteo Caldarella (Foggia), Enrico Calvario (Firenze), Enrico Caprio (Asti), Renato Carini (Parma), Luciana Carotenuto (Viterbo), Lino Casini (Rimini), Bruno Caula (Cuneo), Michele Cento (Roma), Andrea Ciaccio (Catania), Mauro Cosolo (Gorizia), Paolo Debernardi (Torino), Mauro della Toffola (Torino), Davide Emiliani (Ravenna), Alessio Farioli (Ferrara), Mauro Fasola (Pavia), Andrea Favaretto (Padova), Alessandra Gagliardi (Varese), Arturo Gargioni (Brescia), Antonio Gelati (Modena), Marcello Giannotti (Napoli), Laura Gola (Alessandria), Nunzio Grattini (Mantova), Giulio Ielardi (Roma), Renzo Ientile (Siracusa), Giovanni La Grua (Catania), Vincenzo Mancini (Benevento), Paolo Marotto (Torino), Daniela Mengoni (Ravenna), Riccardo Nardelli (La Spezia), Lucio Panzarin (Venezia), Francesco Pezzo (Siena), Cristina Poma (Milano), Ivan Provini (Milano), Luca Puglisi (Pisa), Giuseppe Rannisi (Catania), Alessandro Re (Vercelli), Stefano Sarrocco (Roma), Francesco Scarton (Venezia), Giacomo Sgorlon (Treviso), Stefano Sponza (Gorizia), Adriano Talamelli (Rimini), Roberto Tinarelli (Bologna), Egidio Trainito (Sassari), Stefano Volponi (Ravenna), Marika Zattoni (Bologna).

### References and further information

Bregnballe T., Volponi S. van Eerden M., van Rijn S. & Lorentsen S-H. 2011: Status of the breeding population of Great Cormorants *Phalacrocorax carbo* in the Western Palearctic in 2006. Pp. 8-20 in Van Eerden, M.R., van Rijn, S. and Keller, V. (eds.), Proceedings 7th International Conference on Cormorants, Villeneuve, Switzerland 23-26 November 2005, Wetlands International-IUCN Cormorant Research Group, Lelystad.

Carpegna, F., Grieco, F., Grussu, M., Volponi, S. & Veronesi, E. 1997: The Italian breeding population of Cormorant (*Phalacrocorax carbo*). – Suppl. Ric. Biol. Selvaggina 26: 81–87.

Serra L. & Brichetti P. 2002: Uccelli acquatici nidificanti: 2000. – Avocetta 26: 123-129.

Spina, F., Bolognesi, F., Frugis, S., & Piacentini, D. 1986: Il Cormorano, *Phalacrocorax carbo sinensis*, torna a riprodursi nell'Italia continentale: accertata nidificazione in Val Campotto (Ferrara). – Riv. ital. Orn, 56: 127-129.



Panoramic view of a portion of the cormorant colony at Punta Alberete, Italy in 2012. Photo: Stefano Volponi.

# 14 Status of the breeding population of Great Cormorants in Latvia in 2012

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## To be cited as:

Millers, K., 2013: Status of the breeding population of Great Cormorants in Latvia in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 65-68.

<http://dce2.au.dk/pub/TR22.pdf>

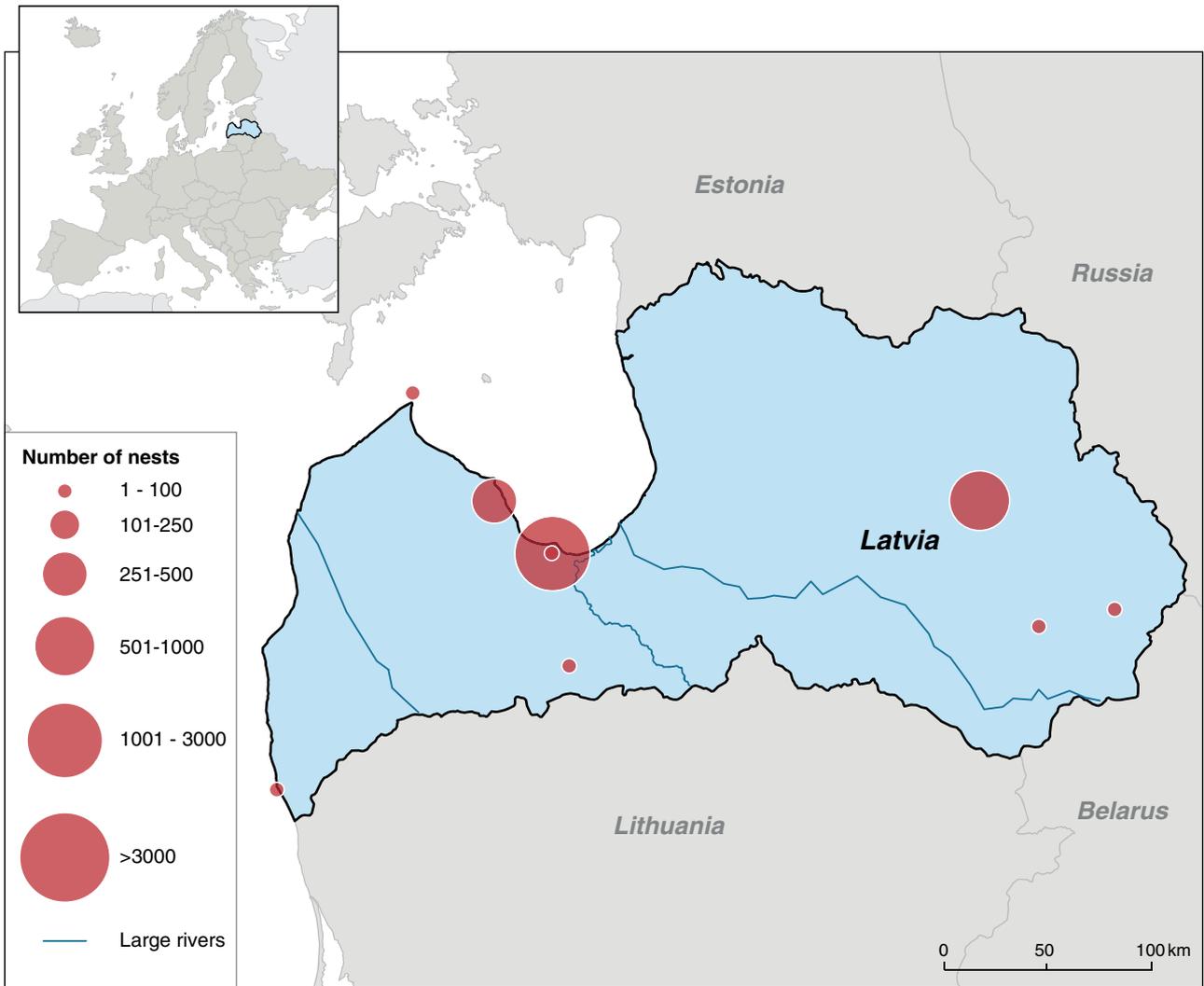
## National summary

In 2012, Latvia had an estimated 3,106 nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in nine colonies. A total of 2,634 nests were counted, with the total coverage of all breeders estimated at 80%. This is an increase of approximately 600 nests compared to 2011. It is possible that some unknown colonies exist, especially in the eastern and south-eastern parts of the country. These areas contain a large number of water bodies and are rarely visited by ornithologists. Additionally, very little cormorant research has been carried out in Latvia before 2009. During research in 2012 some potential breeding areas were visited, but no signs of breeding were found. Further research will continue in the 2013 breeding season.

## Distribution

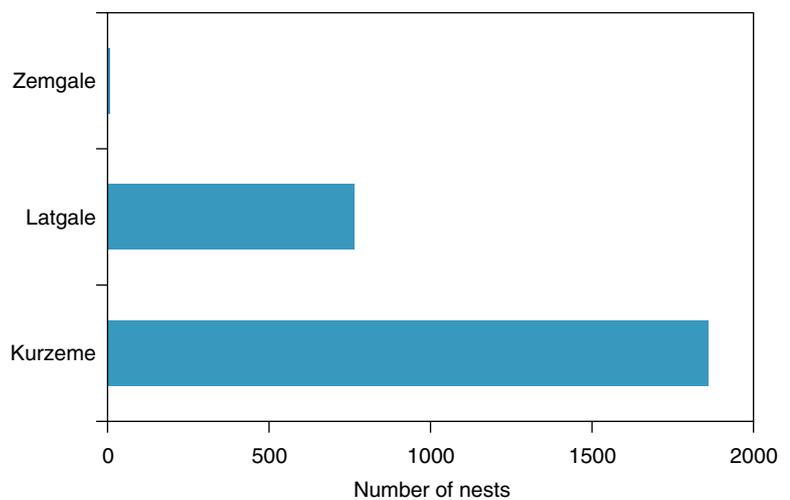
The breeding colonies were found across the country, at both inland and coastal sites. The largest colony was located on an island in a coastal lake named Kanieris, 6 km from the south-western coast of the Riga Gulf (Fig. 14.1). The majority of cormorants (71%, 1,861 nests) were breeding in the Kurzeme region located in western Latvia, bordering the Baltic Sea (Fig. 14.2). The Latgale region in the east, which borders Belarus and Russia, contained 29% of breeders (765 nests), while a small number (8 nests, 0.3%) were found in the central Zemgale region. One colony (Lubans Lake) was located on the border between two regions (Vidzeme and Latgale), but was assigned to the Latgale region for ease of analysis and presentation.

In Latvia in 2012, cormorants built their nests both on the ground and in trees. 11% were found nesting on the ground on small islets at Engure Lake, while the remaining breeders nested in the trees. There were two sea colonies in the Kurzeme region; one located at Pape (an old shipwreck) and one on the islet where the Kolka lighthouse is situated (located approximately 5 km from the coast).



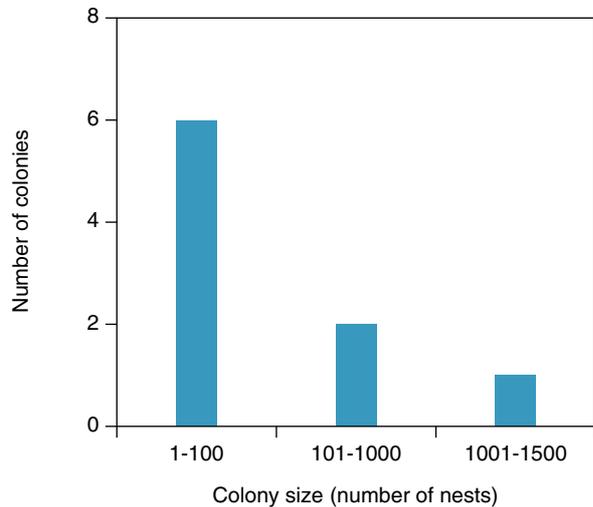
**Figure 14.1.** Distribution and size of breeding colonies of Great Cormorants in Latvia, 2012. Source: K. Millers, Latvia Birds Fund.

**Figure 14.2.** Regional distribution of the breeding population of Great Cormorants in Latvia in 2012. Source: K. Millers, Latvia Birds Fund.

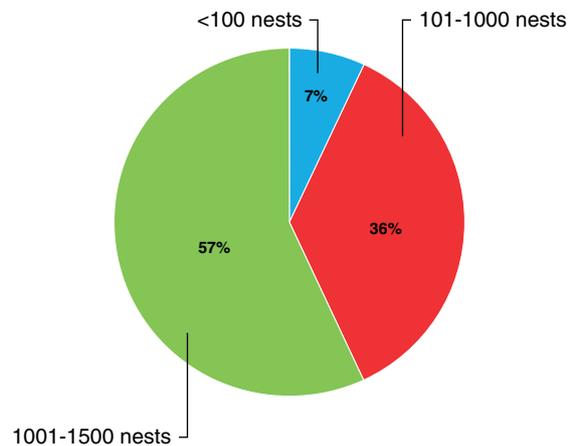


## Colony size

Only three colonies in Latvia had more than 100 nests in 2012 (Fig. 3). The majority of the breeding population (93%) was found in these three colonies located at lakes Kanieris, Lubans and Engure (Fig. 4). The remaining colonies contained less than 100 nests, and these colonies housed 7% of all breeders in Latvia. The nests in Engure Lake colony were counted by ornithologists from the Laboratory of Ornithology (Institute of Biology, University of Latvia) and later by the author.



**Figure 14.3.** Size distribution of Great Cormorant colonies in Latvia in 2012. Source: K. Millers, Latvia Birds Fund.



**Figure 14.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Latvia in 2012. Source: K. Millers, Latvia Birds Fund.

## Human intervention in colonies

Management is now carried out in two areas in Latvia where conflicts with fisheries are intense. The Nagli fish pond fishery has requested annual permits from the authorities (Nature Conservation Agency) to shoot approximately 50-70 cormorants for the last four years (possibly longer), with the number of permits (relating to the number of birds allowed to be shot) varying from year to year. Permission was granted in 2012. The shooting takes place after the waterfowl breeding season (July) in the fish ponds territory, which is a complex containing more than 27 ponds of different sizes located approximately 13 km southwest of the Lubans Lake colony. The main aim of the shooting is to reduce the number of feeding birds at the fish ponds. The Dagda country authority has requested permits to shoot cormorants in 2012 and 2013.



The author with a fledged young at Lubans Lake, Latvia, July 2012. Photo: Karlis Millers.

In 2012 in Latvia, the authorities permitted management of the cormorant population at the Nagli fish pond complex. However, there was evidence of illegal shooting of adult birds in the nests in at least one colony during the breeding season in 2012 and possibly earlier. In some areas, human disturbance during the start of the breeding season caused cormorants to abandon the colony (Aluksne Lake in Vidzeme region).

### **Acknowledgements:**

I would like to thank Thomas Bregnballe (Aarhus University, Denmark) for his help and support in a number of areas which made the research possible. I would also like to thank field workers Arturs Karklins and Gaidis Grandans and volunteers Davis Ozolins, Rolands Kalvis and Dainis Tucs for their assistance in collecting data. I would also like to thank Dr. biol. prof. Janis Viksne and Antra Stipniece from the Laboratory of Ornithology in the Institute of Biology, University of Latvia. We would like to thank the European Commission project 'CorMan' for providing financial support for the counts of breeding colonies in 2012.

### **References and further information**

Latvia Birds Fund <http://latvijaspusti.lv/en/lbf.html>



Great Cormorant nests low in the trees at Kanieris lake, Latvia, June 2012. Photo: Karlis Millers.

# 15 Status of the breeding population of Great Cormorants in Lithuania in 2012

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<sup>2</sup> Kuršių Nerija National Park Administration, Naglių str. 8, LT-93123 Neringa, Lithuania.

## To be cited as:

Dagys, M. & Zarankaitė, J. 2013: Status of the breeding population of Great Cormorants in Lithuania in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 69-71. <http://dce2.au.dk/pub/TR22.pdf>

## National summary

In the summer of 2012, Lithuania had an estimated 3,200 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in six colonies. A total of 3,004 nests were counted, but a small number of colonies located in the Nemunas river delta could not be surveyed due to limited access. Despite this, it is estimated that the count resulted in an almost complete coverage (>90%) of all breeding cormorants in Lithuania. There were approximately 1,000 fewer nests in 2012 than in 2011, primarily due to nest management measures taken in selected colonies.

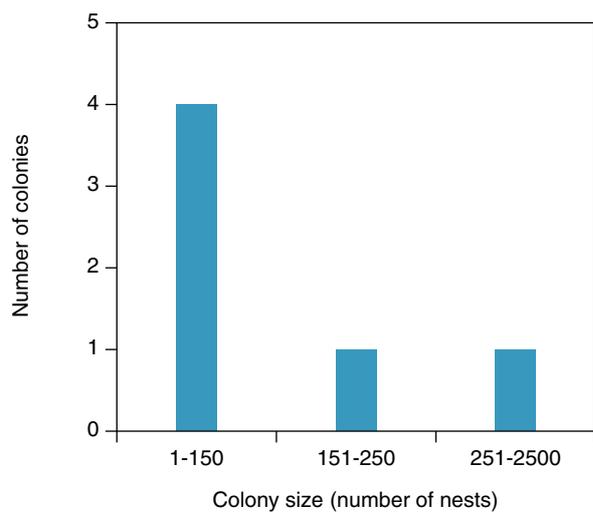
## Colony distribution and size

In 2012, cormorant nests were counted in six colonies (Fig. 15.1). The largest colony was located on the Curonian Spit near Juodkrantė, which is located on Lithuania's western coast, bordering the Baltic Sea. This colony contained 2,463 nests - 82% of the national breeding population. The remaining five colonies ranged in size from 1 to approximately 200 nests and were located in central and north-eastern Lithuania (Fig. 15.2). The five smaller colonies contained 18% of the breeding population (Fig. 15.3).

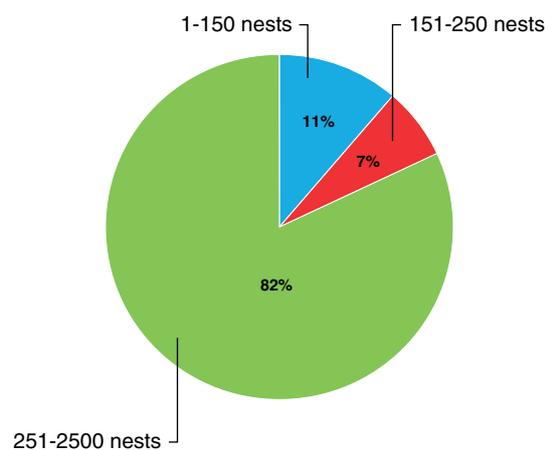
In 2012, as in all previous years, 100% of all the cormorants breeding in Lithuania were nesting in trees. The absolute majority of nests were located in pines, some nests in spruce and black alder, and only a few nests in spruce and birch.



**Figure 15.1.** Distribution and size of breeding colonies of cormorants in Lithuania in 2012.



**Figure 15.2.** Size distribution of Great Cormorant colonies in Lithuania in 2012.



**Figure 15.3.** Distribution (%) of the total breeding population of cormorants in relation to colony size in Lithuania in 2012.

## **Human intervention in colonies**

In 2012, human intervention took place in all Lithuania's colonies holding more than 100 breeding pairs. The greatest effect of intervention was in the largest colony near Juodkrantė. As a result of these actions, almost 1,000 cormorant nests were abandoned in the breeding season. Furthermore, there were approximately 1,000 fewer pairs attempting to breed in this colony in 2012 compared to 2011 – probably also as a result of nest management measures implemented in previous years.

Management is carried out in all the Lithuanian breeding colonies that contain more than 100 nests in order to relieve conflicts with fisheries and aquaculture, and to decrease impact on forests. The overall aim of the management is to reduce the number of breeding cormorants by 50%. Management of colonies primarily includes scaring of breeding birds in late stages of incubation through the use of acoustical and visual deterrents (e.g. fireworks).

## 16 Status of the breeding population of Great Cormorants in Montenegro in 2012

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### To be cited as:

Vizi, A. 2013: Status of the breeding population of Great Cormorants in Montenegro in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 72-74.

<http://dce2.au.dk/pub/TR22.pdf>

### National summary

In 2012, Montenegro had 1,156 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in a single colony. Over the last seven years, the breeding population in Montenegro has decreased by 1.6%. All previously known breeding locations of cormorants in Montenegro were visited during the breeding season in 2012. The only active colony of cormorants was located on the Skadar Lake, near the Albanian border. Skadar lake is the largest lake on the Balkan Peninsula covering an average area of 391 km<sup>2</sup> (range 370-600 km<sup>2</sup>); two thirds of the lake belongs to Montenegro and one third to Albania.

### Distribution

Breeding cormorants in Montenegro has been recorded on several sites along the Skadar Lake – Bojana River system. Besides Skadar Lake, colonies used to exist on Šasko Lake and Paratuk ait, but none were found here during the 2012 survey. Thus, in 2012 Montenegro had only a single colony located on Skadar Lake (Fig. 16.1). Additional information has been gathered from the National Biodiversity Research Programme in 2012 and this confirmed that no cormorants were breeding elsewhere in Montenegro.

The Skadar Lake colony was first discovered in 1998 within the Special Nature Reserve Pančeva oka. This is the largest and most stable cormorant breeding colony on the lake. Intermittent colonies were recorded on Skadar Lake over the last six years, but in 2012 only the Pančeva oka colony was active (numbers here were almost as high in 2012 as in 2005). Revisiting Skadar Lake on several occasions during the summer in 2012 confirmed that no other colonies were present.



**Figure 16.1.** Distribution and size of breeding colonies of Great Cormorants in Montenegro in 2012. Source: National History Museum of Montenegro.



Great Cormorant roosting site at Ckla, Montenegro, March 2013. Photo: Andrej Vizi.

## Human intervention in colonies

Cormorants are not hunted in Montenegro, although some illegal hunting still occurs at the National park borders. Conflicts have existed between cormorants and commercial fisheries on the lake for many years, and it is known that organized destruction of a former colony took place in 1970. Since then, there have been no known management actions in cormorant colonies.

Besides Great Cormorants, the Pančeva oka reserve also hosts a breeding colony of the Dalmatian Pelican (*Pelecanus crispus*) as well as other breeding waterbirds. The Dalmatian Pelicans are known for “loose symbiosis” with cormorants in regard to where they breed and forage. Thus it would be very difficult to carry out any cormorant control measures in this area without also disturbing the pelicans.

## Acknowledgements

The Great Cormorant breeding colony count in 2012 in Montenegro was accomplished with active involvement and support of the following organizations and individuals: (a) Andrej Vizi, Natural History Museum of Montenegro (count of existing colonies and surveying former colonies, as well as logistic support), (b) Borut Štumberger, Euronatur (elaboration of counting method regarding the time of count and vantage points), and (c) N. Vešović and N. Dubak, National Park Skadar Lake (provision of research permit in the protected reserve).

## References and further information

Vizi, A., B. Štumberger, N. Dubak & O. Vizi (in press): A review of Great cormorant (*Phalacrocorax carbo*) population on Skadar Lake, Montenegro. – Natura Montenegrina.

Great Cormorants roosting at Skadarsko jezero, Grmozur, Montenegro, January 2007. Photo: Ondrej Vizi.



## 17 Status of the breeding population of the *P. c. sinensis* subspecies of Great Cormorants in Norway in 2012

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Lorentsen, S.-H. 2013: Status of the breeding population of Great Cormorants in Norway in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 75-78.

<http://dce2.au.dk/pub/TR22.pdf>

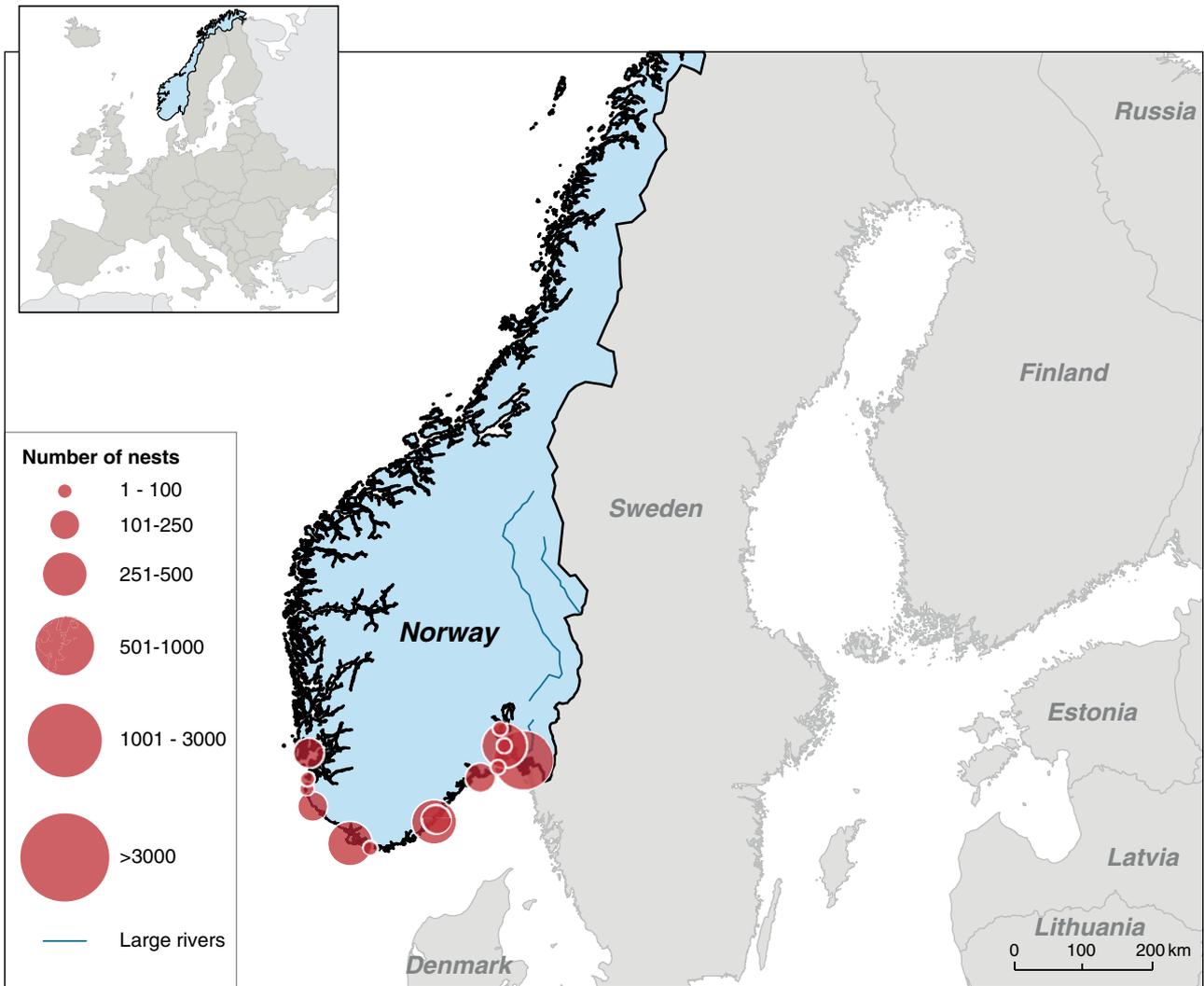
### National summary

The subspecies *Phalacrocorax carbo sinensis* is breeding on islets along the coast in southern Norway. In 2012, Norway had an estimated 2,500 occupied nests of this Great Cormorant subspecies in 14 colonies. This is an increase of approximately 600 nests (32%) since 2010. Since the establishment of a breeding population of *P. c. sinensis* in southern Norway in 1996/97 (45 nests) there has been a steady population growth up to 2012 (Fig. 17.2).

### Other subspecies

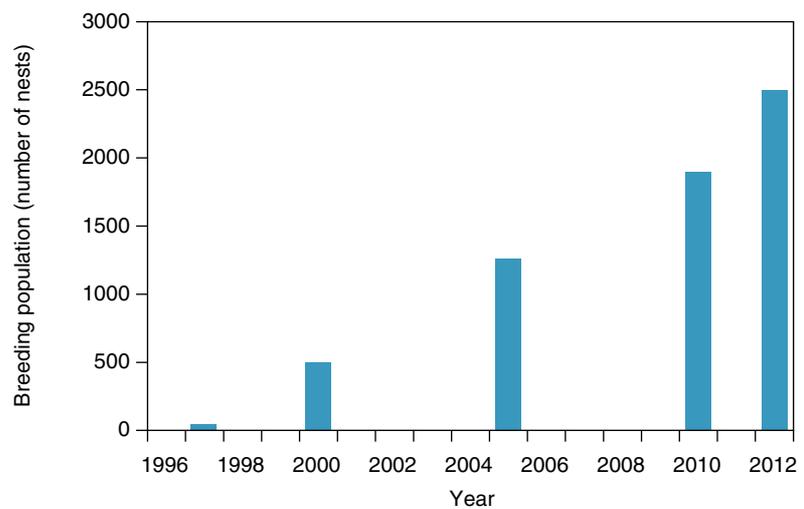
According to Marion & Le Gentil (2006), two other subspecies of Great Cormorants are also breeding in Norway. Until recently it was believed that the only other subspecies breeding in Norway besides *P. c. sinensis* was *P. c. carbo*, which breeds on skerries and cliffs along the coast from Hordaland on the southwest coast to the Russian border in the northernmost part of Norway. However, based on the sequencing of mtDNA extracted from feathers of cormorant chicks in Norway, Marion & Le Gentil (2006) suggested that a hitherto undiscovered subspecies, named *P. c. norvegicus*, was breeding in the northern part of Norway (from the Lofoten islands towards the north). This study also indicated that *P. c. norvegicus* was breeding in other countries along the North Sea, but in lower numbers than in Norway.

The breeding population of the subspecies *P. c. carbo* and the presumed *P. c. norvegicus* is estimated to 30,000 breeding pairs (Barrett et al. 2006). The nests of these two other subspecies were counted in some of the breeding colonies in 2012, but many breeding colonies were not counted and it is therefore not possible to estimate the current size of the 2012 breeding population of *P. c. carbo* / *P. c. norvegicus* in Norway.



**Figure 17.1.** Distribution and size of breeding colonies of Great Cormorants (*P. c. sinensis*) in Norway 2012. Source: S.-H. Lorentsen, Norwegian Institute for Nature Research (NINA).

**Figure 17.2.** Development of the breeding population of Great Cormorant (*P. c. sinensis*) in Norway from the time of establishment (1996/97) to 2012. Source: S.-H. Lorentsen, Norwegian Institute for Nature Research.

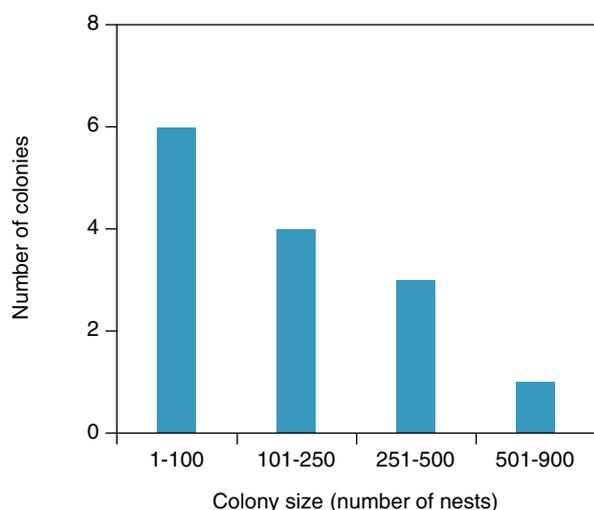


## Distribution and colony size

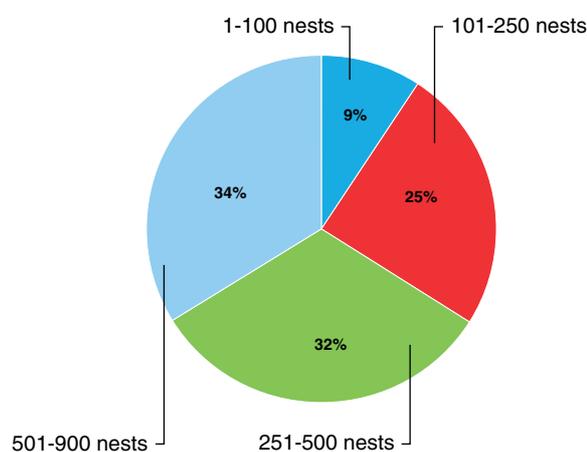
Colonies of the subspecies *P. c. sinensis* were found along the coast from Rogaland (south-western tip of Norway) to Østfold close to the Swedish border (Fig. 17.1). The largest colonies were located in the eastern part of Skagerrak from the southern tip of Norway to the Swedish border and these housed 80% of the population. Rogaland in the west accounted for 20% of the nests. Most of the nests were situated on the ground, on small islands along the coast.

In 2012, cormorants bred in 14 colonies (compared to nine colonies in 2010). The largest colony, founded in 1997, housed 820 pairs (34% of the national population) and was located in Østfold close to the Swedish border. This was the only colony with more than 500 nests.

Almost half of the breeding colonies (six colonies) contained less than 100 nests (Fig. 17.3) and these colonies housed only 9% of the national population (Fig. 17.4). The remaining colonies contained between 100 and 500 nests and held a total of 55% of the national population.



**Figure 17.3.** Size distribution of Great Cormorant (*P. c. sinensis*) colonies in Norway in 2012. Source: S.-H. Lorentsen, Norwegian Institute for Nature Research (NINA).



**Figure 17.4.** Distribution (%) of the total breeding population of Great Cormorants (*P. c. sinensis*) in relation to colony size in Norway in 2012. Source: S.-H. Lorentsen, Norwegian Institute for Nature Research (NINA).

## Human intervention in colonies

In Norway, cormorants breed on small islands along the coast (except for one colony in Rogaland), and until now there have, in general, been relatively few conflicts with fisheries. The only conflicts have been in Østfold (the easternmost colony) where fishermen claim cormorants eat a lot of small cod (*Gadus morea*). However, two diet studies showed that cormorants feed mainly on fish from the Labridae family but the frequency of cod in the cormorants' diet increased from 2002 to 2012 (Skarprud 2003, Sørensen 2012). There have been an increasing number of observations of cormorants on inland water bodies, and it is expected that the conflicts with fisheries (especially recreational fisheries) will increase over the coming years.

## Acknowledgements

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## References and further information

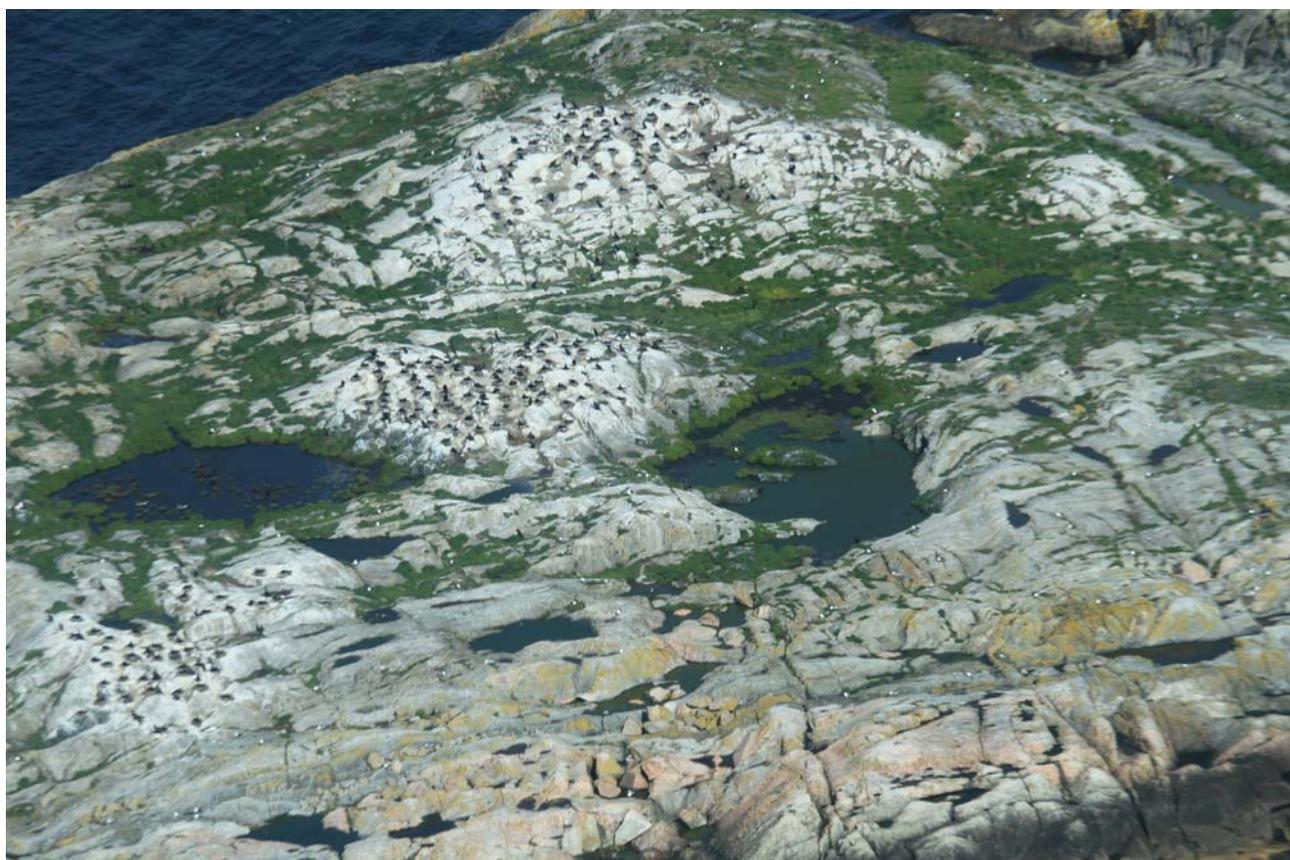
Barrett, R. T., Lorentsen, S.-H. & Anker-Nilssen, T. 2006: The status of breeding seabirds in mainland Norway. – *Atlantic Seabirds* 8: 97-126.

Marion, L. & Le Gentil, J. 2006: Ecological segregation and population structuring of the Cormorant *Phalacrocorax carbo* in Europe, in relation to the recent introgression of continental and marine subspecies. *Evolutionary Ecology* 20: 193-216.

Skarprud, M. 2003: Summer food of the Great Cormorant *Phalacrocorax carbo* in Øra Nature Reserve, Fredrikstad. – Master thesis. Norges landbrukshøgskole. 43 pp.

Sørensen, A. 2012: The summer diet of Great Cormorant (*Phalacrocorax carbo sinensis*) in Øra Nature Reserve, 15 years after the establishment of the colony. – Master thesis. Universitetet for Miljø- og Biovitenskap. 33 pp.

[www.seapop.no](http://www.seapop.no)



Great Cormorant colony at Storskarven in Vestfold county, Norway, 2012. Photo: Rune Bergstrøm.

## 18 Status of the breeding population of Great Cormorants in Poland in 2012

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### To be cited as:

Bzoma, S. Krzywosz, T., Betleja, J., Orłowska, B., Antczak, J., Traczuk, P. & Witkowski, J. 2013: Status of the breeding population of Great Cormorants in Poland in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 79-81.

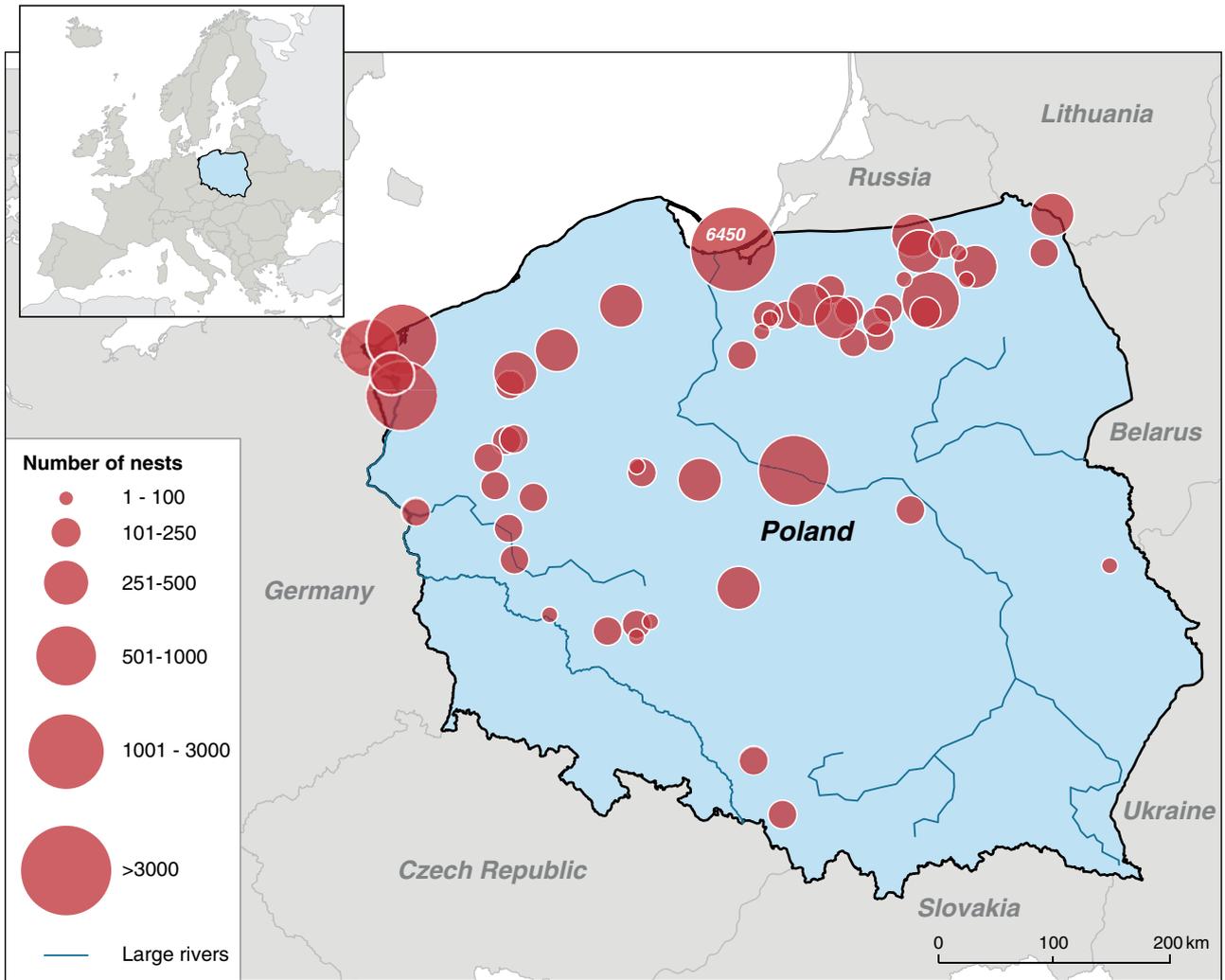
<http://dce2.au.dk/pub/TR22.pdf>

### National summary

In 2012, Poland had an estimated 26,600 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in 54 colonies. This is a negligible decrease from approximately 27,100 nests in 2010. During 2012 it was not possible to count the breeding numbers in five small colonies. In these colonies, numbers from 2010 were used. It is estimated that almost complete coverage of all known breeders was achieved in the 2012 count.

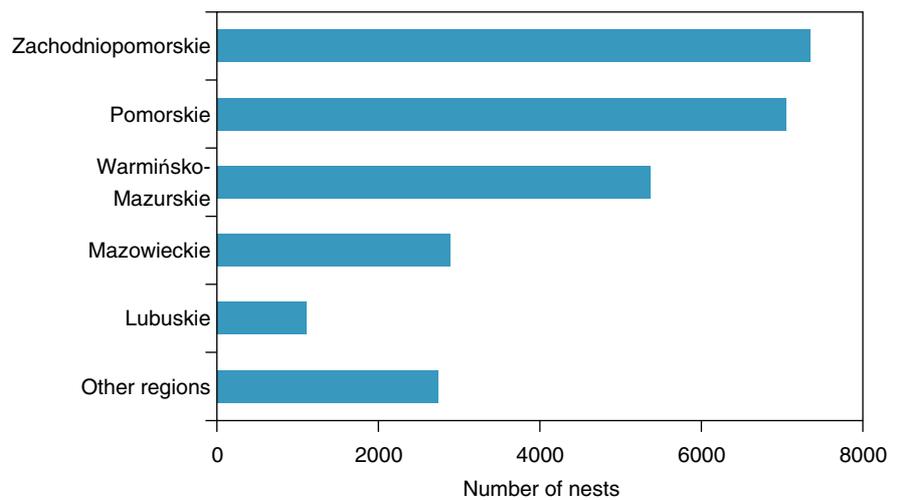
### Distribution

Cormorant colonies were counted in a total of 12 regions in Poland (Fig. 18.1) with the majority of breeding (75%) taking place in the three most northern regions which are located next to the Baltic Sea (Fig. 18.2). All of the cormorants breeding in Poland were nesting in trees in 2012.



**Figure 18.1.** Distribution and size of breeding colonies of Great Cormorants in Poland in 2012. Nest numbers are provided for the largest colony.

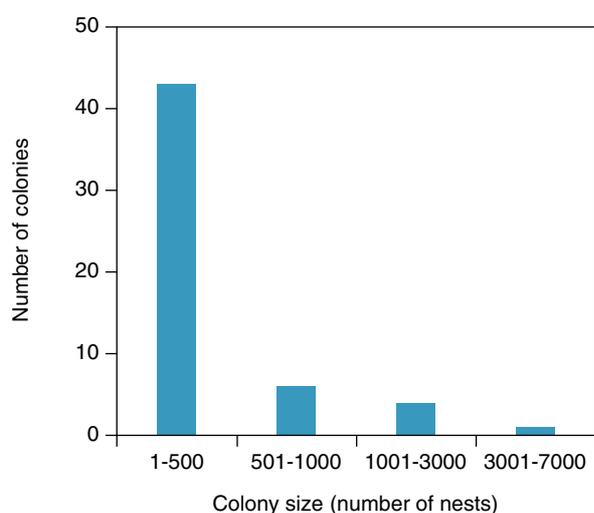
**Figure 18.2.** Regional distribution of the breeding population of Great Cormorants in Poland in 2012.



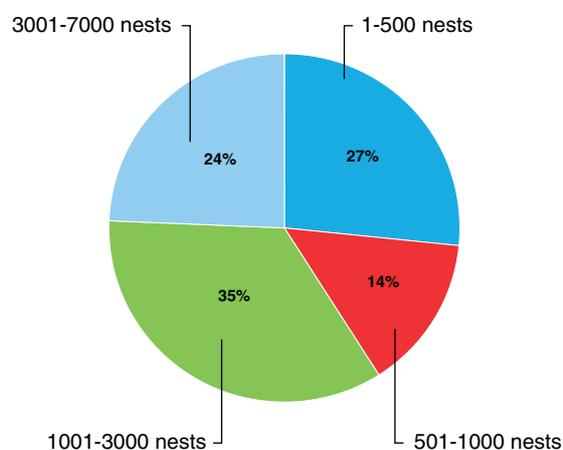
## Colony size

In 2012, the cormorant population in Poland bred in 54 colonies. The largest colony housed 6,450 pairs and was located at Kały Rybackie in the northern region of Pomorskie on the Baltic Sea coast. This single colony contained almost one quarter of the national breeding population (24%) and was the largest cormorant colony ever counted in NW Europe.

The majority of colonies (43 out of 54) were much smaller, containing less than 500 nests (Fig. 18.3). One quarter of the breeding population (ca. 7,000 pairs) was found in these 43 colonies (Fig. 18.4). The remaining three quarters of the breeding population was found in 11 colonies. Six colonies contained between 500 and 1,000 nests and housed 14% of the breeders. Four colonies contained between 1,000 and 3,000 nests and housed over one third of the population, while the remaining 24% was found in the largest colony mentioned above.



**Figure 18.3.** Size distribution of Great Cormorant colonies in Poland in 2012.



**Figure 18.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Poland in 2012.

## Human intervention in colonies

Management was carried out only in three areas. The main reason for taking action was that the colony was located next to fish ponds (two areas). The main aim of the management has been to reduce the impact of birds on fish production. The main management method has been to reduce the breeding success by removal of nests with eggs (Barycz Valley, dolnośląskie) or by oiling eggs (Raszyn fish-ponds, mazowieckie). Oiling of eggs was also carried out in part of Kały Rybackie colony (approx. 100 nests) to remove nests from the holiday camp area close to the village.

## Acknowledgements

We would like to thank the European Commission project 'CorMan' for providing financial support for the counts of breeding colonies in 2012.

## 19 Status of the breeding population of Great Cormorants in the Russian part of the Gulf of Finland in 2012

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### To be cited as:

Gaginskaya, A., Starikov, D. & Kouzov, S. 2013: Status of the breeding population of Great Cormorants in the Russian part of the Gulf of Finland in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 82-85.

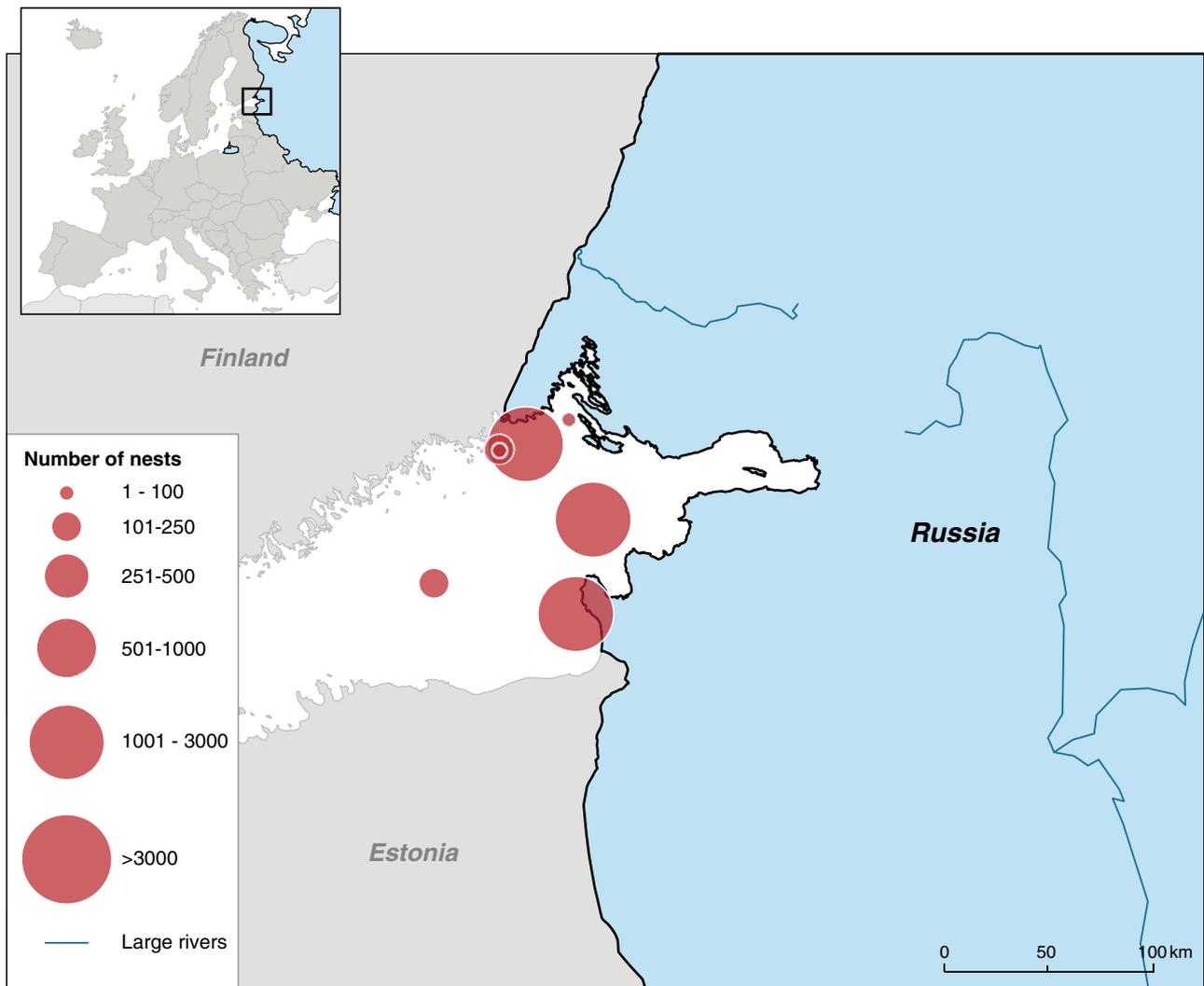
<http://dce2.au.dk/pub/TR22.pdf>

### National summary

There were 4,605 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in seven colonies in the Russian part of the Gulf of Finland in 2012. This is an increase of approximately 18% (706 nests) over a period of six years (3,899 nests recorded in 2006). During the 2012 count, a total of 23 islands in the Russian part of the Finnish Gulf were surveyed as part of the national cormorant count. Breeding colonies were found on 15 islands. In some cases, colonies were located on islands within archipelagos and the distance between some of the colonies was relatively small (less than 2 km). Colonies located within 2 km from each other were categorized as sub-colonies. Consequently, seven colonies were defined, of which two had multiple sub-colonies. It is judged that complete coverage of all breeders was obtained during the 2012 count.

### Distribution

In 2012 cormorants were breeding in two districts in the Russian part of the Gulf of Finland. 70% of the nests were located on islands in the Kingisepp district and the remaining 30% were breeding in the Vyborg district (Fig. 19.1). When compared to the breeding numbers from 2006, an increase was observed in the Kingisepp district, while a decrease in the number of nests was seen in the Vyborg district.



**Figure 19.1.** Distribution and size of breeding colonies of Great Cormorants in the Russian part of the Gulf of Finland in 2012. Source: A. Gaginskaya, St.-Petersburg State University.

In the Kingisepp district, located in the southern part of the Gulf of Finland, 3,225 nests were counted in three colonies. The largest colony contained six sub-colonies (defined as less than 2 km apart) and was located on the western part of the Seskar archipelago, which lies 19 km north of the southern coast of the Gulf of Finland. In this colony, cormorants built nests on small islands ranging in size from 0.1 to 1 ha and the colony housed 38% of the total population (1,733 nests). The remaining breeders in this district were found on Reimosar Island and the small islands of Severny Virgin. Reimosar Island is located 2 km from the west coast of the Kurgalsky peninsula and housed 1,306 breeding pairs (28% of the breeding population). The Severny Virgin islands located in the middle of the bay held 186 nests, 4% of the national population.

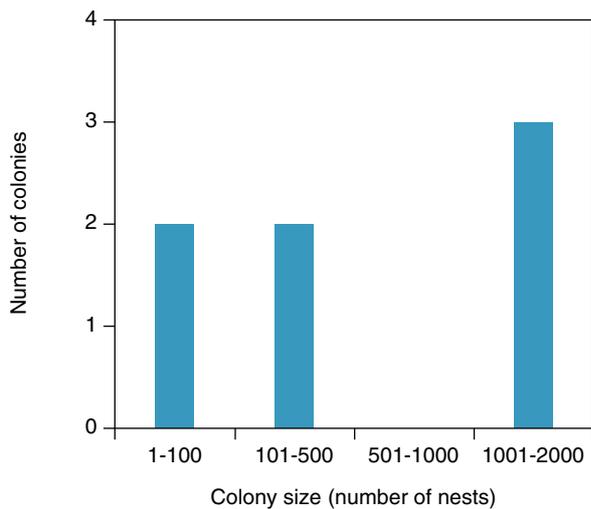
In the northern district of Vyborg, the remaining 30% of breeders (1,380 nests) were found in four separate colonies located on islands off the northern coast of the Gulf. The majority of the breeders in this district (79% 1,088 nests) were located in one colony within the Bolshoy Fiskar archipelago, which is approximately 8 km south of the northern coast of the Gulf of Finland. In the archipelago, cormorants bred in five sub-colonies on islands located within 2 km of each other. The remaining breeders were found in three

colonies located at Dolgy Rif (241 nests), Soglasny (50 nests) and Rondo (1 nest).

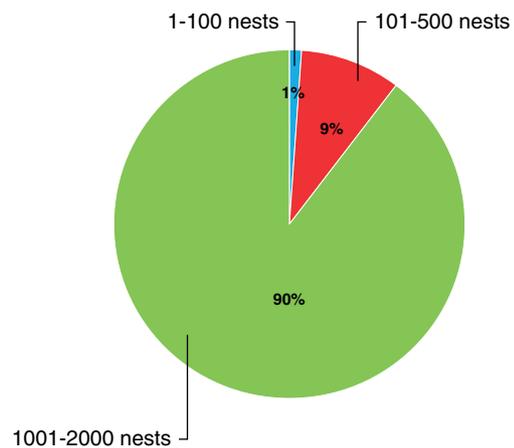
### Colony size

In 2012, the cormorant population in the Russian part of the Gulf of Finland bred in seven colonies. The three largest colonies contained over 1,000 nests each, with the largest single colony containing 1,733 pairs. These three colonies contained 90% of the breeding cormorant population in 2012 (4,127 nests). Of the remaining breeders, 9% (427 nests) were found in two colonies holding between 100 and 500 nests and 1% (51 nests) were found in two small colonies containing less than 100 nests (Fig. 19.2 and 19.3).

All breeding colonies of cormorants in the region were located on uninhabited islands with no trees. All nests were located on the ground either on or between rocks or small areas with reeds, at a distance of 5 to 25 m from the water. The islands where cormorants built their nests are situated in zones with strict border controls, so the number of visitors and human disturbance is limited. Colonies located on the northern shore of the Gulf build their nests using twigs and reeds. In the colonies near the south coast nests are built entirely of reeds.



**Figure 19.2.** Size distribution of Great Cormorant colonies in the Russian part of the Gulf of Finland in 2012. Source: A. Gaginskaya, St.-Petersburg State University.



**Figure 19.3.** Distribution (%) of the total breeding population of Great Cormorant in relation to colony size in the Russian part of the Gulf of Finland in 2012. Source: A. Gaginskaya, St.-Petersburg State University.

### Human intervention in colonies and other factors

In 2012, as in previous years, no actions were carried out to control cormorant breeding numbers in colonies in the Russian Gulf of Finland. A significant reduction in the number of nests in colonies was observed on the islands located close to the coast of the Gulf, where ground predators are present (fox and raccoon dog). Evidence of predators and large scale destruction of nests in colonies were recorded in colonies on the Dolgy Rif, Rondo and Kurov island (part of the Seskar archipelago).

## Acknowledgements

The 2012 count of cormorant colonies in the Russian part of the Gulf of Finland was made possible through cooperation with a project organized by the St. Petersburg charity *Biologists for Nature Conservation* (Director R.A Sagitov). This project titled 'Integrated biological monitoring of islands in the Russian part of the Gulf of Finland included in Ingermanlandsky Reserve' involved an expedition to study the natural systems of islands in the Russian part of the Gulf of Finland in June 2012. We truly appreciate the invaluable help of members of the expedition and particularly the crew of the *Centaurus 2*. A special word of thanks goes to Valery Buzun and Vera Ovcharenko who assisted in counting nests in cormorant colonies and Julia Bojarinova, Anna Kravchuk (St. Petersburg University) and Andrey Derkach (captain of the freighter yacht *Mirabelle*) who also assisted in collecting data. The authors would like to express their most sincere gratitude to all of the above persons. Financial support was provided by the EC project 'CorMan' and these funds were used to rent a vessel to carry out the inventories of breeding colonies of cormorants.

## References and further information

Kouzov, S. & Kravchuk, A. 2012: Cormorant on Kurgalsky peninsula and its role in local ecosystems – Materials VII regional youth environmental conference "Environmental School in Peterhof - the city of science of the Russian Federation." Ecological problems of the Baltic Region ".SPb. P 42–47 (In Russian). Report can be obtained by contacting [anna.gaginskaya@gmail.com](mailto:anna.gaginskaya@gmail.com)



Great Cormorant colony at Dolgy Rif, June 2012. Photo: Anna Gaginskaya.

## 20 Status of the breeding population of Great Cormorants in Serbia in 2012

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### To be cited as:

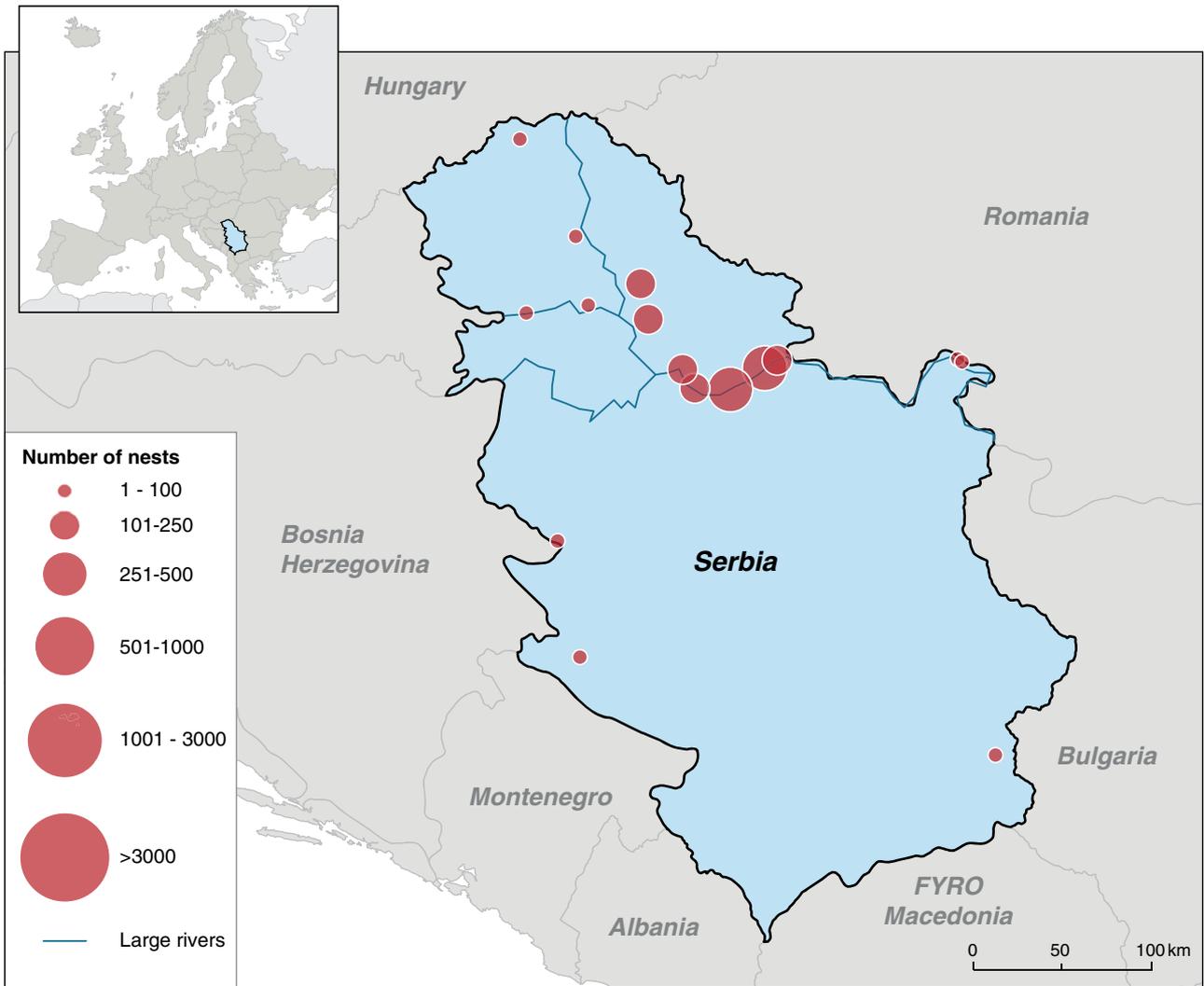
Šćiban, M., Đorđević, I., Stanković, D., Ham, I., Dučić, N., Rudić, B., Grujić, D., Sekereš, O., Manasijević, Z., Rajković, D., Grubač, B. & Balog, I. 2013: Status of the breeding population of Great Cormorants in Serbia in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 86-89. <http://dce2.au.dk/pub/TR22.pdf>

### National summary

In 2012, Serbia had an estimated 2,000 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in 15 colonies (1,871-1,981 nests counted). This is an increase of approximately 1,300 nests compared to breeding records from 1998 when there were 700-760 breeding pairs (Puzović et al. 1999). The 2012 count was the most complete census of breeding cormorants carried out in Serbia within the last 20 years or more. It is believed that almost complete coverage of the breeding population was obtained. All known cormorant breeding sites were visited and three new colonies were discovered during the 2012 count. A small possible breeding colony was located during a subsequent winter roost count carried out in January 2013. Thus three nests were discovered at a large roosting site, but it was not possible to determine if breeding had taken place at this site in 2012.

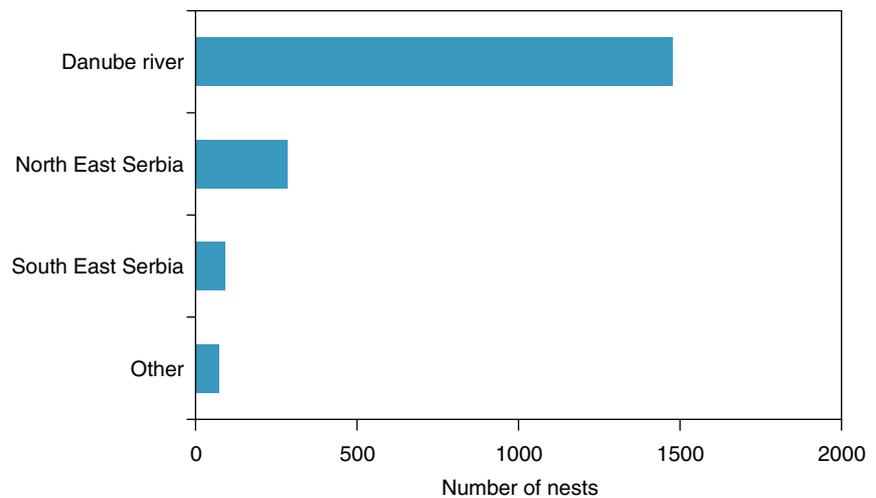
### Distribution

Colonies were found across the country, but all larger colonies were located along the river Danube which crosses the northern part of Serbia (Fig. 20.1). Over three quarters of cormorants in Serbia were breeding on islands on the river Danube and flooded forests along the river banks. A further 15% of all breeders were nesting in the Banat region in north-eastern Serbia. Together these two regions housed the majority of the national breeding population (Fig. 20.2), with less than 10% of breeders found elsewhere in the country. Cormorants were found nesting on a slightly unusual site in one colony - a large electrical pylon which is situated on the river Danube.



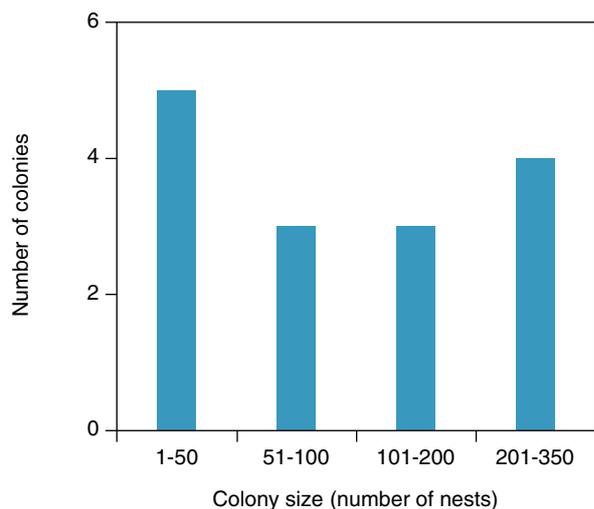
**Figure 20.1.** Distribution and size of breeding colonies of Great Cormorants in Serbia in 2012. Source: Bird Protection and Study Society of Serbia.

**Figure 20.2.** Regional distribution of the breeding population of Great Cormorants in Serbia in 2012. Source: Bird Protection and Study Society of Serbia.

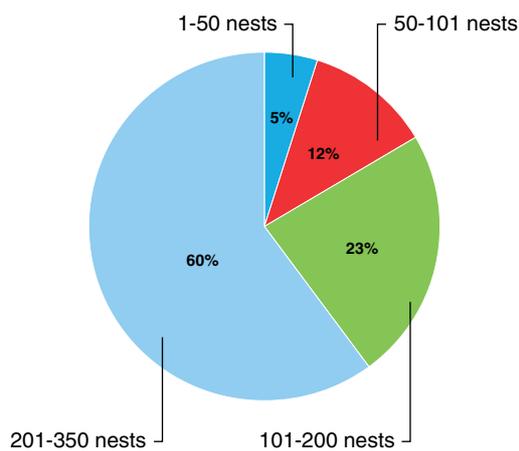


## Colony size

In 2012 breeding cormorants were found in 15 colonies. The largest colony, located on Smederevo river island on the river Danube, housed approximately 350 nests. Overall, there were seven colonies which contained more than 100 nests (Fig. 3). Almost 85% of the national breeding population was found in these seven colonies (Fig. 4). Of the remaining eight colonies, three contained between 50 and 100 breeding pairs (medium size colonies) and five contained less than 50 nests (small size colonies). The medium sized colonies contained less than 15% of the national breeders, and the small colonies housed the remaining 5%.



**Figure 20.3.** Size distribution of Great Cormorant colonies in Serbia in 2012. Source: Bird Protection and Study Society of Serbia.



**Figure 20.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Serbia in 2012. Source: Bird Protection and Study Society of Serbia.

## Human intervention in colonies and other factors

There was no organized management in cormorant breeding colonies in Serbia in 2012. In one colony located on the large electrical pylon near the hydro dam 'Đerdap I', nests were destroyed every year. A total of six cormorant colonies (containing 47% of the population) are located inside protected areas, while the remaining colonies (53% of breeders) are at risk of human interference by fishermen and poachers.

In eight colonies (ada Čakljanac, Šašićeva ada, Ivanovska ada, Carska bara, Bečej fish pond, Palić lake, Djerdap, Baranda - Tamiš) carp fish ponds are located within a 30 km distance from the breeding colony, and it is believed that the breeding cormorants in these colonies partially forage at these sites. These eight colonies housed 43% of the national breeding population in 2012, but only three colonies (Carska bara, Bečej fish pond and Baranda - Tamiš - 16% of the population) were considered to be directly depending on foraging in the fish pond areas (these colonies had access to aquaculture areas within a distance of less than 10 km). This may suggest that cormorants breeding in Serbia have a rather limited impact on the carp fish ponds.

Over the past two decades the cormorant breeding population has been increasing. This is probably due to a ban on hunting, but maybe also because an increasing number of wintering birds (from the Baltic Sea countries) stay

in the wintering area and start breeding. A recent change in legislation in 2012 now permits the culling of cormorants if permission is obtained from the Ministry for Agriculture, Forestry and Waterpower Engineering and the Institute for Nature Protection. This may have a considerable negative effect on the development of the breeding population in future.

### **Acknowledgements**

We would like to thank the European Commission project 'CorMan' for providing financial support for the counts of breeding colonies in 2012.

### **References and further information**

Puzović, S., Gergelj, J. & Lukač, Š. 1999: Heron and Cormorant Colonies in Serbia 1998. – *Ciconia* 8: 11-114.

## 21 Status of the breeding population of Great Cormorants in Spain in 2012

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### To be cited as:

Molina, B. 2013: Status of the breeding population of Great Cormorants in Spain in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 90-93.  
<http://dce2.au.dk/pub/TR22.pdf>

### National summary

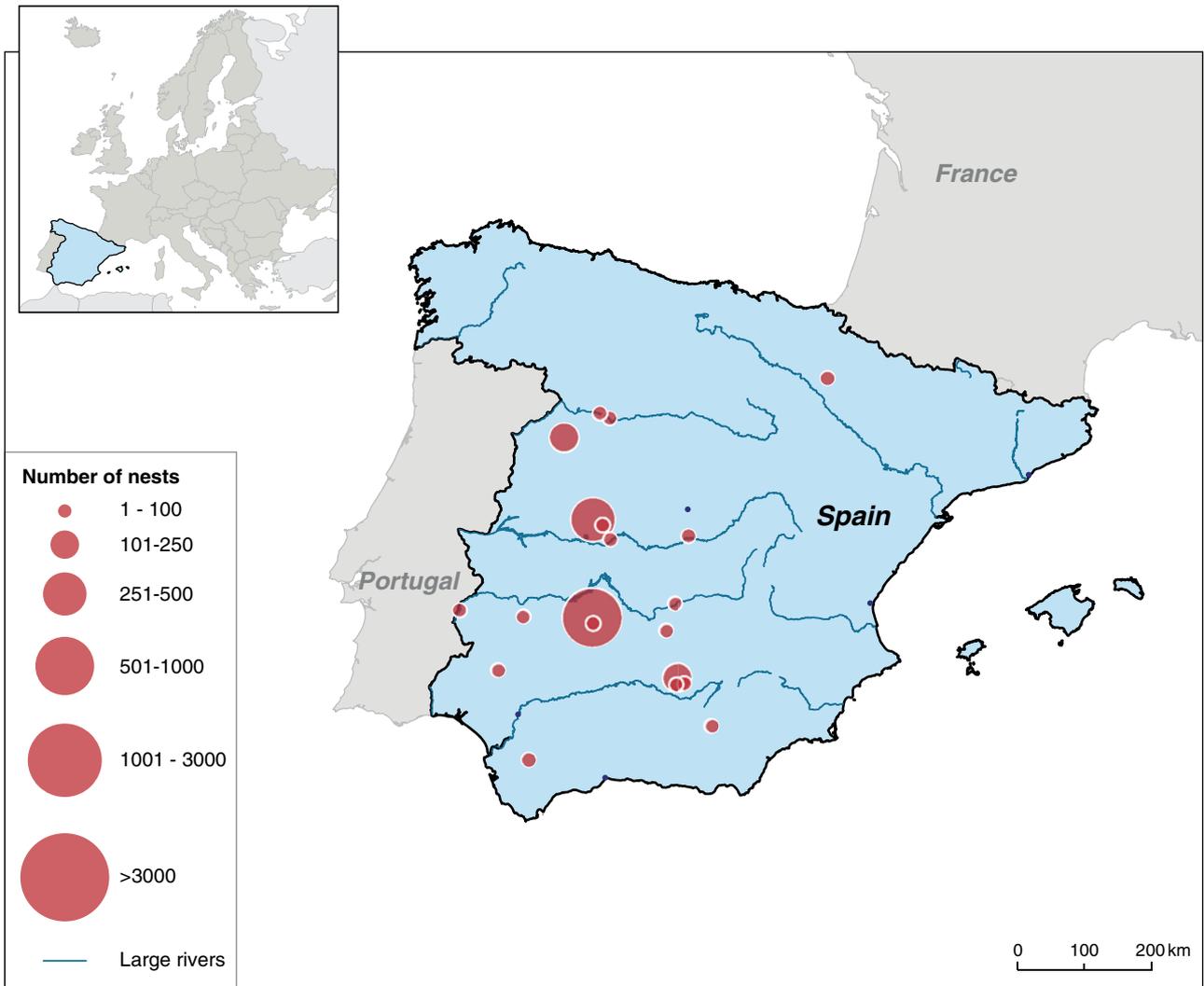
In 2012, Spain had 1,605 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in 21 colonies. This is more than a threefold increase since the last national count of breeders in 2007 (532 nests). A total of 239 sites were visited during the 2012 count and the focus was on reservoirs, dams, reed beds and rivers. It is believed that complete coverage of all breeders was obtained during the 2012 breeding counts.

### Distribution

Cormorants bred primarily in central and western Spain (Fig. 21.1) across 12 different regions. Almost three quarters (70%) of the breeding population was located in two regions. The western province of Badajoz was home to 41% of the population (651 nests, four colonies). A further 29% of the population (468 nests, four colonies) was located in the central province of Toledo. The remaining 30% was distributed across 10 different regions (Fig. 21.2). Cormorants breed almost exclusively in trees in Spain with only one small colony (7 nests) reported breeding in reed beds.

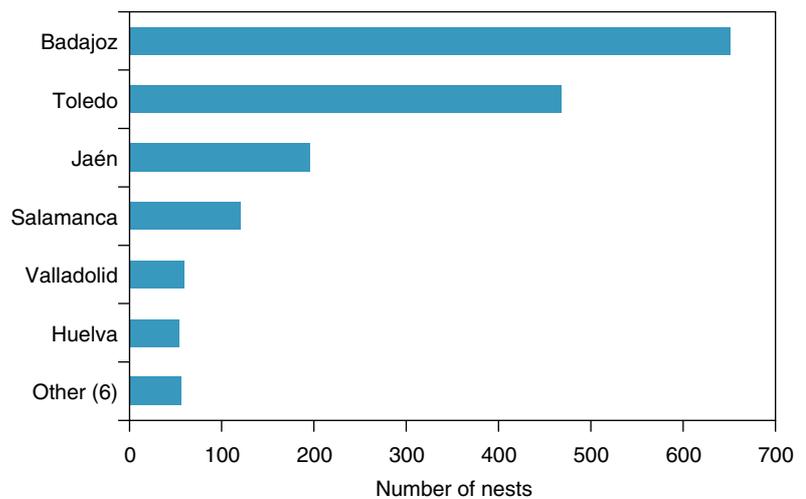
### Colony size

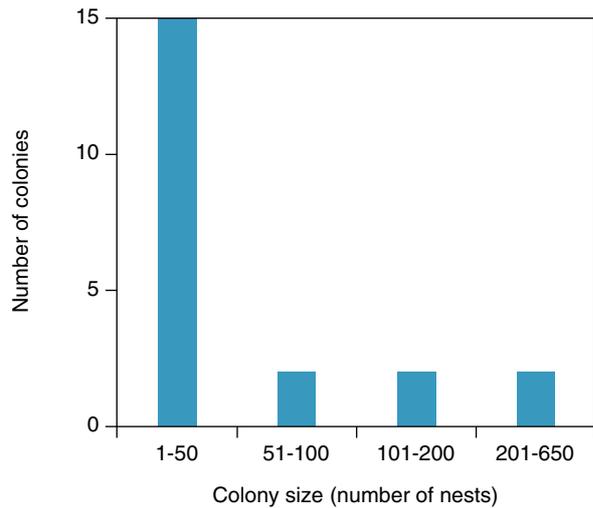
Spain had 21 breeding colonies of cormorants in 2012. The majority of the colonies had a small number of nests (Fig. 21.3), while on the other hand the two largest colonies contained 63% of the population (1,014 nests, Fig. 21.4). The largest colonies were located on the La Serena reservoir in the Badajoz region (614 nests), and on the Rosarito reservoir in the Toledo region (400 nests). Of the remaining 19 colonies, two had 100-200 nests, two contained 50-100 nests and the remaining 15 had fewer than 50 nests (Fig. 21.3).



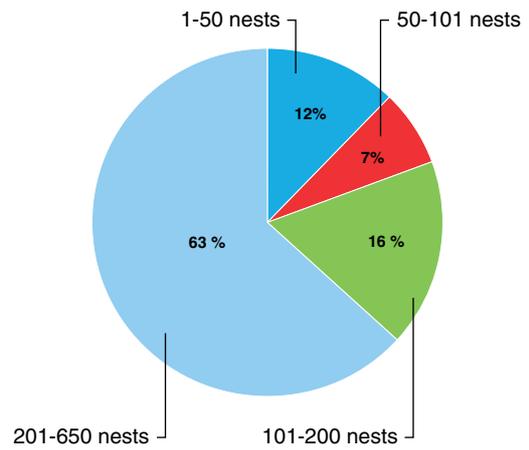
**Figure 21.1.** Distribution and size of breeding colonies of Great Cormorants in Spain, 2012. Source: SEO/Bird Life.

**Figure 21.2.** Regional distribution of the breeding population of Great Cormorants in Spain in 2012. Source: SEO/BirdLife.





**Figure 21.3.** Size distribution of Great Cormorant colonies in Spain in 2012. Source: SEO/BirdLife.



**Figure 21.4.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Spain in 2012. Source: SEO/BirdLife.

### Human intervention in colonies

No management of cormorant breeding colonies was carried out in Spain in 2012.

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### References and further information

Palomino, D. & Molina, B. 2009: Aves acuáticas reproductoras en España. Población en 2007 y método de censo. SEO/BirdLife. Madrid.

[http://www.seo.org/wp-content/uploads/2012/04/26\\_acuatrepcom.pdf](http://www.seo.org/wp-content/uploads/2012/04/26_acuatrepcom.pdf)



A breeding colony of Great Cormorants at La Serena reservoir, Extremadura, Spain, May 2012. Photo: Ángel Sánchez.

## 22 Status of the breeding population of Great Cormorants in Sweden in 2012

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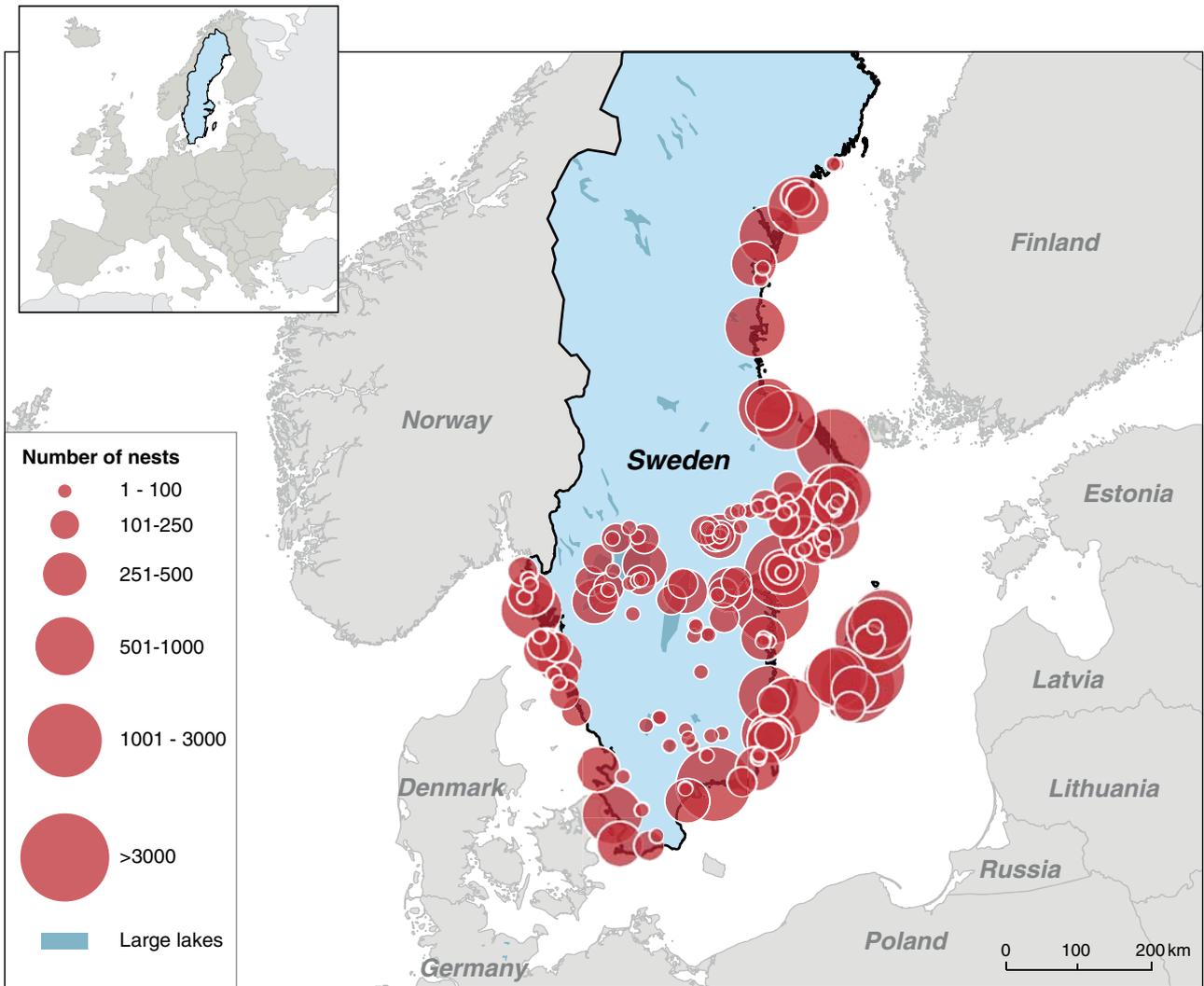
### National summary

The breeding population of Great Cormorants (*Phalacrocorax carbo sinensis*) in Sweden was estimated at 40,598 occupied nests in 2012, distributed across 169 colonies (Fig. 22.1). The population appeared to reach a maximum around 2006 when a total of 43,706 nests were recorded. Results from the 2012 count show a decrease of 7% compared to the last complete count in 2006. The 2012 breeding count obtained a high level of coverage. However, for 20 colonies we had to use results from a count in recent years as no count was carried out in 2012. On a national level cormorants are not monitored annually, but a number of counties organize annual surveys.

### Population distribution and development

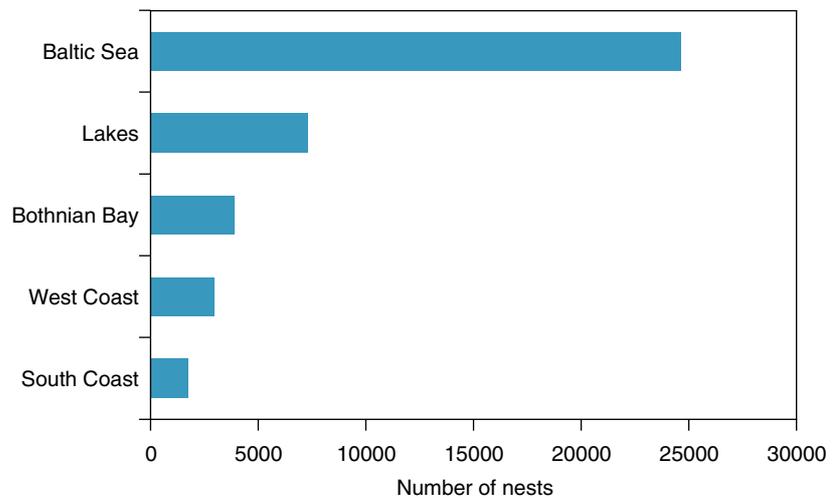
Great Cormorants re-established a breeding population in Sweden in the late 1940s after being absent for more than half a century. Since then, the main breeding area has been the shallow coastal areas of the southern Baltic Sea. In 2012 the Baltic Sea housed 62% (ca. 24,500 nests) of the breeding population (Fig. 22.2). The Bothnian Bay, in the far north, held 10% of the population (ca. 4,000 nests). The south coast was home to 4% of the breeders (ca. 1,700 nests) and the west coast housed 7% (ca. 3,000 nests). The remaining 18% of breeders were found on inland lakes (ca. 7,300 nests).

The development of the breeding population of cormorants has varied in the different regions over the last decade. During the period from 2006 to 2012, the cormorant population has increased along the west coast (7%) and the Bothnian Bay (26%) while it has decreased on the south coast (10%) and the Baltic Sea coast (6%). When breeding numbers from the last three years are examined, the population seems to have stabilized on the west coast (9%) and flattened out in the Bothnian Bay (2%).



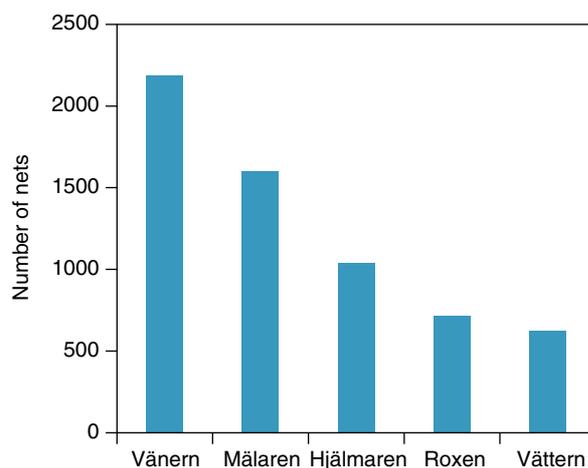
**Figure 22.1.** Distribution and size of breeding colonies of Great Cormorants in Sweden in 2012. Source: Swedish Environmental Protection Agency.

**Figure 22.2.** Regional distribution of the breeding population of Great Cormorants in Sweden in 2012. Source: Swedish Environmental Protection Agency.



In 2012, almost one fifth of the breeding cormorants in Sweden (18%, 7,305 pairs) nested on lakes. Among the lake breeding cormorants 84% were found in the large lakes Vänern, Vättern, Mälaren, Hjälmaren and Roxen (Fig. 22.3). The proportion of cormorants breeding on lakes has declined by 28% since 2006. A considerable number of colonies were found on small nutrient poor lakes in southern Sweden in 2012, but those colonies were very small with the majority containing less than 100 breeding pairs. The most northerly lake colonies were found at a latitude of around 60° N (Fig. 22.1) and at present the conditions for breeding on lakes above that latitude are not suitable.

**Figure 22.3.** Number of Great Cormorants breeding on large lakes in Sweden in 2012. Source: Swedish Environmental Protection Agency.



### Regional distribution

Cormorant numbers can be compared on a county/regional level, although these comparisons do not take into account differences in the amount of suitable habitats (areas with water depth less than 20 m), which differs to a large extent between areas. An overview of cormorants breeding in the regions across Sweden is presented in Table 22.1.

The island of Gotland, located in the Baltic Sea off the south-eastern coast of Sweden, was home to approximately 20% of the breeding population of cormorants in Sweden in 2012. After a rapid increase during the last decade, the population appears to have reached a maximum and is now declining in Gotland. The largest colony in this region, Getorskär, held 1,984 nests in 2012 and was thereby also the largest colony in Sweden.

The second largest regional population is found in the archipelago of Stockholm, which holds approximately 16% of the Swedish population. The Kalmar region (located on the south eastern coast of Sweden), formerly the main breeding area of cormorants in Sweden, has shown a dramatic decline in breeding numbers to around half since 1999. In 1999, this region contained one third of the national population. In 2012 this figure had declined to 10% (3,938 nests). The largest colonies in this region are much smaller today; in 1992 they held up to 3,530 pairs.

The Västra Götaland region (located on the south western coast) housed a total of 26 colonies (4,490 nests) in 2012, showing a moderate decline in

breeding numbers (6%) since the 2006 census. The vast majority of birds in this region were found along the coast (2,815 pairs), mainly in the province of Bohuslän. Lake Vänern, which is located in this region, was the lake with the highest number of breeding cormorants in 2012 in Sweden. The Östergötland region, formerly a core area for cormorants in Sweden, housed 3,700 pairs in 2012. The population is assumed to be fluctuating, although no counts exist from the coastal area in recent years.

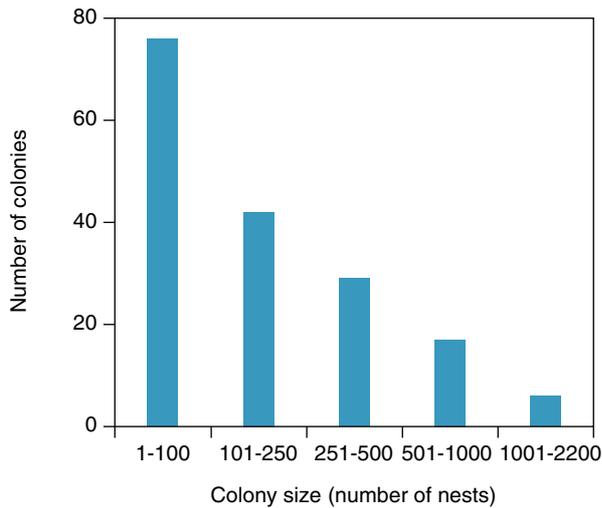
**Table 22.1.** Regional (county) distribution of the Great Cormorant breeding population in Sweden in 2012. Source: Swedish Environmental Protection Agency.

Region	Number of Nests	Number of Colonies	% National Population
Gotland	8,230	12	20.3%
Stockholm	6,398	23	15.8%
Västergötland	4,490	26	11.1%
Kalmar	3,938	15	9.7%
Östergötland	3,688	21	9.1%
Södermanland	2,320	11	5.7%
Skåne	1,993	9	4.9%
Västernorrland	1,925	7	4.7%
Gävleborgs	1,889	3	4.7%
Blekinge	1,885	3	4.6%
Örebro	1,120	7	2.8%
Uppsala	1,097	3	2.7%
Värmland	576	7	1.4%
Halland	420	2	1.0%
Västmanland	230	4	0.6%
Kronobergs	167	10	0.4%
Jönköpings	122	4	0.3%
Västerbotten	110	2	0.3%
<b>Total</b>	<b>40,598</b>	<b>169</b>	<b>100%</b>

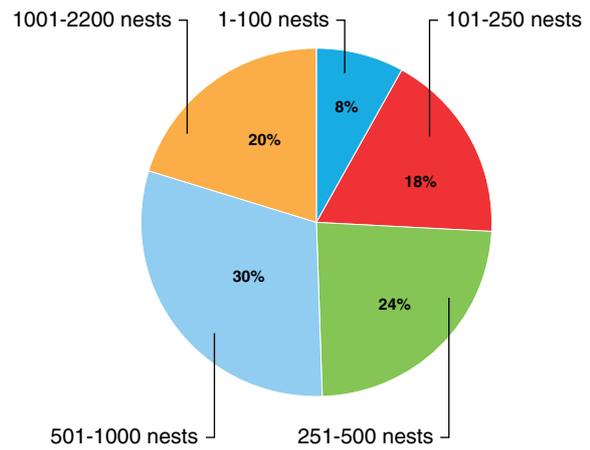
Cormorants build nests in a variety of habitats across Sweden, but no recent data is available on this subject. According to an earlier study, almost half of the population bred in mature trees, while a considerable number built nests directly on bare rock (skerries) or in shrubs (Engström & Pettersson 2003). Almost all colonies are found on small islands and many colonies have been founded on islands where other seabirds were present before cormorants began breeding.

### Colony size

In 2012, the cormorant population in Sweden bred in an estimated 169 colonies. The largest colony contained 1,984 nests and was located at Getorskär on the island of Gotland. Almost 20% of the national breeding population of cormorants was found in the six largest colonies (containing more than 1,000 nests) (Fig. 22.5). Of the remaining 162 colonies, the majority of them (76) were small in size, containing less than 100 breeders (Fig. 22.4). The remaining breeders were distributed over colonies of intermediate size.



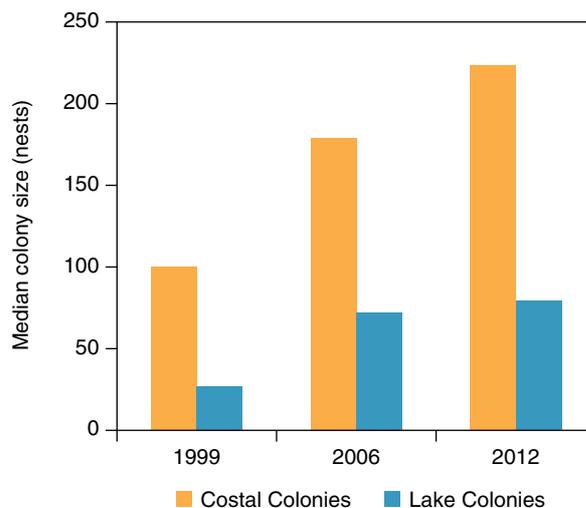
**Figure 22.4.** Size distribution of Great Cormorants colonies in Sweden in 2012. Source: Swedish Environmental Protection Agency.



**Figure 22.5.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Sweden in 2012. Source: Swedish Environmental Protection Agency.

The median colony size (determined as the middle value when colonies are listed according to size) in a coastal colony was 223 pairs in 2012, which is higher than in previous years (Fig. 22.6). In comparison, the median colony size for lake colonies was much smaller (~79 pairs) in 2012. A limited number of lake colonies are located close to the coast (within 30 km), allowing only a small number of cormorants to hunt and feed in both freshwater and saltwater. Therefore during the breeding season, the majority of birds which breed on lakes feed exclusively on fish from these lakes. Less productive conditions (i.e. food abundance) in many lakes may be one reason why, on average, cormorant densities and colony size are smaller in freshwater systems than in coastal colonies. In Sweden, the general pattern is that cormorants are not limited by the availability of suitable breeding habitats (i.e. access to small islands). This may partially explain why cormorants are found spread across a large number of colonies throughout the country.

**Figure 22.6.** Median colony size in coastal and lake colonies of Great Cormorants in Sweden in 1999, 2006 and 2012, respectively. Source: Swedish Environmental Protection Agency.



Similar to many other countries, several large colonies in Sweden have declined dramatically in size in recent years, probably due to various factors. For example, the largest recorded colony in Sweden, Svartö in the southern Kalmar Sound, reached its highest number of breeders in 1992 (3,530 pairs) but contained only 14 pairs in 2012. Some other large colonies in the Kalmar strait region have also decreased considerably in size, or have been abandoned. At a local level this may be due to habitat changes within colonies (i.e. excrement causing trees to die, resulting in a loss of breeding sites) but on a larger scale this is likely due to extensive changes in fish communities. These changes (Ljunggren et al. 2010) have possibly impacted negatively on cormorants, and as a result breeders may have moved to areas with a better food supply. In some cases human disturbance within colonies is the reason behind movements between breeding sites.

### **Human intervention in colonies**

Measures to control cormorant numbers are carried out in some areas throughout Sweden, but a summary of the effects on a national scale is not available. In recent years, the majority of these actions have taken place along the coasts of Stockholm county and Kalmar county and in Lake Hjälmaren. In the Stockholm archipelago an average of 3,208 eggs were oiled annually between 2001 and 2010.

In 2009, similar to previous years, 2,970 cormorants were shot in Kalmar county. In Lake Hjälmaren, 1,728 cormorants were shot in 2005, mainly outside the breeding season. The number of cormorants shot on Lake Hjälmaren in this area has been falling steadily in recent years and was down to 622 in 2009. In other areas in Sweden, shooting resulted in the regulation of only a small number of birds, and in some areas shooting is not permitted at all.

For most years, the number of birds shot and the number of nests destroyed are either below or well below the quotas set for the regions. The quotas are determined by county administrative boards, who also grant permission to individuals/groups wishing to manage cormorant numbers in the various regions. The level of management differs between regions but usually includes both egg control and shooting adult birds, to some extent also during the breeding season. The main aim of the management actions is to improve conditions for fisheries, although little is known about the effects of management actions.

### **Acknowledgements**

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### **References and further information**

Engström, H. & Pettersson, C. 2003: Management plan of Great Cormorant in Sweden. Swedish Environmental Protection Agency. (In Swedish with English summary).

<http://www.naturvardsverket.se/Documents/publikationer/620-5261-6.pdf>

Ljunggren, L., Sandström, A., Bergström, U., Mattila, J., Lappalainen, A., Johansson, G., Sundblad, G., Casini, M., Kaljuste, O. & Eriksson, B.K. 2010: Recruitment failure of coastal predatory fish in the Baltic Sea coincident with an offshore ecosystem regime shift. – ICES J. Mar. Sci. 67(8): 1587–1595.  
<http://icesjms.oxfordjournals.org/content/67/8/1587.full>

Wirdheim, A. & Engström, H. 2013: Inventory of breeding Great Cormorants (ssp. *sinensis*) in Sweden in 2012. (in Swedish).  
[http://www.sofnet.org/sveriges-ornitologiska-forening/nyheter/sofs-nyhetsarkiv-visaren/?item=art\\_art-s1%2F1496](http://www.sofnet.org/sveriges-ornitologiska-forening/nyheter/sofs-nyhetsarkiv-visaren/?item=art_art-s1%2F1496)



Great Cormorant colony at Bergskäret, Stockholm Archipelago, Sweden, 2007. Photo: Henri Engström.

## 23 Status of the Breeding Population of Great Cormorants in Switzerland in 2012

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Keller V. & Müller C. 2013: Status of the breeding population of Great Cormorants in Switzerland in 2012. – In: Bregnballe, T., Lynch, J., Parz-Gollner, R., Marion, L., Volponi, S., Paquet, J-Y. & van Eerden, M.R. (eds.) 2013. National reports from the 2012 breeding census of Great Cormorants *Phalacrocorax carbo* in parts of the Western Palearctic. IUCN-Wetlands International Cormorant Research Group Report. Technical Report from DCE – Danish Centre for Environment and Energy, Aarhus University. No. 22: 101-104. <http://dce2.au.dk/pub/TR22.pdf>

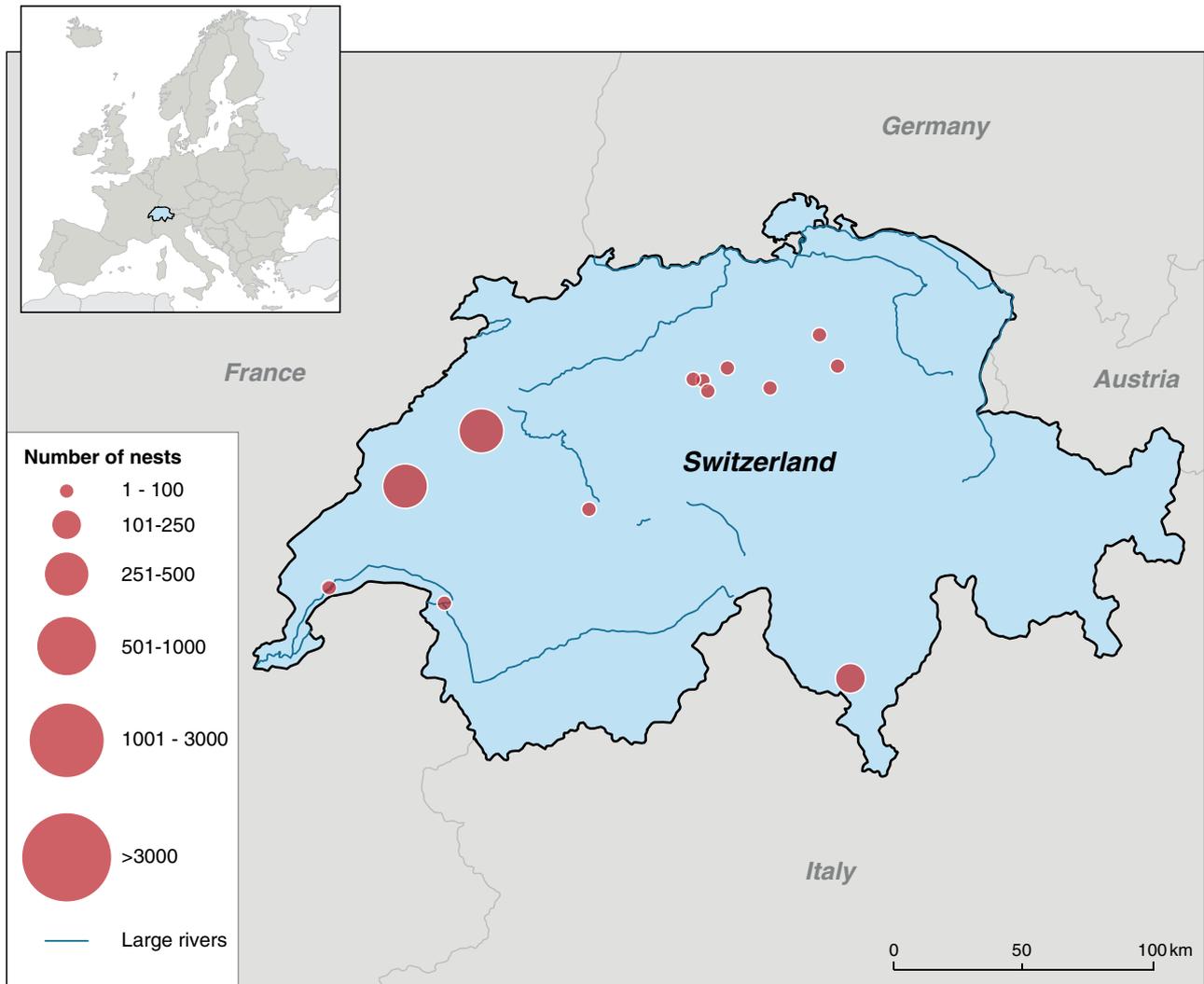
### National summary

In the summer of 2012, Switzerland had 1,037 occupied nests of Great Cormorants (*Phalacrocorax carbo sinensis*) in 13 colonies. The overall number of nests has almost doubled since 2010 (560 nests). Cormorant numbers have been monitored in Switzerland since the establishment of a breeding population in 2001 (Keller et al. 2012). It is believed that complete coverage of all breeders was obtained in the 2012 colony count, which was carried out by volunteers under the guidance of the Swiss Ornithological Institute.

### Distribution

Overall, 1,037 cormorant nests in 13 colonies were recorded in 2012. Most colonies were found in the lowland areas of the Swiss Plateau (Fig. 23.1). One colony was located in southern Switzerland in the low-lying valley of Ticino at the upper end of Lago (lake) Maggiore. Cormorants were found nesting at three new sites in 2012 (Les Grangettes on Lake Geneva, Lake Sempach and Mauensee, a small lake about three kilometres from Lake Sempach).

Most colonies are situated at lakes, with the largest ones found at the largest lakes, Lac (lake) Neuchâtel, Lago (lake) Maggiore, Zugersee and Lac (lake) Léman. All the large colonies are situated in areas with restricted access, six of which are in waterbird reserves of international or national importance. Most colonies are situated on islands or small peninsulas. Colonies on the shore are located in areas with limited public access. In the oldest colony, at the Fanel, cormorants nest on the ground on two artificial islands. In 2011, part of the colony moved to trees on the shore, and in 2012 about 40% of the nests were constructed in trees. In all the other colonies, nests are constructed in trees, most often poplar *Populus* sp., willow *Salix* sp. and alder *Alnus* sp.



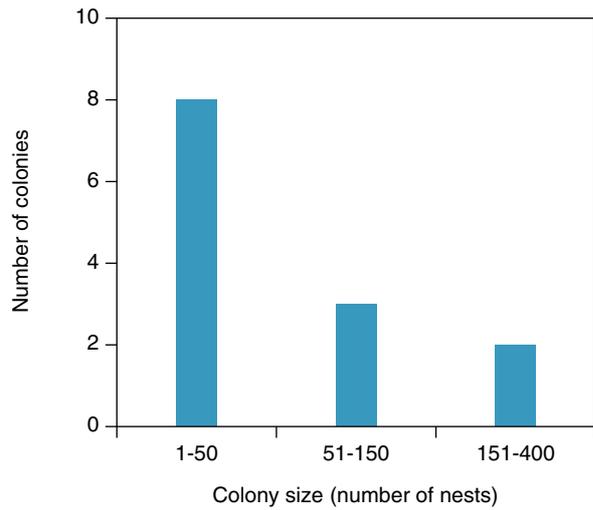
**Figure 23.1.** Distribution and size of breeding colonies of Great Cormorants in Switzerland in 2012. Source: Swiss Ornithological Institute.

### Colony size

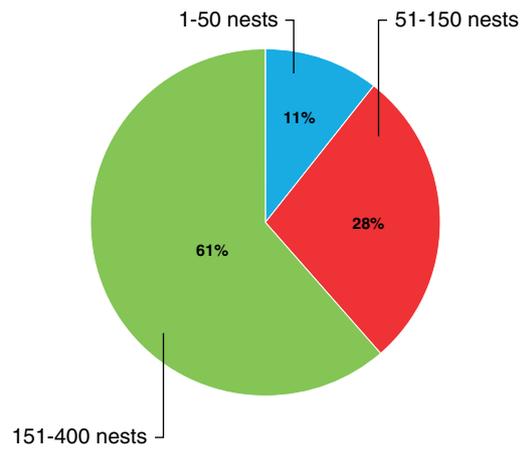
The two largest colonies, both situated on Lake Neuchâtel, held over 50% of the national population in 2012 (637 nests) (Fig. 23.2 and 23.3). Three more colonies contained over 50 nests and over a quarter of the national population (290 nests). All these colonies are situated on large lakes. There were eight small colonies containing 50 or fewer nests.

### Human intervention in colonies

There was no human intervention in breeding colonies in 2012.



**Figure 23.2.** Size distribution of Great Cormorant colonies in Switzerland in 2012. Source: Swiss Ornithological Institute.



**Figure 23.3.** Distribution (%) of the total breeding population of Great Cormorants in relation to colony size in Switzerland in 2012. Source: Swiss Ornithological Institute.



In the waterbird reserve Fanel on Lake Neuchâtel, Switzerland, most cormorants nest on artificial islands, April 2011. Photo: Verena Keller.

### Acknowledgments

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Pascal Rapin, Roberto Lardelli, Daniel Kronauer, Hans-Rudolf Kälin, Jean-Claude Muriset, Patrick Franke, Edgar Grether, Thomas Troxler, Verena Keller, Brigitte Mäder, Martin Gruebler, Ruedi Wüst-Graf, Martin Wettstein, Alexandre de Titta, Isabelle Henry, Christa Glauser, Olivier Epars, Hans Schmid. We also thank the Federal Office for the Environment for the financial contribution to the coordination of the census.

### References and further information

Keller, V., Antoniazza, M., Mosimann-Kampe, P. & Rapin, P. 2012: Dix ans de reproduction du Grand Cormoran *Phalacrocorax carbo* en Suisse (2001-2010). – Nos Oiseaux 59: 3–10. A pdf of the publication can be obtained by writing to Verena Keller [verena.keller@vogelwarte.ch](mailto:verena.keller@vogelwarte.ch)

Keller, V. & Müller, C. 2012: Breeding colonies of Great Cormorants *Phalacrocorax carbo* in Switzerland 2012. Swiss Ornithological Institute, Sempach. A pdf of the publication can be obtained by writing to Verena Keller [verena.keller@vogelwarte.ch](mailto:verena.keller@vogelwarte.ch)



Great Cormorant colony at Champ-Pittet on Lake Neuchâtel, Switzerland, April 2011. Photo: Verena Keller.

## Annex I - Supporting organizations

- Austria**
- BirdLife Österreich
  - Naturschutzverein Rheindelta
  - Ornithologische Arbeitsgemeinschaft Bodensee
  - Verein Auring, Biologische Station Hohenau – Ringelsdorf
- Belarus**
- Institute of Zoology
  - The State scientific and production amalgamation “Scientific and practical centre of the National Academy of Sciences of Belarus for biological resources”
  - APB-BirdLife Belarus
- Belgium**
- “Département d’Études des Milieux Naturels et Agricoles” of the Public Services of Wallonia.
  - Flemish Research Institute for Nature and Forest
  - Centrale Ornithologique Aves
- Bosnia & Herzegovina**
- Federal Ministry of Environment and Tourism
  - National Museum of Bosnia and Herzegovina
  - Ornithological Society “OurBirds”
  - Society for Research and Protection of Biodiversity
- Bulgaria**
- WWF – Danube-Carpathian Programme
- Denmark**
- Danish Nature Agency, Danish Ministry of Environment
- Estonia**
- Estonian Environmental Board
  - Estonian state environmental monitoring subprogram “Biodiversity and landscapes”
- Finland**
- Ministry of the Environment
  - Metsähallitus, Natural Heritage Services
- Germany**
- Federal State Institutions for Bird Conservation
  - Federation of German Avifaunists representing several regional ornithological societies
- Greece**
- Hellenic Ornithological Society
  - The Society for the Protection of Prespa
  - The Society for the Protection of Nature of Kastoria
  - National Park management authorities
- Iceland**
- University of Iceland
  - Icelandic Science Foundation
  - Ministry for the Environment (Hunter’s Licence Fund)
- Montenegro**
- Natural History Museum of Montenegro
  - Euronatur
  - National Park Skadar Lake

**Russian Gulf of  
Finland**

- Biologists for Nature Conservation – St. Peterburgs Charity Institution
- Санкт-Петербургская благотворительная общественная организация «Биологи за охрану природы»
- Aarhus University, Denmark

**Serbia**

- Institute for Nature Protection of Serbia, Belgrade
- Natural History Museum, Belgrade

NATIONAL REPORTS FROM THE 2012  
BREEDING CENSUS OF GREAT CORMO-  
RANTS *PHALACROCORAX CARBO*  
IN PARTS OF THE WESTERN PALEARCTIC

IUCN/Wetlands International Cormorant Research Group  
Report

This report compiles national reports from 23 European countries where a total of 755 breeding colonies of Great Cormorants *Phalacrocorax carbo* were monitored in 2012. Each national presentation includes a description of the total size of the breeding population and the numbers, sizes and distribution of the breeding colonies. Information is also given about the extent of human intervention in breeding colonies.

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