How many Cormorants do we have in total?

To answer this question in a meaningful way we need to refine it to a specific geographic area. The regional division shown in this publication is a first attempt. An analysis of the migratory movements of ringed birds could be used to elaborate, and to distinguish in a more sophisticated way, between different sub-populations. From the overall number of breeding pairs in groups A, B and C (carbo and sinensis combined), we estimate a total number of 372,300 breeding pairs. Applying the same conversion factor as we derived for the sinensis population in groups A and B (3.25), and ‘converting’ from breeding pairs to January numbers, we would tentatively estimate 1.2 million birds in 2007 throughout the whole western Palearctic region. However, this figure must be treated with caution as not all these birds can be classified as “European”.

Map of Europe and beyond showing the major areas of occurrence of Cormorants

What is “Europe” and which populations are we talking about?

Cormorants, like many waterbirds, show large differences between their summer and wintering areas. Compared to the breeding distribution, the wintering distribution of Cormorants covers a much larger geographical range and birds are far more widely dispersed. In summer the majority of colonies is found in coastal areas, whereas in winter inland lakes and rivers also form an important habitat. With regard to the major pattern in distribution, the difference in proportional occurrence between the populations in the three regional groups is striking if winter and summer are compared (see Table 1). In winter, the Atlantic-North Sea group (A) has about half of all birds, whereas in summer this region accounts for only one-third of the total numbers of birds, the largest proportion of which (44%) breed in the Baltic-Central European area (B). Talking about Cormorant numbers is only useful if the exact geographic area under consideration is stated precisely. Moreover, the majority of Cormorants do not roam about freely in this “super space” as distinct populations occur, with discrete migration patterns. For example the birds of group C will never show up in Western Europe and carbo birds hardly migrate into the interior parts of Europe.

Acknowledgements

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Counting Cormorants

Cormorant breed in colonies in summer, where they construct nests either in trees, bushes, or on the ground in reed beds and on bare rock or sand. In winter they disperse over large areas in both freshwater and marine shallow waters. Birds concentrate at night in roosts, situated on islands, river banks or artificial constructions like high tension poles, lighthouses, and ship wrecks. Although winter and summer areas overlap, most birds breed at northern latitudes and winter more to the south. During daytime, foraging flights occur between colonies or roosts and the feeding areas and these range from 5-25 km (maximum 40-60 km) in each direction. In Europe breeding counts are best performed at colonies whilst outside the breeding season the most accurate counts are made at night roosts.

Counts require coordinated action by very many skilled persons, using binoculars, telescopes and other techniques such as aerial photography and ship-based counts in large, inaccessible areas.

Ecology, flyways and countries involved

In the western Palearctic, Europe, the Middle East and North Africa constitute the main area of distribution for two Cormorant subspecies: sinensis occurring mostly inland and along coasts of non-tidal waters, and carbo breeding on rocky coasts in more exposed, marine habitats. The population number and geographic distribution range have recovered over the last forty years due both to protection (starting in The Netherlands in 1965) and to favourable feeding conditions (for example, due to eutrophication, degradation and modification of water bodies, decreased use of pesticides and over-fishing causing a shift towards simple communities of smaller fish).

According to the breeding distribution and migratory movements of Cormorants, the area can roughly be divided into three regional groups, mainly:
A Atlantic-North Sea/western Mediterranean population ranging from Norway, Denmark, UK, Ireland. The Low countries, France, and into the western Mediterranean. This group includes the subspecies carbo whose breeding is generally confined to coastal marine waters.

B Baltic/central European population ranging from Sweden, Finland, the Baltic countries, Poland, Germany all the way south through central and eastern Europe (Danube countries) and to the south, including Italy and Libya.

C Black Sea/eastern Mediterranean population ranging from Belarus, Ukraine, European Russia south to Turkey, Israel and Egypt.

These three groups can not be considered as separately operating 'units', but as so-called "meta-populations" – a group of populations existing at the same time in different places across a very large land surface area. Both groups (A) and (B) have strong links to countries outside the EU in winter, whereas Cormorants in group (C) are largely confined to non-EU countries during both breeding time and in winter.

Breeding count 2006

The most recent Pan-European breeding census (breeding survey, the 755,000 sinensis estimated for January 2007 based on the breeding count in 2006) would correspond to an estimated 558,000 - 615,000 birds in January 2003, depending on the number of non-breeders assumed. This estimated total can then be compared with the actual number counted which was almost 427,000 Cormorants (subspecies sinensis) in this region in January 2003. Given the different counting methods (breeding versus winter) and the completely different geographic areas involved in summer and winter (see maps), both estimates compare reasonably well. The estimate based on the summer count is higher because the geographic area covered in the winter census includes some uncounted areas in Eastern Europe and/or because some birds may have migrated out of the region completely (to other Middle East countries, Sudan etc.). Another possibility for the apparent discrepancy is that the actual survival and/or the overall number of non-breeders are less than we have assumed from current knowledge.

How comparable are the summer and winter data? The number of birds assessed both in winter and summer correspond reasonably well, especially for groups (A) and (B) taken together. Given the most recent count from the breeding survey, the 755,000 sinensis estimated for January 2007 (based on the breeding count in 2006) would correspond to an estimated 558,000 - 615,000 birds in January 2003, depending on the number of non-breeders assumed. This estimated total can then be compared with the actual number counted which was almost 427,000 Cormorants (subspecies sinensis) in this region in January 2003. Given the different counting methods (breeding versus winter) and the completely different geographic areas involved in summer and winter (see maps), both estimates compare reasonably well. The estimate based on the summer count is higher because the geographic area covered in the winter census includes some uncounted areas in Eastern Europe and/or because some birds may have migrated out of the region completely (to other Middle East countries, Sudan etc.). Another possibility for the apparent discrepancy is that the actual survival and/or the overall number of non-breeders are less than we have assumed from current knowledge.

Discussion

How comparable are the summer and winter data? The number of birds assessed both in winter and summer correspond reasonably well, especially for groups (A) and (B) taken together. Given the most recent count from the breeding survey, the 755,000 sinensis estimated for January 2007 (based on the breeding count in 2006) would correspond to an estimated 558,000 - 615,000 birds in January 2003, depending on the number of non-breeders assumed. This estimated total can then be compared with the actual number counted which was almost 427,000 Cormorants (subspecies sinensis) in this region in January 2003. Given the different counting methods (breeding versus winter) and the completely different geographic areas involved in summer and winter (see maps), both estimates compare reasonably well. The estimate based on the summer count is higher because the geographic area covered in the winter census includes some uncounted areas in Eastern Europe and/or because some birds may have migrated out of the region completely (to other Middle East countries, Sudan etc.). Another possibility for the apparent discrepancy is that the actual survival and/or the overall number of non-breeders are less than we have assumed from current knowledge.