Waterbirds around the world

A global overview of the conservation, management and research of the world's waterbird flyways

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EDINBURGH, UK: THE STATIONERY OFFICE
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First published in 2006 by The Stationery Office Limited
71 Lothian Road, Edinburgh EH3 9AZ, UK.

Applications for reproduction should be made to Scottish Natural Heritage,
Great Glen House, Leachkin Road, Inverness IV3 8NW, UK.

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN 0 11 497333 4

Recommended citation:

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Greylag Geese *Anser anser* in Britain are comprised of three populations. This paper discusses the difficulties of monitoring these populations and reports on changes in survey procedures designed to overcome these difficulties.

Three populations of Greylag Goose are currently recognised in the UK: the Iceland Greylag Goose – a migratory population present between October and April, and two sedentary populations - the NW Scotland Greylag Goose and the re-established Greylag Goose. NW Scotland Greylag Geese are the remnant of a population that was once more widespread in Britain, and predominantly occur in western Scotland with others in mainland northern Scotland. The re-established Greylag Goose was reintroduced into this former range, predominantly by hunters, between the 1930s and 1960s, and in most cases stock derived directly from the NW Scotland population. Whilst the two sedentary populations have increased in abundance and distribution in recent years, best available data indicate that the Iceland Greylag Geese declined by approximately 20% during the 1990s.

Monitoring population parameters for most UK goose populations is achieved through The Wildfowl & Wetlands Trust's (WWT) Goose Monitoring Programme (GMP): a suite of integrated surveys that provide estimates of abundance and distribution, reproductive success, movements and survival. Estimates of abundance of Iceland Greylag Geese have been made annually since 1960 through the Icelandic-breeding Goose Census (IGC): counts of the two sedentary populations are conducted at least annually in most key areas, and are supported by more comprehensive surveys on a nine-yearly basis. All are currently site-based look-see surveys, with no attempt to locate birds away from sites known to support them.

In recent decades, changes in abundance and distribution mean that these populations now overlap in many areas where they were formerly discrete. This has provided complications for monitoring protocols, and thus the assessment of conservation status. Recent modelling (see Frederiksen et al. 2004) found that the IGC and estimates of harvest rate in Iceland were incompatible for Iceland Greylag Goose; using each of these data sources
in population models provided widely differing estimates of abundance. In other words, either the Icelandic hunting bag was over-estimated or the IGC missed a proportion of the population (or both to a lesser degree).

Examination of the way in which hunting bag data in Iceland are reported found no evidence of widespread identification problems, or that double-reporting was an important bias. This suggested that underestimation of the autumn population size was a problem, either through undercounting in the UK or due to a large part of the population wintering outside the UK. A workshop that reviewed the results of Frederiksen et al. (2004) lead to the production of a series of recommendations for future monitoring effort (Frederiksen 2001) that are now providing the basis for initiatives under development as part of the GMP.

Progress has already begun with a number of these. Closer collaboration with other countries supporting wintering Iceland Greylag Geese has been developed, so that counts from there are now included as part of the IGC. This includes Norway, where recent re-encounters of marked birds have highlighted the presence of a regular flock, previously believed to be over wintering birds from the Northwest Europe population. Surveys have yet to establish whether other flocks of Iceland Greylag Geese occur regularly. Recommendations on methodological changes to the current IGC that would establish whether large numbers of Iceland Greylag Geese in the UK are currently undetected have been made, and moves to implement these are underway. This includes the development of a September count and a stratified sample survey. Finally, material is being collected for stable isotope analysis to test whether this is an effective way of estimating the proportion of migratory and sedentary Greylag Geese in different parts of the UK, and thus address the identification problems posed by the presence of other populations.

The current difficulties with monitoring Greylag Geese in the UK pose a number of problems for conservationists wishing to secure a favourable conservation status for these populations and achieve effective allocation of conservation resources. They also highlight issues for all surveys dealing with overlapping populations: changes in biological patterns may require methodological changes to be made to surveillance tools, and it is vital that methods are reviewed as part of any monitoring programme in order to ensure continued effectiveness. Questions are also raised about the future likelihood of continuing to monitor three separate Greylag Goose populations in the Iceland-Britain flyway and the consequences of this for biodiversity conservation.

ACKNOWLEDGEMENTS
The contribution to this work by a number of colleagues, notably Carl Mitchell, Arnór Sigfússon and Bob Swann is gratefully acknowledged. A partnership between the Wildfowl & Wetlands Trust and the Joint Nature Conservation Committee has provided funding for much of the count surveys to date. The Peter Scott Trust for Education and Research in Conservation also provided invaluable support for the continuation of other fieldwork, notably ringing. Finally, the GMP would not exist without the support of a network of dedicated volunteer field-workers that collect data and ring birds – their continued support is very much appreciated.

REFERENCES