

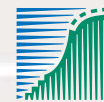
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Waterbirds around the world

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

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Cover photography: Whooper Swans *Cygnus cygnus* arriving at Martin Mere, England. Photo: Paul Marshall.
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Progress on the 'The Atlas of the breeding waders of the Russian Arctic'

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Lappo E.G., Tomkovich P.S. & Syroechkovski E.E. Jr. 2006. Progress on the 'The Atlas of the breeding waders of the Russian Arctic'. *Waterbirds around the world*. Eds. G.C. Boere, C.A. Galbraith & D.A. Stroud. The Stationery Office, Edinburgh, UK. pp. 595-596.

In total, 75 wader species have been recorded in the Russian part of the Arctic. This paper describes progress to date on a new atlas of breeding waders of the Russian Arctic.

The authors are currently working with colleagues on 'The Atlas of the breeding waders of the Russian Arctic', which will present a series of maps illustrating the distribution of breeding wader species, abundance and breeding range. The last set of detailed maps of breeding wader distribution in the former USSR was published over 40 years ago (Kozlova 1961, 1962), and the new Atlas is planned to be the first publication to present detailed information on waders in the Arctic or treeless northern areas of Russia as well as on other species that have recently expanded into the Arctic.

For the purposes of the Atlas, we consider the Russian Arctic as a super region north of the Arctic Circle (European Russia, West Siberia, Taimyr, northern Yakutia, Chukotka) as well as other adjacent tundra-like northern treeless areas (islands and the coastal White Sea, extensive north-boreal bogs of West Siberia, Magadan Region, Kamchatka, northern Sakhalin Island). Our team has been involved in collecting original data in the Russian Arctic since 1988: of 56 wader species that breed in the Russian Arctic, 51 were chosen for detailed analysis of their ranges.

Data entered into the Access database include the species, study sites with geographical coordinates, information on timing

of observations, weather data, rodent/predator information, data on status of each species, breeding density in certain habitats, and a list of publications and data sources.

Data entry and editing are possible from within a single form, and there is a set of standardized queries and reports. Data have been entered from over 1 375 sources of information from 1 504 localities (Fig. 1), but data for nearly 22% of the sources, including those from museum collections, are not yet published. All data are currently being analysed.

The database is linked to ArcView software with the help of AccessLink, and this allows the production of maps of species distribution. All localities within the database can be reflected on the map, and in this way up to three breeding distribution maps for any wader species in the Russian Arctic can be produced. These maps can show breeding records (point coverage), breeding abundance (point coverage) and an extrapolated breeding range (polygon coverage). We are utilising a method of species breeding range extrapolation based on landscape and vegetation maps that has previously been used in Russia (Uspenski 1969, Brunov 1982, Lappo 1996, Tomkovich 1997), and is known as the method of "landscape extrapolation". This method is suited to the analysis of irregular and incomplete records of breeding and habitats. Preferences for breeding habitats are determined for each species, and the presence of birds in habitats within these landscapes is extrapolated to a group of

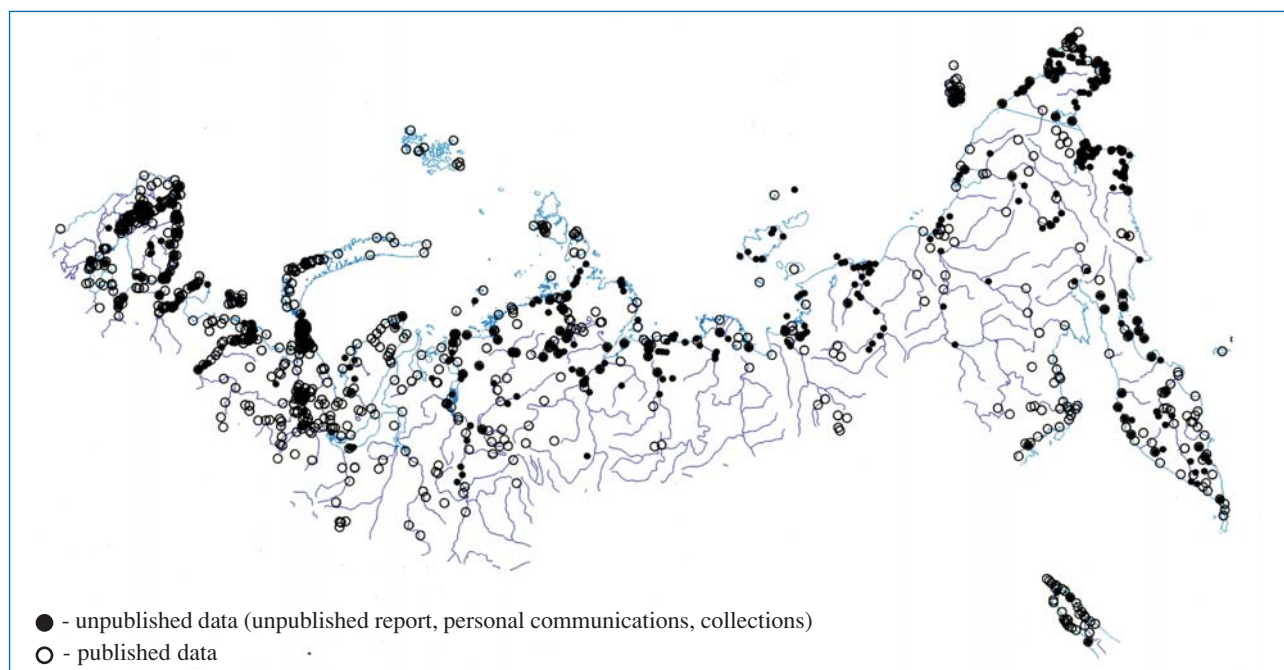


Fig. 1. Localities with published, unpublished sources and data from collections on waders breeding records in the Russian Arctic.

similar landscapes. Margins of the breeding range are digitized according to a landscape network with some extra limits added in accordance with the currently known breeding distribution. GIS (Geographic Information Systems) provide the possibility of using the method of landscape extrapolation by providing landscapes, topography, rivers and lakes, soils, and natural zonation as different layers on available maps in various combinations.

Maps of the breeding distribution of each species will be accompanied in the Atlas by a detailed account describing general species distribution, population structure, migration links and some key characteristics of the species biology. An extended English summary will be provided.

The available preliminary data show that ranges and numbers of majority of the Arctic waders were apparently stable during the 20th century. Surprisingly few wader species had negative trends in at least some of their populations. The number of species with changes in range is larger than those with changes in number, probably due to the almost complete absence of monitoring of these processes in the Russian Arctic. The prevalence of positive over negative trends in wader distribution can be partly explained by subjective factors: it is much easier to record range extension than range shrinkage. The majority (n=13) of the species actively spreading north, especially to western European Russia, West Siberia and the Far East, are of southern origin.

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The extensive tundra of Taimyr Peninsula, northern Siberia, July 1993. These wetlands are the breeding grounds of several million waterbirds which migrate via a number of flyways to Europe, Africa, various parts of Asia and Australia. The region is an important study area for international teams, working closely with their Russian colleagues, researching waterbird ecology and migration. Photo: Gerard Boere.



Many indigenous peoples live throughout the Russian arctic for whom waterbirds are an important seasonal source of food. Photo: Gerard Boere.



Patterned high-arctic tundra in the Lena Delta, Russia – the breeding habitat of huge numbers of migratory waterbirds. Photo: Gerard Boere.