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A global population redistribution in a migrant shorebird detected with continent-wide qualitative breeding survey data

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Abstract

Aim Over the last two decades, thousands of northward migrating ruffs (*Philomachus pugnax*) have disappeared from western European staging sites. These migratory ruffs were partly temperate breeding birds, but most individuals head towards the Eurasian Arctic tundras where 95% of the global population breeds. This regional decline may represent either: (1) local loss of breeding birds in western Europe, (2) a global decline, (3) shift(s) in distribution or (4) a combination of these. **Location** Northern Eurasia. **Methods** To put the declines in western Europe in context, we analysed Arctic monitoring data from the last two decades (Soloviev & Tomkovich, 2009) to detect changes in regional breeding densities across northern Eurasia. We used a novel approach applying generalized additive modelling (GAM) and generalized estimations equations (GEE). **Results** We show that the global breeding population of ruffs has made a significant eastwards shift into the Asian part of the breeding range. In the European Arctic, ruffs decreased during the last 18 years. At the same time, in western Siberia, ruffs increased. In eastern Siberia, no significant population changes could be detected. These changes corroborate the finding that during northward migration, growing numbers of ruffs avoided staging areas in the Netherlands and Sweden and started migrating along a more easterly route leading into western Siberia. **Main conclusions** We detected an unprecedented large-scale population redistribution of ruffs and suggest that this is a response to loss of habitat quality at the traditional staging site in the Netherlands. © 2010 Blackwell Publishing Ltd.

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Keywords

Arctic, GAM, GEE, Migration, *Philomachus pugnax*, Redistribution, Ruff, Scolopacidae, Waders