

# Boreal bird species of conservation concern affected by climate change

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A protected area network should ensure the maintenance of biodiversity, but climate is changing rapidly, thereby creating further demand for the protected area network to be efficient in preserving biota. Due to climate change species ranges are expected to move polewards, which poses challenges to the protected area network.

Population changes of different [bird species](#) groups according to their

habitat preferences in boreal protected areas in Finland were studied on the basis of large-scale bird censuses carried out in 1981 and in 2000. Mean temperatures rose clearly between the two time slices in Finland, for example, mean April-June [temperature](#) by 0.7 °C.

The study "Preserving species populations in the boreal zone in a [changing climate](#): contrasting trends of bird species groups in a protected area network" by Raimo Virkkala from the [Finnish Environment Institute](#) and Ari Rajasärkkä from [Metsähallitus](#) was published in the open access journal *Nature Conservation*. Bird censuses were compiled and organized by Metsähallitus, which governs the state-owned protected areas in Finland. Tens of competent ornithologists carried out the censuses, which included altogether over 11,600 km of line transects.

According to the study, population densities of common forest habitat generalists remained the same between the two periods, while densities of species of conservation concern showed contrasting trends: species preferring old-growth or mature forests increased, but those living on mires and wetlands, and species of Arctic mountains decreased.

"These trends are most probably connected with [climate change](#), but successional changes in protected areas and regional habitat alteration should also be taken into account," says Dr Virkkala, the leading author of the study. Of species preferring old-growth or mature forests, a larger proportion are southern than among species of mires and wetlands, or of Arctic mountains, most or all of which, respectively, had a northerly distribution.

In general, northern species have decreased and southern species increased. It is suggested that climate change effects on species in natural boreal and Arctic habitats most probably are habitat-specific with large differences in response times and susceptibility. Open mires and mountain heaths change more rapidly in consequence of climate

warming than old-growth forests, for which reason populations on mires and mountain heaths may also be more affected by climate change.

**More information:** Virkkala R, Rajasärkkä A (2012) Preserving species populations in the boreal zone in a changing climate: contrasting trends of bird species groups in a protected area network. *Nature Conservation* 3: 1. [doi: 10.3897/natureconservation.3.3635](https://doi.org/10.3897/natureconservation.3.3635)

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