

## Abstract

Human-induced global change is altering the environmental systems as we know them. Significant evidence has been acquired that suggests these changes are triggering the sixth mass extinction. This biodiversity loss seems to not be occurring at random, but it is targeting species differently according to their niche breadth. Species with a narrow habitat niche seem to be experiencing strong population decline, especially due to the intense natural habitat transformation. Therefore, we investigated the role of habitat specialization within species ecology and its conservation implications, obtaining the following key findings:

- Habitat specialists gathered in montane regions and in areas with harsh climate conditions (cold and highly seasonal) across the European continent. Furthermore, we found two specialization hotspots, one in northern Scandinavia and one in the steppe region north of Caucasus. Additionally, we found that specialists and habitat generalists merge in the same communities.
- Habitat specialization predicts population declines at European pancontinental scales. It brings further support for widespread process biotic homogenization, likely caused by current human-induced land use and climate changes.
- When we tested whether conservation benefits of mid-field woodlots were compromised, depending on the usage of native or non-native plants, we detected a stronger effect of the non-native plants' presence on the specialist species.
- When calculated in geographical space, species population densities at national level are determined by habitat specialization. Once we accounted for the suitable habitat availability, this effect vanished, meaning that the performance of specialists and a generalists is similar, being determined only by the amount of suitable habitat available.

This thesis highlights the specific ecology of habitat specialists, illustrating how the specialization might constrain species response to the global change.