
Conservation translocations in the face of climate change

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Résumé

Conservation translocations represent effective actions to improve the conservation status of threatened species through the intentional movements of individuals. Practitioners have a variety of motivations and constraints to consider when choosing a translocation site to which climate change and global processes are now added. The translocation sites are often spatially restricted, but their locations can have large consequences on the persistence of the translocated populations when considering ongoing rapid changes in climate and land use. In this context, we aimed at a better understanding of the relevance of translocations with global change. We assessed how the climate change and the climate tolerance of the species match at each recorded location of translocated populations of plants, birds, and mammals in Europe. We used the Transloc database, which contains the most extensive synthesis of the populations of plant and animal species that have been voluntarily translocated in the Western Palearctic, aiming to obtain wild, viable populations.

We estimated the climate match for 420 populations of 253 species of plants, 317 populations of 31 species of mammals, and 117 populations of 28 species of birds translocated from WWII, as well as their safety margin and exposure to changes in mean and extreme temperature and precipitation. Estimating the climate tolerance of the candidate species for translocation was a methodological and conceptual challenge, as the populations of these threatened species have undergone major declines and are often reduced to refuge areas. Across the five climate variables studied, we showed that about half of the translocated populations of plants and birds and 40.7 % of the populations of mammals were currently exposed to at least one climate risk and about one-third to at least two risks. Thermic risk (i.e. increase in temperature) represented the highest risk for plants, with one-third of the translocated population currently at risk and 81.2 % in the future (2041-2070). We also showed that practitioners translocated plants in sites on average significantly less at risk than the sites of the source populations, giving an overview of how practitioners' decisions are coping with climate change. We discuss how translocation programs should incorporate information on these mismatches to foster the efficiency and success of conservation.

Mots-Clés: translocations, reintroductions, climate change

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