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Background sampling and transferability of species distribution model ensembles under climate change

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Abstract

Species Distribution Models (SDMs) constitute an important tool to assist decision-making in environmental conservation and planning. A popular application of these models is the projection of species distributions under climate change conditions. Yet there are still a range of methodological SDM factors which limit the transferability of these models, contributing significantly to the overall uncertainty of the resulting projections. An important source of uncertainty often neglected in climate change studies comes from the use of background data (a.k.a. pseudo-absences) for model calibration. Here, we study the sensitivity to pseudo-absence sampling as a determinant factor for SDM stability and transferability under climate change conditions, focusing on European wide projections of *Quercus robur* as an illustrative case study. We explore the uncertainty in future projections derived from ten pseudo-absence realizations and three popular SDMs (GLM, Random

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