

Understanding spatial effects in species distribution models

Iosu Paradinas¹, Janine Illian², and Sophie Smout¹

¹University of St Andrews

²University of Glasgow

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Abstract

Most Species Distribution Models include spatial effects to improve prediction at unsampled locations and reduce Type I errors. Ecologists tend to try ecologically interpret the spatial patterns displayed by the spatial effect. However, spatial autocorrelation may be driven by many different unaccounted drivers, which complicates the ecological interpretation of fitted spatial effects. This study wants to provide a practical demonstration that spatial effects are able to smooth the effect of multiple unaccounted drivers. To do so we use a simulation study that fit model-based spatial models using both geostatistics and 2D smoothing splines. Results show that fitted spatial effects resemble the sum of the unaccounted covariate surface(s) in each model.

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