

Cryptic niche conservatism among evolutionary lineages of an invasive lizard

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There is increasing evidence that the quality and breadth of ecological niches vary among individuals, populations, evolutionary lineages and, therefore, also across the range of a species. Sufficient knowledge on niche divergence among clades might thus be crucial for predicting the invasion potential of species. Here, we tested for the first time whether evolutionary lineages of an invasive species vary in their climate niches and invasive potential in Central Europe. Furthermore, we tested if lineage-specific models show a better performance than combined models. We used species distribution models (SDMs) based on climatic information at native and invasive ranges to test for intraspecific niche divergence among mtDNA clades of the invasive Wall Lizard *Podarcis muralis*. Using DNA barcoding, we assigned 77 invasive populations in Central Europe to eight geographically distinct evolutionary lineages. Niche similarity among lineages was assessed and the predictive power of a combination of clade-specific SDMs was compared with a combined SDM using the pooled records of all lineages. We recorded eight different invasive mtDNA clades in Central Europe. The analyzed clades had rather similar realized niches in their native and invasive ranges, whereas inter-clade niche differentiation was strong. However, we found only a weak correlation between geographic origin (i.e. mtDNA clade) and invasion success. Clades with narrow realized niches still became successful invaders, most probably due to broader fundamental niches. The combined model using data of all invasive lineages achieved a much better prediction of the invasion potential. Our results indicate that the observed niche differentiation among evolutionary lin-

eages is mainly driven by niche realization and not by differences in the fundamental niches. Such cryptic niche conservatism might hamper the success of clade-specific niche modelling. Cryptic niche conservatism might generally explain the invasion success of species in areas with apparently unsuitable climate.