

Home range analysis and habitat preferences of wolves recolonising Central European human-dominated landscapes

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October 20, 2023

Abstract

Decades of persecution resulted in the long-term absence of Grey wolves (*Canis lupus*) from most European countries. However, recent changes in both legislation and public attitudes toward wolves have eased the pressure and, over the last 20 years, wolves have begun rapidly re-establishing territories in their previous Central European habitats. Unfortunately, those habitats are now heavily altered by humans. Understanding the spatial ecology of wolves in such highly modified environments is crucial, given the high potential for conflict and the need to reconcile their return with multiple human concerns. We equipped twelve wolves (from eight packs) in five Central European areas with GPS collars and calculated their monthly home ranges using Autocorrelated Kernel Density Estimation. In addition, we used ESA WorldCover data to assess the mosaic of available habitats within each home range. Home range size for most wolves (84.6%) ranged from 56.4 to 259.7 km². Our data confirmed the general seasonal pattern for breeding individuals, with smaller apparent home ranges during the reproduction phase and non-breeders showing no specific pattern. Somewhat predictably, our wolves showed a general preference for remote areas, and especially forests. Some animals within military training areas also showed a broader preference for grasslands, which could be influenced by the specific land use of this habitat type and the high availability of prey. Our results provide a comprehensive insight into the ecology of wolves during their re-colonisation of Central Europe. Though wolves are spreading relatively rapidly across Central European landscapes, their permanent reoccupation remains uncertain due to conflicting concerns with the human population. To secure the restoration of European wolf populations, further robust biological data, including data on spatial ecology, will be needed to clearly identify the management implications.

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