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Plasticity in den site selection of wolves *Canis lupus* recolonizing central Europe

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At the turn of the 21st century, restriction of hunting and legal protection paved the way for natural recovery of the wolf *Canis lupus* in Europe. Wolves recolonizing central Europe – mainly western Poland and eastern Germany – originate from north-eastern Poland, where they inhabit forests sparsely populated by humans. In contrast, the areas being recolonised are significantly modified by people, due to agriculture, urbanisation and forestry. Previous studies have shown that genetic differentiation among local wolf populations is related to their prey and habitat specialization, likely caused by natal habitat preference induction; however, observations of wolf family groups inhabiting areas frequented by people suggests a high level of behavioural plasticity. We used a combination of comprehensive tracking, howling stimulations, camera trapping and non-invasive genetic sampling to analyse den site selection of wolves recolonizing a mosaic of forests under various management regimes, from heavily used logged forests to protected sites. We also compared locations of dens and rendezvous sites in western Poland with those of the source population in the north-eastern part of the country. We found that in western Poland wolves can establish territories in areas heavily used by people (e.g. military training grounds), and can situate dens in close proximity to public roads, including high-speed motorways. These behavioural changes of individuals settling new areas have occurred very rapidly and involve learning thus could be attributed to behavioural plasticity. Nevertheless, behavioural differences between wolves from western Poland and the source population could also have resulted from non-random sorting of individuals by behavioural traits that affect dispersal and habitat selection. As human pressure will continue to threaten wolf habitats in the near future there is some urgency to improve our understanding of the mechanisms by which behaviour helps large carnivores cope with habitat alterations.