

Wilderness

In a short poll in our office about *wilderness*, the term was perceived as nature untouched by human interference. Asked which regions they would describe as wilderness, no one mentioned any areas within Central Europe. With this perception, our team only scratches the surface of what the term may imply in Europe. The concept of 'wilderness' in the Central European context has been intensively discussed but there is no common physical and spatial definition for wilderness, unlike in the US, where a long tradition for protecting wilderness exists and is clearly defined in the US Wilderness ACT. Most places in Central Europe have been intensively used for a thousand years and only some, like the Wilderness Area Dürrenstein in Austria, meet the high standards of the IUCN (International Union for conservation of Nature) categories Ia and Ib, Strict Nature Reserve and Wilderness Area. The study reveals the many definitions of wilderness in the literature for Central Europe and continues with a case study of visitors to Müritzn National Park in Germany on their interpretation of the term. It concludes that wilderness might be a suitable term for describing large unmanaged forest complexes, remote mountain areas and large bogs, marshes and alder swamps, which are not heavily frequented and offer a feeling of solitude. In this connotation, the term itself is perceived positively. However, the term is also used for urban wasteland, such as unmanaged places in an urban context, but this meaning generates fewer acceptances. The authors argue that knowledge about the perception of places labelled *wilderness* is vital for stakeholders, locals and visitors alike and encourage using different communication channels to reach people with different backgrounds.

Reference: Lupp, G., F. Höchtl & W. Wende 2011. 'Wilderness' – A designation for central European landscapes? *Land Use Policy* 28: 594–603.

Nature conservation in the Eastern Rhodopes mountains

The European Green Belt runs from the Barents Sea to the Black Sea along the former border between East and West and symbolizes the global effort for joint, cross-border activities in nature conservation and sustainable development. In the Eastern Rhodopes mountains, which are part of the southern European Green Belt, researchers conducted a case study in six protected areas in Greece and Bulgaria about the effectiveness of nature conservation. The Dadia-Lefkimi-Soufli Forest National Park in Greece is covered by extensive pine and oak forest and is a refuge for raptors. The national park has a management agency, established in 2003, to coordinate all conservation and monitoring activities. The protected areas in Bulgaria are characterized by high species diversity, endemism and rarity. Nature conservation is regulated by two different ministries and the municipality administration authorities. Researchers interviewed local conservation experts to understand why recommendations for nature conservation were or were not implemented and evaluated. To find these recommendations, they sifted literature from the area on topics covering legislation, administration and forestry, research, monitoring, landscape conservation, forestry, agriculture, wildlife management, hunting and fishing, tourism and environmental education and sustainable development. Even though most of the recommendations were known by the local experts, only 52% of them in Greece and 16% in Bulgaria were *implemented* and only 15% in Greece and 3% in Bulgaria were *implemented and evaluated* on their effectiveness. The authors conclude that scientists should shift their research focus from descriptive to applied ecological and conservation science and communicate their findings to the responsible authorities in the respective native language. Access to scientific literature should be enhanced and effective communication promoted. Additionally, cross-border collaborations between stakeholders should be encouraged with the help of the European Green Belt.

Reference: Schindler, S., N. Curado, S.C. Nikolov, E. Kret., B. Cárcamo, G. Catsadorakis, K. Poirazidis, T. Wrbka & V. Kati 2011. From research to implementation: Nature conservation in the Eastern Rhodopes mountains (Greece and Bulgaria), European Green Belt. *Journal for Nature Conservation* 19: 193–201.

Mountain hare – *Lepus timidus*

The mountain hare is an isolated boreo-alpine species and lives above 1 300 m across the Alps. The population lives on the edge of its genus' distribution range and has different dynamics and spatial behaviour from species living in the centre of the range. The ecological and genetic pressures are much higher. It is important to understand these in order to define effective management and conservation strategies. In this study, 34 hares were monitored between 2005 and 2008 in the central Italian Alps in the Stelvio National Park as well as in the nearby Vezzola valley, at 1 950 m and 2 050 m respectively.

Spatial behaviour depends very much on the seasons. In autumn, hares inhabit a smaller area than in summer. Autumn is the end of the breeding season, when hares have the lowest body mass and are in mid-moult (not yet completely white for winter) and thus at great predation risk due to the lack of snow cover. There are also age-dependent responses to spatial behaviour, where adult hares need less space, probably due to their knowledge of where to find preferred resources and mates. Younger hares need to make major exploratory movements to gather information about the habitat and are also being harassed by adult hares who force them to roam over larger areas. Within the breeding season, male hares visited the territories of females more often than in autumn. The mountain hares in this study stayed in their area for more than one season, an indicator of the quality of the habitat. The authors also suggest that the areas of activity depend on the habitat structure: hares living in an environment with a mosaic of patches of different quality for resting and foraging would need a smaller area compared with hares living in poorly structured habitats. For conservation measures, it would be important to monitor local hare densities to be able to estimate the population size. Space use data suggest the limited capacity to colonize new areas. Unmanaged hunting with no consideration of the population size may lead to the extinction of mountain hares in habitats with low densities.

Reference: Bisi, F., M. Nodari, N.M. Dos Santos Oliveira, E. Masseroni, D.G. Preatoni, L.A. Wauters, G. Tosi & A. Martinoli 2011. Space use patterns of mountain hare (*Lepus timidus*) on the Alps. *European Journal of Wildlife Research* 57: 305–312.

Land-cover changes in the Pyrenees

Mediterranean mountains have been used by humans for thousands of years to grow crops, breed livestock and for forestry, which resulted in a small-scale patchwork of land use. During the twentieth century, the mountainous areas of the Mediterranean suffered high emigration, abandonment, decrease in livestock and limited use of forested areas. In recent decades, forest cover has increased reducing open habitats, e.g. grassland, shrublands, rocky areas and screes. The authors analysed land-cover changes within Aigüestortes i Estany de Sant Maurici National Park (AE-NP), a high-mountain domain of the Pyrenees massif. They compared aerial photographs from 1957 with data from 2005 (using color ortho-photographs, a land-cover map of Catalonia and a digital elevation model). AE-NP was created 55 years ago and the traditional socio-economy of the villages until the establishment of the NP was based on arable farming, breeding cattle and forest management. The dynamics within the AE-NP since 1957 showed two main processes: the expansion of the forest area and the increase in forest cover. In some areas, a reduction in forest cover was observed as a result of avalanches which destroyed existing forests and created open habitats. After five decades of legal conservation, AE-NP has changed considerably, with a high presence of closed forests and the loss of a rich mosaic of land covers and species.

Reference: Gracia, M., N. Meghelli, L. Comas & J. Retana 2010. Land-cover changes in and around a National Park in a mountain landscape in the Pyrenees. *Regional Environmental Change* 11: 349–358.