

land use. The regional metapopulation of the HD-directive butterfly *Phengaris arion* is the largest in the country. The butterfly offers umbrella for extremely rich entomofauna, including critically endangered butterfly *Argynnis niobe* and Rattle Grasshopper *Psophus stridulus*. Survival of the system depends on continuation of small-scaled, diverse and temporally variable sheep-based farming, but has receded, as a result of agricultural intensification, to the most rugged terrains of the mountains. With decreasing profitability of the mountain farming, the local rural communities increasingly depend on various forms of subsidies. Unfortunately, existing conservation-oriented payments, including the EU Agrienvironmental schemes, fail to provide for the temporal and spatial heterogeneity of land use, which appears as the crucial factor for maintaining the areas' biodiversity. Afforestation subsidies are probably even worse, because forests, once planted, cannot be converted back to non-forest land due to legal obstacles. An urgent revision of both the philosophy and practical implementation of conservation subsidies is needed.

#### **434. ESTIMATING THE POPULATION SIZE OF THE BALKAN LYNX IN THE MAVROVO NATIONAL PARK, MACEDONIA, BY MEANS OF CAMERA-TRAPPING**

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Less than 100 individuals of the Balkan lynx (*Lynx lynx martinoi*) remain in the Southwestern Balkans, making it the most endangered autochthonous Eurasian lynx population in Europe. The scarce knowledge about its status, biology and ecology needs to be improved in order to implement efficient conservation and management measures. The goal of this study was to estimate the number of Balkan lynx in the Mavrovo National Park, Macedonia, an area considered a stronghold of the population, by using photographic capture-recapture sampling. We defined 32 camera-trap sites covering an area of 436 km<sup>2</sup>. At each site, two opposite Stealthcam camera-traps were installed in order to photograph both flanks of the animal. As an attractant, a pole treated with Valeriana extract was set between the two cameras. The sampling effort was 1796 trap-nights, producing a total of 29 lynx photographs. Model Mh of programme MARK fitted the data well and resulted in  $7 \pm 1,82$  independent lynx, which corresponds a density of  $0,84 \pm 0,24$  independent lynx/100km<sup>2</sup>. This study provided the first insight into the status of the Critically Endangered Balkan lynx in its core area, paving the way for future research and conservation efforts.

#### **435. SHEDDING LIGHT ON BAT BEHAVIOUR - THE IMPACT OF ARTIFICIAL LIGHTING ON THE COMMUTING BEHAVIOUR OF BRITISH BATS**

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Artificial lighting schemes can damage bat foraging habitat directly through loss of land and fragmentation or indirectly by severing commuting routes from roosts, polluting watercourses and foraging habitat. The impact of street lighting on bat activity was tested using experiments along lesser horseshoe bat commuting routes at eight sites across Wales and South West England. Hedgerows were illuminated at a mean of 53 lux using two portable high pressure sodium street lights.

Bat activity was recorded using AnaBat remote acoustic detectors. Repeated-measures analysis of variance (ANOVA) was used to test the effect of experimental treatment on bat activity. Treatment type had a significant effect on bat activity ( $p < 0.01$ ). Contrasts demonstrated that all light treatments were significantly different from controls ( $p =$

#### **436. RE-ORIENTING BIODIVERSITY GOVERNANCE IN ROMANIA: TOWARDS PARTICIPATION IN CONSERVATION AND PROTECTED AREA MANAGEMENT**

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Since the collapse of Central and Eastern Europe's socialist regimes in the early 1990s, the region has experienced considerable change across environmental, social and economic dimensions. Transition and European Union accession processes have altered the dominant socio-economic conditions and resource use practices, while also having implications for the region's biodiversity. Although the changes have permitted new forms of multi-level governance to develop, a coherent participatory approach specifically tailored to managing biodiversity in the post-socialist context is yet to emerge. This paper takes up this issue and focuses on Romania, reviewing the changing approaches towards biodiversity and protected area governance during the country's pre-socialist, socialist, transition and current EU eras. Comparing Romania's institutional practices with dominant conservation governance paradigms at the international level and in other parts of the world over the same period, it is revealed that Romania, like other post-socialist countries, still faces many challenges in putting more inclusive and integrated approaches into action. The paper proposes that in order to re-orient biodiversity and protected area governance towards a more inclusive and multi-stakeholder norm that better links economic, social and environmental objectives, mechanisms need to be developed to institutionalise participation across all levels of governance.

#### **437. DIVERGING LONG-TERM AND SHORT-TERM RESPONSES OF LAND SNAILS TO CLEAR-CUTTING OF BOREAL STREAM-SIDE FORESTS**

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Effects of clear-cutting on biodiversity have mainly been studied in the short term, although knowledge of longer term effects are often more important for managers of forest biodiversity. We assessed relatively long-term effects of clear-cutting on litter-dwelling land snails. In a pair-wise design we compared snail abundance, species density, and species composition between 13 old stream-side stands and 13 matched young stands developed 40-60 years after clear-cutting. We identified all snail specimens in a 1.5 liter litter sample collected in each stream-side stand. From the young stands a mean of 135 shells and 9.5 species was extracted which was significantly higher than the 58.1 shells and 6.9 species found in old forests. Only two of the 16 species encountered showed a stronger affinity to old than to young forests. In short-term studies of boreal stream-side forests land snail abundance is reduced by clear-cutting. Our results indicate that this decline is transient for most species and within a few decades replaced by an increase. We suggest that local survival in moist stream-side refugia makes the land snails able to benefit from the higher pH and more abundant non-conifer litter in young than in old boreal forests.