

## Oral Presentation Abstracts by Day and Symposium

|  | Day | time  |
|--|-----|-------|
| <b>33. Mammalian adaptations to human-dominated landscapes Coulson, Australia; Baker, Reading</b>  | Mon | 10:00 |
| <p><b>Multi-scale effects of agricultural intensification on wild-living lagomorphs: implications for conservation and management</b> P. Wheeler, (p.wheeler@hull.ac.uk), Uni. Hull, Scarborough, Scarborough, UK, S. Petrovan, (s.petrovan@hull.ac.uk), L. Lush, (l.v.lush@2010.hull.ac.uk), A. Ward, (alastair.ward@ahvla.gsi.gov.uk), Animal Health &amp; Vet. Lab. Understanding the way wild-living mammals interact with domestic stock at field and landscape scales is critical to sustainable management of mammalian biodiversity in agricultural landscapes. In Britain, as in much of Europe, European brown hares have declined markedly with agricultural intensification, particularly in pastures, while European rabbits have increased and are a significant pest. This paper presents a synthesis of our studies on the correlates of hare and rabbit distribution in pasture-dominated landscapes aimed at understanding the drivers of change in the two species at field and landscape scales. Hares were positively associated with a limited number of characteristics of less intensive farming while rabbits were associated with a number of intensive practices. The ability to partition aspects of intensification and their effects on species of conservation or pest status in this way may allow us to maintain mammalian biodiversity and avoid problems with pests in productive landscapes.</p> | Mon | 12:40 |
| <b>4. Environmental signals, population outbreaks and the collapse of multiannual cycles Lambin, Aberdeen; Reid, Belfast; Huitu, Suonenjoki</b>  | Tue | 10:00 |
| <p><b>Regional synchrony in the 9-10 Year Cycle of Snowshoe Hares in North-western North America</b> C. Krebs, (krebs@zoology.ubc.ca), Uni. British Columbia. Canada, R. Boonstra, (boonstra@utsc.utoronto.ca), Uni. Toronto, Canada, S. Boutin, (sboutin@ualberta.ca), Uni. Alberta, Canada Snowshoe hares (<i>Lepus americanus</i>) fluctuate in 9-10 year cycles throughout much of their North American range. Regional synchrony has been assumed to be the rule, so that hare populations in virtually all of northwestern North America should fluctuate in phase. We gathered qualitative and quantitative data on hare numbers in the boreal forest regions of Alaska, Yukon, Northwest Territories, and northern British Columbia to describe synchrony in the time window of 1970 to 2012. Synchrony was strong from 1970 to 1995 but then seemed to break down in different parts of this region. Hare populations at peripheral sites in Alaska, the Yukon and Northwest Territories lagged by 1-2 years during the 2000s cycle, and the movement of predators is the simplest hypothesis to account for the observed differences. A traveling wave of these cycles is clearly seen in both lynx fur returns and hare densities from western Canada and Alaska.</p>   | Tue | 14:00 |
| <p><b>Historical tipping point in hare population cycles attributed to the additive effects of early climatic and agricultural change</b> N. Reid, (neil.reid@qub.ac.uk), Queen's Uni. Belfast, UK, J. Brommer, (jon.brommer@helsinki.fi), Uni. Helsinki, Finland, N.-C. Stenseth, (n.c.stenseth@bio.uio.no), Uni. Oslo, Norway, W.I. Montgomery, (i.montgomery@qub.ac.uk) Animal populations at Northern latitudes, most notably hares, are renowned for their complex cyclical dynamics. Hare populations at more southerly latitudes have recently been characterised by dramatic declines in abundance. We demonstrate that the hare population in Ireland exhibited a distinct regime shift from a dynamical structure typical of Northern populations from 1853-1908, during which numbers were stable but cyclic with a periodicity of 8 years, to one typical of southern populations from 1909-1969, in which cyclicity was lost and numbers declined dramatically (-87%). A destabilisation in the dynamic structure of the autumn Northern Atlantic Oscillation (NAO) led to the synchronous collapse of a similar dynamic in the hare population coincident with the onset of agricultural intensification. Similar regime shifts have been observed in Arctic systems since the 1980s and attributed to recent climate change but we show that such shifts occurred at lower latitudes more than a century ago.</p>     | Tue | 14:20 |
| <b>39. Modes of Communication: olfactory, touch and vocal signals</b>  | Tue | 10:00 |
| <p><b>Levonorgestrel and quinestrol depressed the expression of NADPH - Cytochrome P450 Oxidoreductase in kidneys of plateau pikas</b> Z. Wang, (wzl@zzu.edu.cn), Zhengzhou Uni., Zhengzhou, China, Y. Zhang, (zhangym@nwipb.ac.cn), Northwest Plateau Inst. Biology, Chinese Acad. Sci., Xining, China CPR plays an important role in the metabolism of a wide range of chemicals and drugs. The purpose of this study was to assess the effect of infertility agents on the expression of CPR in plateau pikas (<i>Ochotona curzoniae</i>). Forty healthy adult pikas were used for the experiment. Animals were divided into four groups: control, quinestrol group, levonorgestrel group and EP-1 group. The results are as follows: a CPR genomic fragment of 2038 bp of <i>O. curzoniae</i> was amplified and sequenced (accession No. 1021728). Plateau zokor CPR mRNA shares 92% homology with mice and rat, 93% with human, and 100% with rabbit CPR mRNA. Selective pressure analysis identified 11 sites to be under positive selection. One-way ANOVA showed that infertility agents impacted on the expressions of CPR in the kidney (<math>F_{4,28} = 7.743, P &lt; 0.001</math>). Our study confirmed that infertility agents depressed the expression of CPR in plateau pikas.</p>   | Tue | 12:20 |

**40. The Historical Biogeography of American Mammals: The Biogeography of American Mammals**

Tue 16:00

**Transition area in the Brazilian Atlantic Forest: characterization of the mammal fauna in the Jequitinhonha Valley**

L. Geise, (lenageise@gmail.com), Uni.do Estado do Rio de Janeiro, Brasil, D. Astúa, (d.a.moraes@gmail.com), UFPE, P.H. Asfora, (paulo.asfora@gmail.com), L. Azamor, Uni. Veiga de Almeida Jequitinhonha River is one of the main rivers in eastern Brazil, with vegetation and climate changing along the valley. Surveys from 2005 to 2012 in museums, literature and field work on both river banks, in all ecorregions, provided data for 36 left and 31 right banks with 63 species; 11 Didelphimorphia, 3 Cingulata, 11 Primates, 1 Lagomorpha, 3 Carnivora and 34 Rodentia. mtDNA sequences analyses of *Akodon cursor*, *Oecomys catherinae*, *Rhipidomys mastacalis* (Rodentia) and *Metachirus nudicaudatus* (Didelphimorphia) population indicates differentiation along a latitudinal gradient, with a discontinuity south/north from Jequitinhonha Valley as found in *Cerradomys* spp., *Alouatta* spp. (Primates) and the lizard *Coleodactylus meridionalis*. Sympatry among species of *Monodelphis*, *Didelphis* and *Gracilinanus* (Didelphimorphia) are reported. Among rodent species, new karyotypes and morphology suggest new species, and different karyotypes were observed in *A. cursor* and *N. squamipes*. Reproduction data provides new information.

Tue 16:20

**8. Mammal-plant interactions Winkler, Hamburg; Schulz, Hamburg**

Thur 10:00

**The more the merrier? Interactive effects of plateau pikas and Himalayan marmots on alpine meadow plant diversity on the Tibetan Plateau**

Y. Zhang, (zhangym@nwipb.cas.cn), Northwest Inst. Plateau Biology, Chinese Acad.Sci., China, J. Qu (jpqu@nwipb.cas.cn), W. Ji, (J.J.Weihong@massey.ac.nz), Massey Uni., New Zealand, J.C. Russell, (j.russell@auckland.ac.nz), Uni. Auckland, New Zealand Burrowing mammals play keystone functional roles in grassland ecosystems. Recognising interactive effects where herbivores co-exist is important for guiding grassland restoration and biodiversity conservation. On the Tibetan Plateau, both plateau pikas and Himalayan marmots are regarded as pests, but little is known about their interactive effects. We conducted an experimental field study to determine the interactive effects of pika and marmot on plant biodiversity and vegetation structure. Plateau pikas alone consistently reduced plant height and diversity significantly, increased vegetation cover of physically unpalatable plants. However, the co-existence of marmots with pikas decreased vegetation cover of physically unpalatable plants, while increasing cover of palatable plants and plant diversity, ultimately offsetting the impact of pikas alone and modulating aspects of the plant community. These results illustrate that increasing the abundance and richness of small mammals in alpine meadow will promote plant diversity and benefit vegetation restoration rather than aggravate degradation of grassland.

Thur 11:00

**27/28. Climate change impacts: mitigation, restoration and novel ecosystems Hallett; Eastern Washington Univ.; Valentine, Univ.Western Australia**

Thur 12:20

**Quantifying the impact of climate change on the Order Lagomorpha** K. Leach, (kleach01@qub.ac.uk), Queen's Uni.Belfast, Belfast, UK, W.I. Montgomery, (i.montgomery@qub.ac.uk), A. Cameron, (a.cameron@qub.ac.uk), N. Reid, (neil.reid@qub.ac.uk) Species distribution modelling is used to estimate the likely distribution of species by relating recorded occurrences to environmental variables. Once species-environment relationships are quantified they can be used to predict species distributions outside the initial study area or over time to inform conservation management. Such models can predict responses to climate change and may be developed to include other ecological factors, such as interspecific interactions. The Order Lagomorpha is comprised of 87 species and is very successful in a wide variety of habitats; nonetheless, a quarter of lagomorph species are threatened with extinction. Many occur in the Arctic or at high elevations, whilst others inhabit deserts, thus making them particularly vulnerable to the impacts of projected climate change. We report the likely changes in the bioclimatic envelope predicted using maximum entropy modelling for four species, which represent Arctic, desert, montane and forest habitats.

Thur 15:00