

# Talks and Posters



**University of Cambridge**

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*Building links among young conservation scientists and practitioners*

# **Abstracts of Talks**

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### ***Impacts of coral decline for Caribbean reef architecture***

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Corals are declining worldwide but the consequences of this mortality for reef architecture are still unknown. Here I explore whether declines in coral cover in the Caribbean have been mirrored by changes in reef architecture. I collated and analysed a region-wide database of Caribbean reefs on which both factors has been measured in more than one year. The rate of loss was twice more severe for coral cover than for reef architecture. The rate of coral loss did not vary with hurricane impact or protected area status but reef architecture has declined faster in sites impacted by hurricanes and inside protected areas.

### ***Carnivore conservation in Ghana***

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Carnivore populations in West Africa face significant threat yet are poorly studied. We used camera traps to conduct the first assessment of carnivores in Mole National Park, Ghana, a regionally significant protected area. Only 9 of 16 historically occurring species were detected across 245 camera stations deployed for 5046 trap-nights between October 2006 and November 2008. The top predator, lion, appears to be extirpated. Spotted hyena and leopard are among the more resilient species. Prey and habitat availability appear suitable to support predators, but hunting pressure is high. Carnivore demise may be due to direct persecution and park isolation.

### ***The implementation of REDD: lessons from Nantu***

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This presentation explores the implementation of a new policy to tackle climate change: REDD. Debate continues in the international arena over its funding and structure; key forest states even question the scheme per se. While these high level discussions continue, this work considers how the huge sums of money mooted might actually be used in the field to ensure forest conservation. Who will ultimately receive the potential windfall, and

how will it be spent? This presentation discusses core concepts of scale, additionality and conditionality within the context of a protected Indonesian forest – Nantu, home of the babirusa.

### ***The impact of war on conservation in Sierra Leone***

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This presentation will show the impact of war on biodiversity conservation in a tropical rain forest - the Western Area Peninsula Forest Reserve in Sierra Leone. This reserve protects the westernmost extent of the Upper Guinea Forests, which holds a large amount of biodiversity, including some endemic and highly threatened species.

The reserve has faced various threats. The talk shall present results obtained using a new method - Threat Status Assessment (TSA), and an old one – trend analysis (TA) to assess changes in threat levels to biodiversity over three periods of time – before the war, during, and after.

The study showed that threat levels worsened over the 3 periods for high war impact communities but was only so during the war for low war impact communities. Threat such as stone breaking, housing construction, and power-saw logging which were unknown in the reserve before the war became common during the war and worsened afterwards. Results obtained using TSA were consistent with those using trend analyses.

### ***Population declines in Africa's protected areas***

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The ecological performance of Protected Areas (PAs) in terms of the long term persistence of their key biodiversity features remains poorly understood. Here, we use a new database of 530 time series from 73 PAs and 65 species within Africa to create population trends. The population trends are aggregated to form an index showing the overall change of abundances. The index shows a decline in population abundance of over 50% between 1970 and 2004.

Indices for different regions of Africa demonstrate that there are large regional differences with Southern Africa maintaining its' populations and Western Africa suffering declines over 80%.

### ***Land Cover in Atlantic Forest Reserves***

ANDRÉ ALMEIDA CUNHA

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Recent investments on the creation of protected areas around the world benefit soft reserves. I compared vegetation types protected in hard and soft reserves of the Brazilian Atlantic Forest. Hard reserves (n= 231) harbour forest remnants on 76% of its area. 40% of soft reserves (n= 191) and 9% of hard reserves area protects human landscapes, mainly pastures. Soft reserves are not the best investment for biodiversity protection, but could be considered favourable paths for landscape conservation planning. Evergreen forest is well protected in hard reserves (15% of its remnants), but dry (4%) and mixed forest (1%) need urgent protection.

### ***Managing wet grasslands for breeding waders***

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Breeding waders are undergoing declines across Europe. Management techniques include using wet features to hold water within the landscape throughout the breeding season to provide feeding habitats. Late in the season, chicks using fields with higher densities of wet features had better body condition than those in fields with low densities.

### ***Empirical support for demographic Allee effects***

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Demographic allee effects, defined as a positive relationship between total fitness and population size, may cause reduced fitness in small populations, threatening their persistence. Yet they are neglected in management plans. Using a suite of population dynamical models, I quantified their empirical support in dynamics of 1198 populations and assessed biases in their detection. I found sparse support for daes and illustrated how time series length and measurement error, but not local climatic variation, affect their detection. Contrary to supposition, dae evidence was unrelated to the minimum observed population size. Detecting such dynamics requires collection of appropriate data (and errors).

### ***Consumers alone can't save our fish***

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Are consumer-based initiatives (such as seafood certification schemes like the MSC) enough to save the world's wild fish stocks from demise? No. They are popular among industry and consumers and, for certain things, such as encouraging suppliers to adopt better practices, they can be significant. But when it comes to the fate of world fisheries, there are better conservation avenues, even within markets. Several market-based measures may be more effective conservation strategies, such as the use of negative messaging to motivate large retailers, the promotion of fishmeal alternatives, and the elimination of harmful fisheries subsidies.

### ***Lighting the way to reducing disorientation of turtle hatchlings in India***

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Sea finding in olive ridley sea turtle hatchlings is disrupted by artificial coastal lighting. In India, this endangered turtle is threatened by industrial lighting and development along key nesting beaches. We undertook the first study in India addressing the response of hatchlings to different light types and in-situ lighting conditions. Using choice and arena experiments we found that hatchlings were least affected by low intensity light particularly of the red band of the spectrum. Casuarina plantations along the coast can act as effective light barriers and could be used as a cheap stop-gap solution to hatchling disorientation along extensive coastlines.

### ***Coexistence of river dolphins and fishermen***

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Millions of poor fishermen dependent on river ecosystems in India share the habitat of endangered Ganges river dolphins. In the Vikramshila Sanctuary, both dolphins and fishing activity showed very similar

preferences for habitat and small fishes. Sampling at selected sites under different fishing intensity levels, in dolphin-preferred and unpreferred habitats, showed lower fish-prey biomass in highly fished sites. Resource-competition may have aggravated due to historical decline in larger-sized fish, indicated by high proportions of small-sized fish (75%). Restoration of declining resources and providing alternative livelihoods to fishermen might reduce overlap and help conserve dolphins and fisheries through sustainable co-existence.

### ***Sustainability and consumer preferences in the Cambodian wild meat trade***

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Understanding the dynamics of wildlife trade and the motivations of people involved are vital to conserving species impacted by that trade. Using both biological and social methods, I investigated the general wild meat trade in an urban market in the town of Banlung, Ratanakiri. The results confirm that wild meat is not a basic protein source, as livestock and fish are more available and are also preferred and consumed more than wild meat. It is also shown that urban dwellers like to consume wild meat and the demand is inelastic. Strategies to curb consumption would need to incorporate non-market measures.

### ***Fishing for scraps in an uncertain sea***

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Trawl fishing is a destructive fishing practice that generates large quantities of economically unviable bycatch (trash fish). However, with declining fish stocks and profits, fishers are finding commercial value in 'trash fish', now a crucial constituent of poultry feed. Trawlers were monitored along the Coromandel coast of India (July-September 2008) to understand drivers of trash fish landing. A stepwise multiple regression identified CPUE of commercial catch (negative), total gross profits and total catch (positive) as the most important variables explaining the amount of trash landed. Trash fish acts as an important economic driver and could be subsidizing an overexploited industry.

### ***Measuring conservation success in Nantu Nature Reserve, Indonesia***

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This interdisciplinary study uses techniques such as GIS analyses and semi-structured interviews with local stakeholders to evaluate first; the effectiveness of forest protection in Nantu Nature Reserve, Sulawesi (and the challenges to such assessment), and second; the impact of different conservation actions in delivering this protection. Interesting questions raised by this study include: (i) limitations of remote-sensing for quantifying forest loss, (ii) ineffectiveness of park protection without additional support, (iii) major contribution of vigorous guarding and enforcement, (iv) absence of a single metric for measuring success, and (v) the necessity of developing financial mechanisms such as REDD to reward stakeholders.

### ***Hedgerow networks - disappearance & conservation***

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Hedgerow-defined medieval field patterns, known as “pluzinas”, are valuable historical landscapes in the Czech Republic. This study evaluates the development of pluzina hedgerows in the Plzen Region. Between 1950 and 2005, 341 out of 483 hedgerows were lost in the study areas, and the total length of the hedgerows decreased by 71%. The most significant factors that have influenced the disappearance of hedgerows are natural soil fertility and current land use in adjacent areas, which is also significant in interaction with slope gradient and with historical land use. Based on these results, guidelines for pluzina conservation and restoration are proposed.

### ***Lessons from local people: community-based conservation in Tanzania***

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My talk analyzes the additional effect of climate variability on the design and implementation of the already failing community based conservation

(CBC) approach using the case of Morogoro District, Tanzania. CBC arose as a result of the clear failure of conventional conservation approaches that failed to integrate rural development and wildlife conservation. Climate variability impacts in terms of erratic rainfall magnify existing CBC challenges including human-wildlife conflicts, rural poverty, wildlife populations' decrease and habitat alterations. Conversely climate variability impacts provide opportunities for CBC to benefit from other strategies such as REDD, Ecotourism, CDMs and other conservation compatible land use changes.

### ***Impacts of resettlement on wildlife in northern Ethiopia***

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Successive Ethiopian governments have been relocating poor farmers in the destitute highlands to the hitherto unpopulated rangelands. In North West

Ethiopia, a hostile war zone, African elephants and other big wildlife, are threatened by encroachment of new settlements. To see the effect of re-settlement; vegetation and wildlife attributes were measured from around new settlements. Re-settlement resulted in a decreased density (80%, 90%) and diversity (49.6%, 96%) of woody species and wild life respectively. More than 90 % of the encountered wildlife was on areas 5km away from villages. Illegally killed wildlife was also encountered (e.g. 10 African elephants). While could be justifiable from its socio-economic motives, re-settlement is destroying the already dwindling wildlife and rangeland vegetation.

### ***Farming and wildlife conservation in India.***

MALVIKA ONIAL

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The expansion and intensification of agriculture are amongst the greatest threats to wildlife worldwide. Wildlife-friendly farming and land sparing are two major approaches that seek to minimize the impact of farming on wildlife. My study aims to inform the assessment of these two contrasting approaches by analysing the responses of wildlife across a gradient of land-use intensity in northern India. Analysis of the relationship between agricultural yields and population densities of birds and trees showed species-specific responses with different shapes of density-yield functions. In the case of birds, at least 50% of all species of unmodified habitat (forest) were absent from farmland.

### ***Black grouse and plantation forestry in Scotland***

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The dramatic decline of black grouse (*Tetrao tetrix*) has been linked to the maturation of 1950's forestry plantations and subsequent loss of ground vegetation. This study aims to determine how management following clearfell can increase suitable habitat. Our results show that coupes are most valuable for black grouse 2 to 5 years after restocking with young trees. At this age, invertebrate density reaches an optimum level for black grouse chicks. Ground vegetation species composition and structure is also optimal for nesting requirements and brood cover. Results enable conservation advice to be targeted at forest planners, ensuring that 'optimal age' restocks are consistently available in rotation as the forest matures.

### ***Farming and tropical forest biodiversity***

BEN PHALAN

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The human population of sub-Saharan Africa is increasing rapidly, creating a need to increase food production. If this increase comes from cropland expansion, it will damage forests. If it comes from intensification, it will reduce the biodiversity value of species-rich traditional agroforestry systems. I quantify the responses of a range of species to intensification and extensification, and use information on crop yields and profits to examine the options for producing more food with least harm to tropical forest species in Ghana. My results suggest that conservation strategies should focus first on protecting the irreplaceable biodiversity of intact tropical forests.

### ***Governance of Chinese Marine Protected Areas***

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There are growing academic and policy debates on how best to govern protected areas. This study evaluates the governance of marine protected areas (MPAs) in China through three in-depth case studies of MPAs in China coupled with a programme of policy analysis. Results show that fostering bottom-up participation in MPA management in China faces the obstacles of lack of support for strategic conservation and lack of historical experiences

in public participation. Further devolution in MPA governance in China needs to be pursued carefully to better address the balance between conservation, economic and community interests.

### ***Genetics of a recovering island endemic-the Mauritius parakeet***

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Despite its rapid recovery from less than 20 individuals to over 350 today the endemic Mauritius parakeet (*Psittacula eques*) is still under threat. The emergence of Psittacine Beak and Feather Disease (PBFD), a highly contagious viral disease, is limiting the way in which the population can be managed. Disease prevalence and recovery data is being considered alongside genetic data to investigate the possible impacts of inbreeding on disease resistance. Understanding the spread of the disease will not just help the Mauritius parakeet programme but also help to manage the spread of emerging infectious diseases in other conservation projects.

### ***Identifying sites for conserving golden mantella frogs in Madagascar***

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Golden frog is a critically endangered specie that have a restricted range in Madagascar. Many of its sites were in small patches of humid forest subject to anthropogenic pressure lead to habitat conversion due to slash and burn activity. However, contemporary scientific data is missed. We analysed available scientific documents and interviewed local peoples to localise sites. Density estimation is done with a standard method on each confirmed site. We found 25 sites. None occurred in protected. An excess of 1333 frogs/ha were found at five sites. 16 sites received temporary status new protected area after our promotion.

### ***Unnoticed mollusc extinctions***

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Molluscs are the group most affected by extinction according to the 2008 IUCN Red List and this despite the facts that it has not been re-evaluated since 2000 and that the quality of information for invertebrates is far lower

than for vertebrates. Altogether, 302 species are listed as extinct in the Red List. A reevaluation of listed extinct mollusc species, bibliographic research and consultation with experts have led to almost doubling of the number of known mollusc extinctions. We suggest that assessment of the conservation status of invertebrate species is not only neglected in the IUCN Red list but is also not managed in the same way as for vertebrate species.

### ***Decline in Manx shearwater breeding success***

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Through an annual comparison of data dating back to 1965, Manx shearwaters breeding in Wales show record low weight of fledglings in 2007-2008 associated with a reduction in parental attendance. This is linked to warming waters, and although not tightly associated to the concurrent decline in availability of their prey, it is related to a reduction in prey quality. These findings show that environmental change, possibly in conjunction with anthropogenic pressures on fish stocks, is affecting a species of top conservation value to the UK, a species that until now has never been reported as experiencing poor breeding success.

### ***Habitat fragmentation reduces survival in a tropical bird***

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Population ecology research has focused on linking environmental features with the viability of populations. We looked at the effect of forest fragmentation on survival of a tropical forest bird. We found a significant difference in annual adult apparent survival rates for individuals marked and recaptured in forest fragments vs. individuals marked and recaptured in the larger LCBSFR ( $\chi^2 = 5.022$ ;  $df = 1$ ;  $P = 0.025$ ). Our results suggest that forest fragmentation is likely having an effect on population dynamics for this species, and populations that appear to be persisting in fragmented landscapes might still be at risk of local extinction.

### ***Impacts of extreme climatic events in aquatic ecosystems***

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The long-term study of the mollusc community of the River Minho tidal freshwater wetlands provides the opportunity to discuss the consequences of the 2005 heatwave on these organisms. The results using different sampling strategies revealed: i) clear changes in the abiotic conditions in the peak of the heatwave; ii) a clear collapse of the mollusc fauna during the heatwave; iii) a clear change in the mollusc community structure when we compare before and after the heatwave period. After 2005 only the non-indigenous invasive species *Corbicula fluminea* recover their earlier abundance and biomass. In contrast, until now, the other mollusc species abundance and biomass remained dramatically low.

### ***Ecosystem-based management in the Red Sea***

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An ecosystem based fisheries management, using Ecopath with Ecosim modelling and semi-structured interviews, was used to examine the Red Sea ecosystem and to address the conflict among the stakeholders in order to conserve the ecosystem and the livelihood of the communities. The ecosystem model quantified the trophic interactions throughout the ecosystem with special emphasis given to the changes due to fishing while the interviews were used to fill the information gaps during modelling and to understand the perception of the fishers. The results predict what will happen to the ecosystem and the coastal communities under different scenarios.

### ***Fishery declines: an historical perspective***

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This research compiles Government data on demersal (bottom living) fish landings into England and Wales from 1889 to 2006. Landings and vessel data were used to calculate changes in fishing power of the fleet of large trawl and longline vessels, providing a time series of landings of fish per unit of fishing power (LPUP) of nearly 120 years. Initial findings suggest that since the late 19th century, LPUP has declined by over 95%, signifying a massive underlying loss of biomass from the seas fished by the England and Wales fleet during the last century.

### ***Carbon storage in agricultural landscapes***

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Deforestation and agricultural intensification cause significant carbon emissions contributing to climate change. The value of traditional cocoa agroforest as a carbon store is compared to forest similar to that from which it was derived and also to more intensive cocoa cropping systems. The traditional system stores considerably more carbon than the intensive system and a large proportion of that stored in forest. However, it also has lower productivity and thus higher spatial requirements to produce the same yield as more intensive systems. Management that maximises both carbon storage and productivity at wider spatial scales is examined.

# Abstracts of Posters

## ***Mapping the habitat of Persian leopard (*Panthera pardus saxicolor*) in Iran, and estimating its population inside Iran's protected area***

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The main conservation question is where does exactly Leopards live in Iran and what is their distribution range, what has been their historical range and what is their current range, in which protected areas they exist and where are the key areas to conserve them

I used GIS 9.2 to combine all my data that been collected during years of ad-hoc surveys in different protected areas and coordinates of leopard signs and their relative abundance in different parts of Iran. The main conservation question is where does exactly Leopards live in Iran and what is their distribution range, what has been their historical range and what is their current range, in which protected areas they exist and where are the key areas to conserve them

I used GIS 9.2 to combine all my data that been collected during years of ad-hoc surveys in different protected areas and coordinates of leopard signs and their relative abundance in different parts of Iran.

## ***Challenge of quantifying biodiversity in countries of species rich – Malaysia and Thailand***

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Although Malaysia and Thailand are rich in diversity the limited number of studies on their fauna and flora means that this diversity is only partially documented and that conservation and management efforts are impeded. Using data on fishes in small streams, we assess species richness and examine species composition in both countries. We find that small streams harbour rich biodiversity. Our results reveal that there are more species in these habitats than can be recorded during a typical survey. We believe richness estimators are a useful tool in measuring biodiversity and aid conservation.

### ***Implications of selective logging for birds in a moist semi-deciduous forest of Ghana***

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The majority of Ghana's Upper Guinea forests are committed to timber production, further disturbing what are already considered to be some of the world's most fragmented forests. This study examines logging intensity coupled with forest regeneration to indicate the implications of selective logging for avifauna in a moist semi-deciduous forest of south-western Ghana, using line transect surveys and mist netting. The results will be used to make recommendations on specific bird taxa to be used as indicators of forest ecosystem integrity in logging concessions, with the goal of contributing to standards for certification for sustainable forest and wildlife management.

### ***Evaluation of scent-station surveys for monitoring South African canids***

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This is the first project testing the efficiency of scent-station surveys – a non-invasive, inexpensive monitoring method – on African canids. We set three 5.5-km transects of 12 scent-stations at three sites in South Africa, and recorded mammalian visitations for three subsequent nights. Scent-station indices were calculated as (total number of visits per species/total number of operable stations)×10 for each canid, and compared to densities estimated from mark-capture and radio-telemetry data from a larger study. Scent-station surveys are reliable for determining the relative abundance of black-backed jackals ( $r=0.885$ ,  $P=0.000$ ,  $n=15$ ) across sites, but not cape foxes ( $r=0.213$ ,  $P=0.582$ ,  $n=9$ ) or bat-eared foxes ( $r=0.172$ ,  $P=0.658$ ,  $n=9$ ).

### ***Communicating conservation: representations of surrogate species concepts in UK and US newspapers.***

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The use of surrogate species in conservation practice requires clear-cut definitions of their meaning and the goals they are meant to deliver. This also needs to hold in the public domain where news about conservation forms opinions and informs decision-making. This poster examines the use of keystone, focal, umbrella and flagship species in UK and US newspapers. A LexisNexis search was conducted to retrieve relevant articles. Keystones was the most frequently used term (n=450), followed by flagship (n=122), umbrella (n=92), and focal species (n=19). The terms were often used in an unclear manner that did not reflect their academic definition. There is a need for more active engagement with the media if public understanding of conservation science is to be improved.

### ***Important Bird Areas outperform Protected Areas at capturing the ranges of globally threatened species***

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The success of a site-based conservation network at capturing the ranges of globally threatened species was assessed by estimating the overlap between Important Bird Areas (IBAs) and modelled bird distributions in Africa. On average, 30% of species' ranges fell within IBAs, but inter-species variation was high. Endangered and Critically Endangered forest species with small ranges were best covered. Poorly represented species occurred along the Moroccan coast, in the Ethiopian Highlands, Kenya and Namibia. Protected Areas compared poorly with IBAs, and capture of species' ranges decreased with increasing threat status. We suggest conservation efforts focus on identifying new IBAs for poorly represented species, and expanding the Protected Areas network to include a higher proportion of IBAs.

### ***Social-Ecological Inventory and Ecosystems Services of Traditional Rural Biotopes in SW Coastal Finland***

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Traditional rural biotopes (TRBs) in Finland are highly endangered landscapes rich in biodiversity. The quantity of these grazed woodlands and meadows in Finland has declined to only 1% of what existed prior to 1950. Concurrently, the quality of existing TRBs has declined. The importance of emphasizing the link between human wellbeing and ecosystem health for conservation has gained momentum since the Millennium Ecosystem Assessment and its pioneering use of the ecosystems services conceptual framework. Here is presented a methodology for identifying and valuing the ecosystems services of traditional rural biotopes of SW Finland using a social-ecological inventory approach.

### ***Woody species patch types affect herbaceous species richness and composition***

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Woody plants can be considered as dominant factor which extensively affect their environment, changing the distribution of resources in space and time. Strong affinities of herbaceous species to specific woody species patches were revealed in this study. We found that patterns of herbaceous species richness and composition are related to specific woody species patch type. These findings suggest that the general notion of a woody vs. non-woody patches for describing mixed tree-grass ecosystems is simplistic and may be misleading. Accounting for specific woody species patch characteristics may largely enhance our understanding of plant community structure.

### ***Reintroducing the beaver to Serbia: encouragement for Scotland?***

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The reintroduction of large mammals, and potential flagship species, attracts wide public attention and gives the potential for raising environmental awareness. The results of this project uncover problems and solutions to this controversial issue. Researching problems that occur in reintroduction projects in different countries, helps to understand and improve reintroduction programmes. My research shows that the successful beaver reintroduction programs across Europe can provide incentives for the Scottish project and for potential reintroductions in other parts of the UK. The obtained knowledge can also abbreviate the pre-introduction process and diminish potential for project failure.

### ***Distribution patterns and movements of bats during different time-periods in relation to habitat quality and land-use systems***

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There are little known about the bat habitat preferences, habitat avoidance and using critical habitats. Using ultrasound detectors, mist-nets and radiotelemetry we studied distribution patterns and movements of bats in relation to habitat quality between different forest patches in "Lower Dniester" Ramsar Site, Republic of Moldova. We found bats are aggregated to patches with specific structure and within specific landscape context; the high abundance and species richness of bats in optimal habitats during critical time period (autumn) in contrast to other habitats because of better foraging, roosting and commuting conditions; some bats were moving from sub-optimal to optimal habitats during the critical time period due to better foraging conditions.

### ***From Earth Observations to Ethnography: Investigating the Relationship between Land Tenure and Amazonian Wildfires.***

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Fire is an essential component of agriculture for rural communities in the Brazilian Amazon. We will examine whether the provision of land-tenure

to extractive communities can be an effective management strategy to help prevent ignition sources from reaching flammable tropical forests. We focus on extractive reserves in the Brazilian Amazon, which provide a unique experimental design to compare similar communities with different levels of land-tenure security. In order to develop an in-depth understanding, we will conduct research at three very different spatial scales, integrating the full complexity of human decision making with large-scale earth observation techniques.

***The Margarita monkey: a critically-endangered capuchin in a fragmented habitat on Isla de Margarita, Venezuela.***

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The main goal in this study is to evaluate the use of habitat by the Margarita monkey over its fragmented range of distribution and generate recommendations for its conservation. The correlation between monkeys' distribution and densities with threats for conservation are addressed: habitat reduced and fragmented, hunting for pest control and pet trade. Characterisation of the habitat, line-transect surveys and pet surveys along with interviews with hunter and park rangers were conducted. Distance sampling was used to collect and analyse the data recorded on transects. Geographic Information System (GIS) was use for study design and data analysis.

***Factors affecting survival and distribution of the water shrew (Neomys fodiens)***

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The water shrew is an elusive species which occurs at low densities and is patchily distributed (Churchfield, 1997). Consequently, the water shrew is one of Britain's least known mammals and its habitat requirements are poorly understood (Churchfield, 2000). This study aims to determine the distribution, associated habitat preferences and consequent survivorship of water shrews by comparing populations across various sites in the East Midlands. The findings will be used to produce Habitat Suitability Indices which will help to provide guidelines for effective management and conservation of this much understudied species, safeguarding its future.

***Does habitat degradation lead to more frequent (crop raiding) conflict between local people and sloth bear?***

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Human – wildlife conflict is increasing both in frequency and severity, world wide and is likely to escalate with use of land being the most obvious reason. In India, crop damage is a major cause of concern for the farmers and sloth bear as crop raider have been hardly tested. This Study documents crop raiding, through interviewing locals, sanctuary managers and conducting habitat quality evaluation. Maize and groundnut were observed to be targeted most. Wildboars were noted to cause more crop damage than the sloth bear. Active management needed to generate local support and involvement to protect sanctuary and conserve slothbear.

***Devastation and poverty in the west Ecuador hotspot of diversity: how can butterflies help?***

MARIA F. CHECA

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Promoting sustainable development in the west Ecuadorian hotspot is urgently required, where less than 6% of forests remain and more than 75% of people are poor. I surveyed the butterfly fauna of the Río Canande Reserve (Esmeraldas) over one year, finding new records for this hotspot and revealing abundance patterns of butterfly communities. A literature review showed that exploitation of wood and the cultivation of oil palm are the main deforestation factors. Butterfly biocommerce is a potential tool to promote a sustainable development, and my research has been published as a book aimed at conservationists and students.

### ***Save Hoolock Gibbon, Protect Forests, Conserve Biodiversity: Raising awareness through conservation education***

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The Hoolock Gibbon is a critically-endangered species in Bangladesh. The Wildlife Trust of Bangladesh (WTB) started a programme in 2006 to raise awareness among children, and thus inspire others to get involve in threatened species conservation. The WTB evaluated the proficiency of this programme jointly with an Oxford Brookes University graduate student. The evaluation highlights the impact potential of WTB's Save Hoolock Gibbons, Protect Forests, Conserve Biodiversity programme specifically and informal conservation education programme in general.

### ***The importance of secondary rainforest to a rich parrot community in southeastern, Peru***

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As more pristine rainforest is deforested and food sources lost, modified landscapes may provide alternative food supplies for parrot communities. This study assessed parrot abundance in secondary forest at two sites in Tambopata, Peru, and documented important food resources for the whole community and individual species. Results show that secondary forest holds important, albeit seasonally available, food resources and attracts significant parrot populations. Secondary forest has a special habitat value not just for this parrot community but potentially for all communities in the Neotropics. The future survival of parrots may be in their ability to exploit resources in these habitats.

### ***The effects of a semipermeable veterinary cordon fence on the movements of three large predator species***

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The "buffalo fence" is a veterinary cordon fence that runs south of the Okavango Delta (Botswana), separating wildlife and livestock to avoid the transmission of bovid diseases. We investigated the impact of the fence on

the movement patterns of “nontarget” carnivore species. The main results show that 0.18 % of the GPS locations for five individual lions (n = 3890 GPS fixes) were outside the cattle fence. Contrarily, both spotted hyenas (n = 3205) and African wild dogs (n = 187) did not perceive the fence as a barrier but repeatedly crossed it during their daily activities.

### ***Modelling baobab distribution in climate change***

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The baobab (*Adansonia digitata* L.) is an important under-utilised fruit tree, used daily by rural African communities. In spite of its importance, several authors have stated its unsustainable use, a lack of natural regeneration and a slowly contracting distribution. This study intends to contribute to the mapping and prediction of baobab tree using presence only data and Maximum Entropy Method (Maxent). Results suggest that baobab could be planted in new areas in Africa and outside, such as India. Potential current and future distribution did not include some herbarium records; conservation strategies should consider preserving these areas.

### ***Is disease an important factor in the decline of the House Sparrow (*Passer domesticus*) in Greater London?***

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The House Sparrow (*Passer domesticus*) has declined in London by 70% in the past 30 years, and the exact cause remains unknown. The aim of this project is to investigate the role of diseases in the house sparrow's decline in Greater London. Blood and faecal samples were collected alongside biometrics from 500 sparrows from 11 sites. The relationships between blood parameters and faecal parasite counts with population trends and feeding regime of each site were investigated. Preliminary analyses show various trends between population status and intensity of parasite infection, and between haematological values and stages of the birds' annual life-cycle.

### ***The distribution, abundance and conservation status of the montane frog fauna of Mt Michael, Eastern Highlands Province, Papua New Guinea***

CHRIS DAHL

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New Guinea has a diverse frog fauna about 350 described species; due to the islands topography the montane frogs are poorly documented. We used VES method and surveyed four sites each for one night from 2300 to 3400 m a.s.l., to determine species diversity, abundance, and conservation status. We documented 11 species from 7 genera in the families Hylidae (3 spp.), Microhylidae (7 spp.) and Ranidae (1 sp.). We rediscovered the rare *Cophixalus nubicola* first described in 1962, listed as Vulnerable by IUCN. *Cophixalus nubicola* was abundant (1 frog per 13 m<sup>2</sup>) in forest from 2500 to 3100 m a.s.l. The biggest threat is the gardening and the burning of the grassland. More surveys are needed to determine the distribution and ecology of *Cophixalus nubicola*, and promote conservation awareness among local communities.

### ***Conservation status and Survey of Bengal slow loris *Nycticebus bengalensis* in Assam, North-eastern India***

NABAJIT DAS

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Bengal slow loris (*Nycticebus bengalensis*) is the sole representative of prosimian primate in North East India. Due to its nocturnal, cryptic and solitary habit, no systematic study has been conducted on its conservation status so far in this region. In this study we conducted a survey to estimate loris distribution and population status. Using 'Recce' sampling method, we observed fifteen loris from 5 protected areas of Assam, all were seen at average heights of 13.38 m. The encounter rate is 0.04-individual/ km<sup>2</sup>. Contrary to previous assumption, present study depicts a substantial number of slow loris population in Assam, NE India.

***Feasting on Australia's treasures: introduced predators and the loss of biodiversity in Australian forests.***

ALEX DIMENT

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Since European settlement in 1788, 27 species of mammals have gone extinct in Australia, as many as the rest of the world combined. Introduced predators are implicated in many of these losses, and remain a key threat to biodiversity.

This poster provides some background on invasive animals in Australia, including recent progress and setbacks. It also introduces my PhD research, investigating the ecology of the introduced red fox during a large-scale lethal control program. I have tested several innovative field techniques, including non-invasive DNA sampling and camera trapping. These methods are also applicable to surveys of cryptic and endangered carnivores.

***The impacts of an invasive species and hydrological change in an aquifer dependent ecosystem: the Swakop River, Namibia***

CAITLIN DOUGLAS

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This study represents the first systematic attempt to determine the effects of hydrological change and an invasive species on the health of a riparian system along an ephemeral river in Namibia. The study uses snapshot data and a natural experiment to determine the local scale impacts of an invasive species (*Prosopis glandulosa*), altered flood regime and water extraction on the density, population age structure, and mortality of *Faidherbia albida*, *Acacia erioloba*, and *Acacia tortilis* in the Swakop River, Namibia. Although the relative impacts of the invasive species and hydrological change are difficult to assess, it is thought that hydrological change is driving the changes in this system.

### ***Effect of eutrophication on changes in the composition of mussels in the Lake Dianchi, the sixth biggest freshwater lake in China***

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Dianchi Lake is located at south of Kunming City, covering an area of 2,920 km<sup>2</sup>, and this basin is a 'hotspot' of freshwater biodiversity. To promote the conservation of Dianchi Basin, an investigation of the macrozoobenthos in the Dianchi Basin was conducted from 2004 to 2008 and altogether 26 mollusk species were identified. Comparison of the earlier investigations, there are 92 molluscs species were recorded. eutrophication have resulted in the disappearance of most indigenous species in the lake. To avoid the extinction of indigenous species in the whole Dianchi Basin, conservation measures for the biodiversity of macrozoobenthos is urgently needed.

### ***Habitat preferences of butterflies in the Bumbuna forest, Northern Sierra Leone***

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The habitat preferences of butterflies in the Bumbuna Forest Reserve Northern Sierra Leone were studied. Butterfly samples from three habitat types were collected and identified. There were 195 butterfly species included. Out of 147 identified as forest species, 111 (75.5%) preferred forest habitats, while 70 (47.6%) and 34 (23.1%) preferred disturbed and savannah habitats respectively. Among the savannah species, 18 (73.9%) and 16 (63.2%) were recorded in the disturbed and savannah habitats respectively. Analyses show that species richness and diversity were lower in the disturbed habitats compared to the forest reserve, but lowest in savannah habitats. The study revealed a rich butterfly fauna requiring detailed classification and documentation.

### ***Exploring Biological and Cultural Diversity According Local Peoples Perspective in Forest Area***

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Gorontalo, located on the northern of the Island of Sulawesi in Indonesian Archipelago, is perhaps the biologically richest and most diverse culture. Gorontalo is home to a unique array of plant and animal, including Babi Rusa, Tarsier, Dracontomelon dao Trees etc. In addition, there are 3 different ethnic group live in Gorontalo each with rich cultural traditions, language and sets of inter relationship with their environmental. Based on a review data that collect from field, in general, local wisdom is related to the sustainable of natural resources management. At this time there are dozens of local wisdom in Gorontalo is threatened by modernity . To protect local knowledge and biodiversity, the government should establish institutional arrangements and make a management zone according local perspective.

### ***Hyporheic Community Distribution and Species Composition in an Ephemeral Chalk Stream***

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The hyporheic zone, or the transitional interface between groundwater and surface water, is an integral part of the lotic ecosystem. Biota inhabiting this zone may be influenced by environmental changes in surface as well as groundwater. We employed a variety of techniques to sample the hyporheic community along the ephemeral and perennial sections of the Little Stour in southeast Kent (UK). Our results are assessed in relation to changes in hydrology as well as water chemistry along the river corridor to provide a baseline of hyporheic distribution and community composition in relation to environmental parameters.

### ***AVIAN INFLUENZA AND THE WILD BIRD TRADE IN VIETNAM***

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Highly Pathogenic Avian Influenza H5N1 has affected birds in at least 65 countries across Asia, Europe and Africa with fatalities reported from 15 of the 27 avian orders. H5N1 has been isolated in wild bird markets within Southeast Asia where wild bird trade occurs between and within countries with little monitoring or legislative enforcement. Many species within Hanoi's bird trade are known to be vulnerable to H5N1. We compare the species and numbers of birds within Hanoi's bird trade before and after H5N1 reached Vietnam and the impact of trade-focused legislation introduced to limit the spread of H5N1.

### ***Zoological parks as an introduction pathway for non- indigenous species***

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In order to quantify the importance of zoological parks as an introduction pathway for non-indigenous species (NIS), we visited a random sample of 1568 animal enclosures belonging to 63 Spanish zoological parks, and classified them as secure/non secure against animal escape. We found that 221 enclosures, unevenly distributed among 47 zoological parks (74.6%) were non-secure. Such enclosures housed NIS in 79.64% of the cases (21 of them listed as invasive by the DASIE project). Factors affecting enclosure security are discussed, and measures to reduce the risk of zoological parks as a potential pathway for the introduction of NIS are suggested.

### ***Changes in the Behavioural and Feeding Ecology of the red uakari monkey (*Cacajao calvus ucayalii*) at the Lago Preto Conservation Concession, Peru***

DANIELLA FERROL-SCHULTE

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The study was carried out to address concerns over the potentially detrimental effects of full-protection awarded in 2006 to the red uakari population at Lago Preto Conservation Concession (LPCC), Peru. Data was

collected during the dry season from May to July 2008 during two expeditions and compared with density data, activity budgets and diet percentages collected on 5 previous studies. Results suggest that at higher densities the larger group size, increased time spent resting and feeding as well as variations in diet selectivity may be associated with population stabilization at LPCC, possibly through mechanisms of self-regulation.

### ***Is tropical shrimp trawling a big problem for small fishes?***

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We present a novel view of the effects of tropical shrimp trawling, by considering their effects on small fish species. Discards from tropical shrimp trawlers mostly involve small fishes (maturing < 20 cm), but research to date has focused on megafauna and commercially important fishes. Commitments to ecosystem based management and food supply demand adjustment of small fish bycatch to sustainable levels. We suggest tractable approaches using easily extracted data to estimate trawling effects on small fishes. We also propose that the best way to reduce the impact of trawling on small species will be closing areas to trawling.

### ***The annual dynamics of dormouse populations in National Reservation, Valea Morii, Romania***

ANDREEA GAITAN

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This is the first study to confirm the presence of three species of dormice in Valea Morii: *Glis glis*, *Muscardinus avellanarius* and *Dryomys nitedula*. The area is extremely valuable for its reliquary vegetation and for a high number of habitats, home for a rich fauna, including some endangered species of animals. The presence of dormice in a habitat and their number give important information concerning the health and stability of that habitat. This is why this study was an essential step in elaborating an efficient plan for preserving the area.

### ***Socio-economic Conditions and Resource Access in the Eastern Arc Mountains of Tanzania***

LAUREN ELIZABETH GOERS

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Incorporating spatially explicit social data into conservation planning is an important tool for establishing links between poverty and the environment. Social data from secondary sources was compiled and mapped in ArcGIS to depict spatial patterns of poverty and resource access across the Eastern Arc Mountains of Tanzania. The UNDP's Human Development Index was also calculated using proxy indicators by district for the study area. Disaggregating the HDI into administrative units within Tanzania shows that poverty is not uniform across the landscape, and improved spatial data is essential for better targeting of pro-poor conservation policies.

### ***The Hog Island Boa – On the Road to Recovery? Assessing conservation 'value' and management success for a heavily exploited dwarf Boa constrictor in Honduras.***

STEPHEN GREEN

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Over-collection for the pet-trade reportedly caused the near extirpation of the dwarfed insular race of Boa constrictor from the Cayos Cochinos, Honduras. A five year mark-recapture study was conducted, indicating the adult Cayo Menor population to be <1000 individuals. Program MARK was used to estimate survival and detectability. The most parsimonious model estimated survival to be constant between both sampling period and sex ( $\varphi = 0.62$ ), but detectability to vary between males and females ( $p = 0.15$  and  $p = 0.34$  respectively), although not between sampling period. However, other models also had good support and are discussed in light of field observations.

### ***Occupancy and detectability of the Alaotran gentle lemur (*Haplemur alaotrensis*) – Recommendations for monitoring.***

GURUTZETA GUILLERA ARRIOTA

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This study explored the application of likelihood-based occupancy models accounting for detectability for the monitoring of *Haplemur alaotrensis*. By

exploring the influence of factors such as habitat quality and levels of human disturbance on occupancy and detectability, this study produced useful results with implications for the monitoring and management of the species. The evaluated monitoring method allows extracting useful information based on a relatively inexpensive field season, which contributes to keeping the program within budget and thus ensuring its sustainability. Besides since data collection is easy to implement, this technique has the potential to be utilized in locally-based monitoring initiatives.

### ***Spatial-Temporal Distribution of Grevy's Zebras (*Equus grevyi*) and Human Interactions in Laikipia District, Kenya.***

BORU ABDI HASSAN

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The Grevy's zebra (*Equus grevyi*) are an endangered Equid species that has undergone a dramatic decline in numbers and range. They are currently restricted to Northern Kenya with a small population in Southern Ethiopia. The study focuses on the ecological and anthropogenic factors affecting the spatial-temporal distribution of the endangered Grevy's zebra and choice of habitats in both private and community ranches of Northern Laikipia district.

### ***Potential food source for waterbirds in a Hungarian wetland reconstruction area (Nyirkai-Hany, Fertő-Hanság National Park, Hungary)***

ZSÓFIA HORVÁTH

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The area was created in 2001 to restore a part of the formerly drained large marshland called Hanság and to offer a suitable habitat to waterbirds. From April 2007 until May 2008, I collected plankton, benthos and metaphyton samples from 10 locations belonging to different habitats monthly. I studied the correlation between existing density data of waterbird trophic guilds and potential food source. There were large spatial differences in invertebrate biomass and it had its largest density in the shallow waters. Significant correlations showed that the area offered good food sources for benthos, macrophyte and nekton-consumer decomposition accelerating guilds.

### ***Community based conservation: Human wildlife conflict in biological corridor in Nepal.***

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The poster highlights wildlife conservation in developing nations across the globe. It explores and evaluates how human wildlife conflict has been addressed in a biological corridor that links two highly important protected areas across India and Nepal. It further evaluates the approach and identifies areas on concern. The study reveals in qualitative manner that human wildlife conflict has been addressed to a great extent for sustainable conservation. But there are still areas of concerns such as sustainability of such efforts after completion of externally funded projects. Maintenance of electric fences and institutionalization of the practice are major challenges.

### ***Money or service: conservation conflict of managers and resource dependants of the Sundarbans mangroves***

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Difference in conservation objectives between formal managers and local users continue to hinder conservation initiatives. The case of the Sundarbans, world's oldest managed mangrove, is explored here. Data gathered through reviews, interviews and surveys with 120 random respondents among stakeholder were statistically analyzed and ranked. It revealed that stakeholders differ significantly in valuing resources. Locals prioritize 'Non-Major Ecosystem Products (NMEPs)' and fisheries while managers still focus on commercial timber. Managers continue to practice traditional 'forest management' albeit stakeholders' consensus on 'ecosystem services' such as protection, ecotourism. Consensus based 'ecosystem management' would relieve conservation conflicts in the Sundarbans.

### ***The Bird Ringing Camp of Farnos***

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We are searching how can nature protection and economic interests work together in a valuable Natura 2000 area. The main purposes of the ringing camp are the survey of the effects of reed bed management on species, the long-term monitoring of the breeding and migrating avifauna of the area, changing attitude and behaviour as well as carrying out environmental education. By now more than 25000 specimens of 97 bird species were ringed. We have above 1000 recaptures from inland and twenty from abroad. Our dates proved that this area is an important breeding and resting place of the migrating birds.

### ***Understanding species-habitat relationships while accounting for detectability: the endemic four-horned antelope in India as a case study.***

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In-situ conservation efforts require a clear understanding of species-habitat relationships. Solitary species, distributed at low-densities present unique challenges to field biologists. Further, detectability and inadequate spatial coverage confound results. I address the above issues with the example of the four-horned antelope, which is endemic to the Indian sub-continent, solitary and occurs at low-densities. Habitat covariates influencing its occurrence and abundance were studied in Bandipur National Park. Results show that the antelope prefers the tree-savanna deciduous habitat characterized by relatively open habitats with a low tree density. A likely threat is the prolific spread of the alien invasive weed *Lantana camara*.

### ***Satellite imagery as single source of predictor variables for habitat modelling: how can Landsat7 help the conservation of the critically endangered Alaotran gentle lemur.***

JOSÉ JOAQUÍN LAHOZ, MONFORT

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This study presents a habitat suitability model for the Alaotran gentle lemur (*Hapalemur alaotrensis*), a critically endangered primate confined to

the Alaotra marshes (Madagascar). Using the maximum entropy (Maxent) method, a map of habitat suitability was produced that will help delimit the marsh areas of highest conservation value. All predictor variables (vegetation and habitat heterogeneity indices) were derived from satellite imagery (Landsat7), showing the usefulness of remote sensing data used directly for habitat modelling. The method is cost-effective and can be applied in rapid habitat assessments, thus particularly useful in data-poor areas and countries with fewer resources for conservation.

### ***Fifty years of crocodile surveys in Africa: A review of the surveys and population trends***

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The conservation status of each of the African crocodile species (*Crocodylus niloticus*, *Crocodylus cataphractus*, *Osteolaemus tetraspis*) is uncertain. Metadata of surveys since 1952 were collated and methodologies assessed for consistency to estimate population trends using Generalized Additive Models. Less than 5% of the surveys allowed trend estimation; of these, all were conducted within Tanzania, targeted only *C. niloticus* and showed recent population declines. The need to standardise methodologies and open access to prior surveys is stressed. A website designed as a repository of survey data that eases collaboration is presented to encourage research and increase potential for future trend analysis.

### ***Establishing a Community-Managed Wildlife Sanctuary on Calayan Island, Northern Philippines***

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The small island of Calayan (196 sq km) in northern Philippines harbors an island-endemic flightless forest bird yet its unique forest currently has no protected area status. A participatory approach was employed to help the community establish a locally-managed wildlife sanctuary that included: a Participatory Resource Mapping (PRM) of important physical, socio-cultural and economic features within the proposed sanctuary, SWOT analysis of local capacity, and meetings with legislators and key local government agencies. The process sets the groundwork for crafting a management plan for the sanctuary and passing a municipal ordinance to establish the sanctuary that has wide community support.

***Comparison of disjunct populations of the threatened relict endemic plant *Ferula sadleriana* (Apiaceae), by using fruit (mericarp) morphology***

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*Ferula sadleriana* Ledeb. is a relict endemism restricted to the Carpathian basin, where it occurs in eight disjunct populations. We compared fruit (mericarp) morphology to assess possible differences between populations. The number and shape of oil ducts varied most, followed by fruit size and shape. The difference in fruit morphology mostly increased with geographical distance between populations, although the most unique fruit type was found in a small population (Gerecse Hills) not far from the species' largest surviving population. These suggest considerable within-species genetic differentiation to be explored, and calls for a special conservation status for the Gerecse population

***The impacts of forest fragmentation on tropical bats: a preliminary study of Blyth's horseshoe bat (*Rhinolophus lepidus*) in Malaysia***

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Tropical rainforest loss is a major concern in Southeast Asia. Forest loss and associated fragmentation of once continuous habitat form barriers between isolated populations, which will be problematic for forest specialist species. Fragmentation reduces gene flow between populations, potentially resulting in increased genetic structure, reduced genetic diversity, ultimately lead to local extinction. Here, I examine the impacts of the forest fragmentation on *Rhinolophus lepidus* (one of the forest species) across its range in Peninsular Malaysia. I will describe levels of differentiation among isolated populations base on a panel of polymorphic microsatellite markers.

### ***Issues of Conservation and Coexistence: a study on bats from India***

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Bats are the only true flying mammals and second most speciose order (Chiroptera) of mammals. In India, 114 bat species were recorded. Of these, except two, no species receives official protection; moreover, fruit bats are even included in Vermin category of Indian Wildlife (Protection) Act, 1972. Through this study I am contriving the effect of land-use practices on the population of *Pteropus giganteus* (Indian Flying Fox) and its associated conservation issues. Though *P. giganteus* is listed in vermin category; their population still coexist with humans, and their survival is in danger due to the heavy landscape transformation and hunting pressure.

### ***Optimization of noninvasive survey methods for carnivores in the Grândola Mountain Range, Portugal***

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This project sought to analyse the effectiveness of the use of footprints on track-plates in carnivore monitoring studies.

With over 1000 dots in the metacarpal pad print, the probability of a false match between two tracks of Beech Marten (*Martes Foina*) decreases exponentially as the matching of dots increases. By using morphometric measurements, individual identification of ferrets (*Mustela furo*) proved to be a method with high potential, especially for monitoring small and known populations, but also applicable to estimate population composition. The use of footprints for conservation strategies is of the utmost importance given its non-invasive nature, ease of execution and reduced costs.

### ***Annual and seasonal changes in diet of the American mink in the Snæfellsnes Peninsula in relation to the collapse of marine species around Iceland.***

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Changes have been observed in the sea around Iceland in recent years. The sandeel (*Ammodytidae*) populations, upon which many seabirds and fish depend, collapsed in the years 2004-2006 and the Iceland scallop (*Chlamys*

islandica) suffered a dramatic decline in the year 2003. Sea temperature has increased steadily since 1993 and the population of American mink (*Mustela vison*) on the Snæfellsnes Peninsula experienced a decline of almost 50% between 2002 and 2006. Stomach content and stable isotope analyses will be conducted of mink killed in the years 2002-2008, to investigate if changes in the marine environment have affected the minks' diet.

### ***Leaf-litter Communities Of Rainforest And Shade Cropping Sites In The East Usambara Mountains, Tanzania.***

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We compared leaf-litter frog and invertebrate species richness and abundance between natural forest and areas used for cardamom shade cropping. Richness and overall abundances for both groups were higher in the cardamom fields than in the forest. However, community species composition as well as abundances for some invertebrate orders and most frog species differed significantly between the two areas. We also found significant differences for environmental variables between forest and cardamom areas. Frog abundance was correlated with temperature and leaf-litter weight, whereas invertebrate - with leaf-litter weight only. Concluding, forest and shade crop areas provide different habitats for leaf-litter communities.

### ***Life history and morphology of the Andean anuran Bufo spinulosus in response to pond drying: Implications for amphibian conservation.***

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A natural pond system in the Andes mountain range of central Chile was monitored in order to study the larval development of *Bufo spinulosus* as a function of three different desiccation regimes. Toadlets from ponds with a low desiccation level reached metamorphosis later and at a larger size compared to individuals in the high and medium desiccation levels. They also had longer hind limbs and larger head measurements values. The association between pond duration and several correlates of fitness in this Andean species suggests that pond duration should be given consideration when the purpose of wetland restoration projects includes amphibians.

***A novel approach to investigating both horizontal and vertical spatial variation within and between rainforest fragments.***

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Rainforest deforestation often leads to a landscape of fragments of variable sizes and isolation. This impacts local species richness, but less is known on its effects on spatial variation (beta diversity) both within and between fragments. Using cavity-nesting wasps as a model system, I propose to investigate this using a novel survey design based on a series of triangular 3-dimensional fractals. As beta diversity is scale dependent this will allow me to partition diversity in to four spatial scales at the horizontal level, as well as vertically to the canopy to more fully understand the ecological consequences of fragmentation.

***The conservation of rare mosses: an example using *Tayloria rudolphiana* from in vitro culture***

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The globally rare moss *Tayloria rudolphiana* is known from only a few sites worldwide; the Swiss population being the largest. We address whether it can be grown in vitro for future reintroduction trials and to study its ecological needs, attempting to establish why it is rare. In vitro techniques are used to establish moss cultures in laboratory from fresh material or recent collections. The method allows for the propagation of rare plants from just a few individuals and provides live material for the reintroduction of species. Living collections also provide a means of ex situ conservation of rare bryophyte species.

***The Introduction of Predators into African Protected Areas: Assessing Community Attitudes***

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Two hundred and fifteen community members from two tribal wards near Tembe Elephant Park in KwaZulu-Natal, South Africa, were interviewed to assess community attitudes towards conservation in general, Tembe

Elephant Park, and Tshanini Game Reserve. The introduction of lions into Tembe Elephant Park served as a case study to explore park/community relationships. The introduction of lions was a park management decision ineffectively communicated to surrounding communities. Reactions to the predator introductions were varied. Twenty percent of respondents in the ward bordering the park believed the lions were introduced to decrease community access to meat through culling programs and poaching.

### ***Evaluating the rate of forest cover change in the Kilum-Ijim Conservation Site of the North West Region of Cameroon using remote sensing and GIS***

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This paper is an attempt to evaluate the rate of forest cover change in the Kilum-Ijim forest using landsat MSS, 1978 and 2006 Ikonos image downloaded from GoogleEarth. After classifying and digitizing the images in ERDAS Imagine, they were transferred to Arc View 3.2a for analysis. The results show a reduction in forest cover from 1978-2006 at an annual rate of -0.34%. The local populations were responsible for these changes. The study proved remote sensing, GIS and fieldwork as effective tools in evaluating forest cover change and that local support is required for the implementation of a sustainable conservation system.

### ***No evidence for morphological or genetic spatial divergence in Atlantic shanny (*Lipophrys pholis* L.) from the north-east Atlantic***

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4. *Lipophrys pholis* is an intertidal fish species possessing life history traits that are likely to produce population structure. In this study a mitochondrial DNA marker and 12 morphological and 4 meristic counts were used to assess levels of population differentiation. No evidence of genetic or morphological differences was found, moreover, homogeneity was found on a global scale with no significant genetic differences between sites in the UK/Ireland and Portugal. This has a profound effect on current conservation strategies that often rely on the predicted dispersal potential of species during the design of projects, such as marine protected areas.

### ***Plant-soil feedback facilitates tree seedling establishment in arid ecosystems***

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In a two-phase greenhouse experiment, we compared plant-soil feedback effects on tree seedling performance in sandy-loam soils of north-central Chile (scrublands without and forests with *Prosopis chilensis*) and sandy soils of northwest Peru (*Prosopis pallida* forests). Plant-soil feedback was negative for leaf biomass in Peruvian soil, but positive on the Chilean forest soil. In contrast, Peruvian soil had a positive feedback for root length, whereas the feedback in the Chilean scrubland soil was neutral. Our results suggest trade-offs between root growth and leaf biomass investment and as such, plant-soil feedback can make plants either more tolerant or vulnerable to subsequent drought.

### ***Landuse change and the value of ecosystem services along the coast of the Gulf of Mexico***

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Ecosystem services have been used for conservation of natural ecosystem assessing ecological values of corresponding land-use types, in order to evaluate the ecologic and economic effects of land-use change. We value ecosystem services using transfer technique and hedonic price methods. Land use change was analyzed using aerial images from 1995 and 2006 and creating polygons of cover and land use. From natural and developed area, mangroves decreased 16%-22%, beach 14-15% respectively and dune 15%, in natural area. We calculate a loss of \$10.6X106 and \$2.2X106 respectively. These results are useful for taking decisions about urban development thus prioritizing conservation areas.

### ***Mapping the Tugen Trail - a cultural and environmental transect through the Rift Valley, Kenya***

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Trails walked through a landscape provide a powerful methodology for interdisciplinary research. Intellectual associations are drawn between social, cultural and natural phenomena. This study with the Tugen community in Kenya used participatory mapping and video to record and visualise the cultural and ecological values that local people and conservationists attribute to ecosystem services. A series of trails at different scales helps to sensitise communities to the importance of conservation through development of a network of cultural heritage. The process of visualising ecosystem services is used for discussion within the community and for communication of environmental challenges faced to other stakeholders.

### ***Common bird monitoring scheme-its value as a tool to conservation of biodiversity***

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Common bird monitoring scheme aims to establish an objective, participatory bird population monitoring programme to detect population changes of birds. Data collection methodology and indices of this scheme are developed, clear and easy to interpret, results which could contribute a lot to improving the management of natural resources and be embedded into both core and routine conservation and research programmes. This cheap means of monitoring could be used as a guiding tool to advance minor but significant environmental education issues. In these times, it is becoming even more important to continue protecting natural biodiversity and develop caring and concerned attitudes.

### ***Conservation of white-headed duck in Barabinskay lowland (Russia)***

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Our project aims at elaboration of regional recommendations on White-headed duck conservation for the national working group on realization of the Action plan of conservation White-headed duck (AEWA) in Russia. We

carry out the investigations on various aspects for this. For example, evaluate the reproduction success, distribution and number in the region, find out the limiting factors for White-headed duck.

### ***Morphological Diversity in Eggplant Germplasm conserved at the national gene bank***

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Morphological characterisation of thirty one Eggplant accessions including landraces and their wild relatives obtained from the national gene bank in addition to four farmers' commercial varieties was conducted using the FAO Eggplant descriptor. The study aim was to assess and measure the existing morphological diversity in locally available Eggplant germplasm. Twenty four quantitative and qualitative plant traits were recorded for each accession at vegetative and reproductive growth stage and statistically analysed using NT sys software. Clustering results revealed significant variation among the different Eggplant genotypes studied. The present study highlights the importance of Eggplant genetic resources for research and conservation.

### ***Development and management of a wetland monitoring programme for existing and potential Ramsar Sites in Vietnam.***

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Vietnam's wetlands are under threats. Although many of them were identified as of international and national importance, a national monitoring programme is not legally in place to ensure their status. BirdLife Vietnam and Vietnam's General Department of Environment have developed a national wetland monitoring programme based on new methodologies that other countries have successfully used and can be adopted by different players for wetland management. The programme identifies indicators to be monitored, data collection methodologies, storage and analysis, and utilisation of monitoring results for various management levels. It will be piloted at least in a Vietnam Ramsar Site in 2009-2010.

### ***Treatments for chytrid infection in *Alytes muletensis* and their implications for conservation plans***

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The endemic and endangered Mallorcan midwife toad, *Alytes muletensis*, has successful captive breeding and reintroduction programmes. However, some of its wild populations have recently been affected by the globally emerged chytridiomycosis disease, of which no well established treatment is known to date. Here we tested antifungal treatments at the individual and environmental level on tadpoles, and investigate the effects of each antifungal on the number of Kupffer cells as a possible sign of hepatotoxicity. We found that Itraconazole is an effective antifungal to be used in the species while Pycezes® failed to clear infection at the environmental level. Based on our findings, we suggest conservation plans for the species.

### ***Diversity, Abundance and Distribution of Dung Beetles (Coleoptera: Scarabaeidae: Scarabaeinae) in a highly heterogeneous Tropical Montane Cloud Forest Park***

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Dung Beetles are increasingly being promoted as good potential biodiversity indicators but the factors that influence the diversity, abundance and distribution of this group are still relatively unknown. The importance of dung beetles from a functional perspective also means that understanding the factors influencing their community structure is crucial. This poster will outline the results obtained from a study of dung beetles in the highly heterogeneous habitat which is a Tropical Montane Cloud Forest park in Honduras (Central America), namely Parque Nacional Cusuco.

### ***"Who's afraid of the big bad wolf?" - Attitudes of Portuguese high school students towards carnivores***

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Application of human dimensions research to carnivore conservation has increasingly been recognized as of the utmost importance in the

minimization of human-carnivore conflict. This study aimed to identify what factors most influenced Portuguese high school students' acceptance and support for carnivore conservation, such as relative carnivore abundance, socio-demographic factors, knowledge or previous conflict with carnivores. Attitudes towards carnivores were thus assessed by a written questionnaire and linear mixed modelling. Recommendations on how to increase acceptance of carnivores are given.

### ***Insights of two community based conservation processes, what may lead into a successful experience?***

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We compare two community-based conservation projects in the Colombian Andes, involving 30 young farmers. They were trained in bird assessment, and participated in the project development. Both processes had different conservation outputs that we acknowledged to certain characteristics. The project that included major number of participants, did not offer a payment for them, has major institutional presence and community organization obtained better results and permanence. This project created a community consensus about the importance of the biodiversity conservation. Additionally, the group of farmers are still developing small conservation projects with minimum external support.

### ***Amphibian Diversity in logging Concessions; Lessons from a tropical broadleaf forest fragment***

CALEB BOATENG OFORI

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We investigated the impact of current logging regimes on forest-obligate leaf litter frogs to understand how terrestrial vertebrates respond to logging regimes in the Afro tropics. 20 species comprising 767 individuals from 6 families were recorded. There was no significant difference in species diversity between logged and unlogged transects. However, species composition drastically differed. Primary forests species were replaced by farm-bush and/or savannah species. Results, also show an abundance distribution pattern in concert with possible physiological constraints imposed by habitat variables of a location rather than by chance, hence, the

need for inclusion of species-specific consideration in future logging schedules.

### ***Selecting high seas marine protected areas: a case study of the North East Atlantic***

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Biodiversity on the high seas is increasingly threatened, being a typical example of the "tragedy of the commons". The value of marine protected areas (MPAs) for conservation is well established, and their potential contribution to fisheries management is becoming recognised. We identified seven candidate sites for high seas MPAs in the North-East Atlantic that collectively cover 11.4% of the area beyond national jurisdiction. Proposals were developed for the OSPAR Commission who plan to create a network of MPAs in this region by 2010. In June 2008, one area, over the Charlie Gibbs Fracture Zone of the Mid Atlantic Ridge, was accepted in principle as an OSPAR MPA site.

### ***Developing robust ranger based monitoring strategies for the saiga antelope in Kalmykia, Russia***

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The saiga antelope is a critically endangered species. Anti-poaching rangers monitor the Russian population, this investigation sought to increase the utility of the data collected without introducing a complex system which could affect the rangers' ability to prevent poaching. A GIS map was created and a spatial analysis performed to infer levels of bias in the current system and an experiment conducted to estimate rangers' count accuracy. It was recommended that the new strategy uses strip transect sampling and data stratification according to distributions of monitoring effort and that future population estimates are adjusted according to the rangers' count accuracy.

***The impact of Cultural Practices, traditional beliefs and practices of indigenous people on protected areas concept. A case of Tonda, TransFly, PNG.***

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**Objective.** To assess the contribution of cultural practices and beliefs of indigenous people on the protected areas concept in Tonda.

**Material and methods.** Methods included qualitative techniques, including oral interviews and observations and sampling. We used GPS to mark the geographical coordinates of the traditionally sacred sites. We used ethnobotanical skills to identify the biodiversity in each sacred site.

**Qualitative techniques and GIS skills** were used to analyse the data.

**Results.** Traditional practices and cultural beliefs contribute positively to protected areas.

**Conclusions.** Observing and respecting the traditional practices will lead to better resource conservation.

***Analysis of Deaths of Grey Slender Loris (*Loris lydekkerianus nordicus*) by Electrocutation on Power Lines in Sri Lanka***

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The endemic, endangered grey slender loris, *Loris l. nordicus*, is widely distributed over Sri Lanka's Dry Zone. Destruction of habitats and exposure to non-insulated power lines are major causes that lead to death, but require more study. This study was conducted for 9 months in 2007. Power lines were examined for electrocuted carcasses and they were systematically examined. 1400 km were traveled, revealing 22 single carcasses, encountered in low (18%), moderate (41%) and high (41%) human density areas, and equally associated with low and moderate traffic levels. Awareness campaigns towards local residents are a major requirement to mitigate these deaths.

### ***Large mammals in the southern Western Ghats, India: Distributional dynamics, species richness and threats to survival***

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Effective strategies for large mammal conservation at a landscape level hinge on a spatio-temporal understanding of ecological and anthropogenic correlates of distributional dynamics. Distributional changes of 18 species were assessed by questionnaire surveys involving key informant groups and spatially mapped in an occupancy framework using covariate modelling. Species like the tiger, leopard, sloth bear, golden jackal, gaur, Nilgiri tahr, Nilgiri langur and lion-tailed macaque have undergone significant range contractions over 30 years. Asian elephant distributions remain relatively stable. A significant gap is bridged in our understanding of the regional level distribution of large mammals in the southern Western Ghats.

### ***Modelling the spatial distribution of Eastern Arc Mountain forests***

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The Eastern Arc Mountains (EAMs) of Tanzania and Kenya are a globally important biodiversity hotspot and provide crucial services to the Tanzanian population. Can species distribution models effectively capture the climatic requirements of EAM plants? Which modelling methods are best and what can be learnt from the predicted distributions? This poster explores these questions and outlines directions for further research. Results are being used by the KITE project to further our understanding of EAM ecology, and also by the Valuing the Arc initiative to help map, value and conserve ecosystem services in Tanzania.

### ***Identification of IBAs for coastal seabirds in Argentina and their potential as marine IBAs***

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About 270 IBAs identified in Argentina but not including the marine areas. A review identified 22 coastal IBAs for seabirds and currently 8 of these lack any protection or management plans. Most of coastal IBA are breeding sites,

but only 35% of the protected areas include some portion of the contiguous sea and there is a lack of management considerations for the “at-sea” activities of seabirds. Five new coastal IBA were found. This set of sites will provide scientific arguments to improve management of marine areas. Achieve the relevant data, key partners get involved and find appropriate funding is needed.

### ***Rodent trapping in rain forests- Are we missing the big picture?***

R.VIVEK

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Rodents are not the most conspicuous and charismatic forest animals, and have been traditionally sampled using terrestrial traps. Is stand-alone ground trapping enough for them? Sherman Traps were used in terrestrial trapping grids as well as arboreal trap lines. Standalone terrestrial trapping produced biased results that grossly underrepresented arboreal species

like the Malabar spiny dormouse. Additionally, generic bait like coconut failed to attract specialized species. With rapid loss of rainforest habitats, there is urgent need to assess the biodiversity value of habitats. With traditional methods of trapping biased results are obtained as compared to using our approach of a combination of canopy as well as terrestrial trapping for a more robust estimate of the rainforest rodent community.

### ***Catch monitoring of marine turtles in Andavadoaka region, Southwestern Madagascar.***

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Marine turtles are threatened by hunting and traditional customs in Southwestern Madagascar as they are symbols of good luck and blessings and their meat is much appreciated by Vezo people. Between November 2006 and December 2007, 789 landed turtles were recorded. 94% were *Chelonia mydas* and 2.6% were *Eretmochelys imbricata*. The other species recorded were *Dermochelys coriacea*, *Caretta caretta* and *Lepidochelys olivacea*. Two nests were reported in March 2008 and successfully hatched, a premier in the region for at least 5 years. The nesting beach has been protected and targeted turtle fishing prohibited.

### ***Monitoring restoration processes across different management regimes in a degraded forest landscape in the Western Ghats.***

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In the Attappady hills, Western Ghats- a large-scale restoration project is initiated under two management regimes i.e., (1) intensive planting and (2) facilitating natural regeneration. To evaluate the efficiency of these methods, revegetation process was monitored by comparing site specific vegetational diversity outputs and functional groups based on species traits (mode of dispersion). Preliminary data analysis suggests that the two management regimes differed with respect to structural attributes and diversity outcomes. On comparing plant functional groups, wind dispersed species were the most abundant followed by bird dispersed. Overall, it indicates that facilitating natural regeneration is more efficient.

### ***Knowledge of the local population about environmental conservation laws, case study in Ambohimahasina, Madagascar***

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Madagascar is one of the world hotspots but which is surrounded by a poor population who depends entirely on the natural resources. So, these unique richness are exposed to a number of imminent threats of degradation. Since the monarchy era, Madagascar has chosen a legal system to manage its natural resources. However, the local population does not have enough knowledge of the level of the environmental laws. On one hand, this statement is due to the failure of the communication system of the Environment and Forests Department. But on the other hand, communication is a very difficult task, and the message is influenced by individual factors.

### ***Role of Community Based Adaptation in biodiversity conservation strategy of Bangladesh***

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The increasingly adverse impacts of climate change on people and environment are undeniable. For poor countries like Bangladesh, community based adaptation (CBA) activities are the only available means of coping with climate change. CBA not only helps to build community resilience and capacity to cope with climate change, it also takes into account traditional knowledge, practices and community participation. Practical experiences have shown that community based practices are closely linked to biodiversity conservation. This study looks into the role of CBA as an efficient tool in biodiversity conservation and its usefulness in strengthening the national biodiversity strategy of Bangladesh.

### ***Birds in humanized landscapes: São Tomé endemic birds' response to agricultural intensification***

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The main aim of this work was to assess how the replacement of agroforestry systems, by more open agricultural practices affects bird São Tomé's birds abundance, diversity and distribution. Within the study landscape four different land-use types were selected: primary forest, shade coffee, shade polyculture and annual agriculture representing a gradient of agricultural intensity. Agroforestry systems were found to support bird communities closer to ones in native forest than annual agriculture did. However, several species were simply absent from the agricultural matrix, highlighting that their conservation can only be achieved by the preservation of large tracks on native vegetation.

### ***Carbon storage potentials in the woodlands of the Eastern Arc Mountains of Tanzania***

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Woodlands cover 90% of existing forests in Tanzania, with substantial above ground carbon content varying across different elevations and species. Four 1 Ha permanent plots were established at different elevations in Nyang'anje and Kitonga forest reserves in EAMs where above ground carbon was estimated. The total C stock was  $98.7 \pm 0.38$  ton h<sup>-1</sup> decreasing significantly with increasing elevation. *Brachystegia bussei* contributed the highest ( $20.63 \pm 2$  t ha<sup>-1</sup>) of the total C stock followed by *Brachystegia spiciformis* ( $17.1 \pm 6$  t ha<sup>-1</sup>) *Brachystegia longifolia* ( $11.59 \pm 3$  t ha<sup>-1</sup>) and *Uapaca kirkiana* ( $5.43 \pm 0.01$  t ha<sup>-1</sup>) hence high potential for C sink in Tanzania

### ***Non-native plants on the island of Montserrat, Caribbean - Conservation and Ecological aspects.***

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The previously unknown distribution of non-native plant species (NNS) on the island of Montserrat was recorded to determine 1) the habitats most affected by NNS; 2) the most abundant and aggressive NNS; 3) the factors most likely to be driving the distribution of these species. The main outcomes of this study is the identification of habitats most at risk of NNS and hence those that are a priority for conservation. Results will also help inform pre-emptive action to prevent ecological deterioration of certain habitats. Equally important, is the use of results to inform inhabitants of the risk posed by non-natives.

### ***Habitat use and home range size of Siamese Fireback (*Lophura diardi*) in Khao Yai National Park, Thailand.***

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The range expansion of Siamese Fireback *Lophura diardi* to higher elevations has been observed in Khao Yai National Park, Thailand, where previously only Silver Pheasant *L. nycthemera* were observed. The global temperature increases cause an evapotranspiration increases was suggested the migration of Siamese Fireback, occur the sympatric between two *Lophura* species in the submontane habitats. The results of this study revealed a difference between the two species, with the lowland species Siamese Fireback preferred flatter areas although they moved to higher elevations while Silver pheasant used on slopes. However, all nests of Siamese fireback found on slopes > 15 degrees.

### ***Why should a grazer browse? Livestock impact on winter resource use by bharal (*Pseudois nayaur*)***

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Studies show that bharal *Pseudois nayaur* shift from a graminoid dominated diet in summer to browse dominated diet in winter. We explored two possible causes of this diet shift 1) Lower graminoid availability due to livestock grazing, 2) Lower Graminoid quality during winter. Our results show that composition of bharal winter diet was governed predominantly by the availability of graminoids in the rangelands. Since livestock grazing reduces graminoid availability, creation of livestock free areas is necessary for conservation of grazing species such as the bharal and its predators including the endangered snow leopard in the Trans-Himalayan region.

### ***Colour-ringing and satellite-tagging – identifying reasons for decline in Sociable Lapwing numbers***

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This poster will illustrate the importance of color ringing and satellite-tagging, which helps to collect the data on population size, distribution and threats for Globally Threatened bird species – Sociable Lapwing *Vanellus gregarius*. In the frames of the 5-year research project on breeding grounds in Kazakhstan, more than thousand Sociable Lapwings were ringed with a unique combination of 4 color rings and 5 adults were satellite tagged. Marking Sociable Lapwing allowed identifying its western migration route, important stop-over and wintering sites. And all this knowledge will play crucial role in further conservation of this rare species.

### ***Hydrobiological investigation of a postglacial relict peat bog (Öregturján in Ócsa, Hungary)***

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Despite the Öregturján is a unique relict wetland in Hungary, its aquatic habitats are very poorly investigated. I sampled 5 different ponds by three-week intervals for one year, investigating their crustacean zooplankton, which was completely unknown so far. Besides I measured abiotic and biotic variables. My results showed that the water bodies were remarkably different regarding their zooplankton assemblages which are basically influenced by vegetation and temperature. Most species - which are typical of small eutrophic and temporary lakes - and the high concentration of phosphate indicate eutrophication. Rehabilitation measures are necessary to conserve the area.

### ***A test of the intermediate disturbance hypothesis: the effect of logging on arthropod diversity and biomass in a tropical moist forest***

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Kibale Forest is a tropical moist forest in Uganda. In the past, parts of the forest were selectively logged or completely cleared, while other parts are

undisturbed. We investigated the effects of (selectively) logging on (overall) arthropod diversity and biomass. We expected positive effects of selective logging on biomass and diversity and negative effects of complete clearing. Our results showed positive effects of both selective and complete logging on overall diversity and biomass, although the responses of specific insect groups differed. This might be because of larger numbers of specialist species in some insect groups than in other groups.

### ***Ranging Patterns, Predation Ecology and Dispersal of Radio-collared Tigers in Kanha Tiger Reserve, Central India***

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We used radio-telemetry to collect ecological data on tigers. Ten tigers were radio-collared for the study between 2004 and 2007. Tigers were radio-tracked daily and also continuously for 8-10 day-night periods from elephant back to obtain data on ranging patterns, predation, and dispersal. The average home range of adult male tigers was 110.34 km<sup>2</sup> (SE=11.73) and that of adult female tigers was 10.37 km<sup>2</sup> (SE=0.65). Kill examination and tiger scats shows that the main tiger prey is cheetal. Dispersing tigers moved along the park buffer. Corridor restoration is recommended for tigers to disperse between meta-populations in this human dominated landscape.

### ***Spatial consequences of Allee effects on recovering populations***

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Allee effects (AEs) are thought to be one of the driving forces acting on populations' dynamics, potentially increasing extinction's probability of small or declining populations. Conservation biologists have to account for those processes but little work has been done on AEs' consequences on populations' spatial structure, especially for recovering species. We used spatially explicit individual based simulations in order to investigate the effects on the spatial aggregation of i) population size variations and ii) strength of positive local density dependence. We compared those results to a dataset available on an endangered bird species, the Little Bustard.

### ***Wetland degradation as a factor fuelling climate change, a case of Lubigi Wetland, central Uganda, East Africa.***

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Wetlands are amongst the most productive ecosystems in the world. However, they are being degraded as a result of increased pressure on water supplies and other livelihood options as a result of increased

population. Poverty is the major cause of degradation of the wetland ecosystems. People generally settle in areas that can provide essentials of life like food, water and energy. This study took interest in finding what factors have led to the continued degradation of a critical wetland in Uganda, Lubigi, in order to document them and seek to incorporate them into the National Conservation strategy. Data was collected through direct observations, questionnaires, literature reviews and interviews with key informants. Results indicate that Lubigi wetland, a Ramsar site in Uganda, is one of the remaining few wetlands in the urban vicinities of the capital city covering 4km and is a home to many of the city's poorest people. It provides livelihoods for thousands of people although many resource shortages are being encountered currently. Settlement and construction are the main causes of Lubigi wetland degradation accompanied by lack of law enforcement and limited awareness on issues of proper wetland use activities. This study recommended continuous awareness creation and the mainstreaming of wetland conservation issues into the Poverty Reduction Strategy of Uganda in order to ensure sustainable livelihoods in this region.

### ***Using an interdisciplinary approach to model the impacts of conservation zones on artisanal fishers***

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Inland fisheries are an important source of food and income for subsistence communities in developing countries. Conservation zones can provide long-term benefits to fisheries and the environment but with short-term costs to local fishers. It is imperative to address the socio-economic as well as ecological parameters of artisanal fisheries when developing conservation strategies to promote sustainability. Using an interdisciplinary approach to model the impacts of conservation zones on artisanal fishers, the research will (i) directly inform conservation planning and fisheries management,

(ii) promote participatory monitoring of resources, and (iii) increase fishers' support for conservation by reducing associated short-term costs.

### ***Primate crop-raiding behaviour and developing methods to mitigate human-wildlife conflict***

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Although crop-raiding by primates impacts the livelihoods of subsistence farmers across Africa, few studies have observed and quantified raiding behaviour. Farmers often use lethal methods to protect their crops and it is necessary to understand on-farm primate behaviour to develop effective deterrents to raiding. The project uses systematic observational sampling techniques to understand the dynamics of primate crop-raiding, including the inter-relationships between farmer behaviour and crop-raiding patterns. Behavioural, interview, and focus group data were used to assess the effectiveness of a series of deterrent interventions to reduce crop-raiding, mitigate human-wildlife conflict, and increase support for conservation goals.

### ***Species on the EDGE: Conservation Priorities Based on Threat and Phylogeny.***

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The Zoological Society of London's EDGE of Existence programme prioritises species according to their degree of unique evolutionary history (Evolutionary Distinctiveness) weighted by conservation urgency (Global Endangerment, representing threat status according to the IUCN Red List). The world's most Evolutionarily Distinct and Globally Endangered (EDGE) species are highlighted as immediate priorities for conservation. The programme has identified a major gap in current conservation initiatives – 70% of the world's top 100 EDGE mammals and 85% of the top 100 amphibians are currently receiving little or no conservation attention. Urgent action is needed to ensure these forgotten species are no longer overlooked

***Evaluating the potential for participatory monitoring of saiga antelope by local villagers in Kalmykia, Russia.***

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This study investigated the potential for participatory monitoring (i.e., monitoring involving local people) of the critically endangered saiga antelope in Kalmykia, Russia. Monitors varied significantly in number of saiga observed, which correlated with the length of the data collection period. There was no difference in accuracy between monitors and wildlife rangers, and both groups showed a tendency to overestimate larger group sizes. Local attitudes towards the scheme were overwhelmingly positive. In conclusion, although the data collection period was short and the sample sizes small, participatory monitoring of saiga in Kalmykia has great potential.

***Comparing Species abundance and compositional change with biomass distribution on Sulawesi, Indonesia for setting conservation priorities under REDD.***

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Indonesian Sulawesi is regarded as one of the global biodiversity hotspot by many studies. However its importance has long been shaded by the neighbouring island, Borneo, due to its complex geology. Here I combine the most comprehensive biodiversity data as well as environmental data available to model the species richness and compositional change of the whole island. This result is then compared with the biomass distribution map. As REDD is going to play an important role in financing biodiversity conservation. The work can provide practical guide lines to where future effort should be made for biodiversity conservation.

