

ABSTRACT BOOK

**27TH INTERNATIONAL
CONGRESS FOR
CONSERVATION BIOLOGY**

**4TH EUROPEAN CONGRESS
FOR CONSERVATION
BIOLOGY**



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**MISSION
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CHOOSING
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Society for Conservation Biology

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Society for Conservation Biology

ABOUT THE SOCIETY FOR CONSERVATION BIOLOGY

SCB is a global community of conservation professionals with members working in more than 100 countries who are dedicated to advancing the science and practice of conserving Earth's biological diversity. The Society's membership comprises a wide range of people interested in the conservation and study of biological diversity: resource managers, educators, government and private conservation workers, and students.

SCB publishes the flagship peer-reviewed journal of the field, *Conservation Biology*, and the cutting-edge online journal, *Conservation Letters*. The Society provides many benefits to its community, including local, regional, and global networking, an active conservation-policy program, and free online access to publications for members in developing countries. SCB also administers a postdoctoral program, the David H. Smith Conservation Research Fellowship Program, sponsored by the Cedar Tree Foundation.

MAPPING BUNDLES OF ECOSYSTEM SERVICES REVEALS DISTINCT TYPES OF MULTIFUNCTIONALITY WITHIN A SWEDISH LANDSCAPE

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Ecosystem services can be a valuable tool to be used in the planning and management of social-ecological landscapes. However, the understanding of the determinant factors affecting the interaction between services in the form of synergies or trade-offs is still limited. We assessed the production of 16 ecosystem services across 62 municipalities in the Norrström drainage basin, Sweden. We combined GIS data with publically available information for quantifying and mapping the distribution of services. Additionally, we calculated the diversity of ecosystem services for each municipality and used correlations and k means clustering analyses to assess the existence bundles of ecosystem services. We found five distinct types of bundles of ecosystem services spatially agglomerated in the landscape that could be explained by regional social and ecological gradients. Human dominated landscapes were highly multifunctional in our study area and urban densely populated areas were hotspots of cultural services.

GLACIER RETREAT EFFECT ON PEAT LAND POOL METACOMMUNITIES IN THE HIGH BOLIVIAN ANDES

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High altitude Bolivian peat lands concentrate many services such as high biodiversity and support of endangered wildlife, support of livestock production especially during the dry season, regulation of organic matter decomposition influencing regional carbon cycle, and filtering and regulation of water for hundreds of thousands of people. These peat lands are also one of the most threatened ecosystems of the world as they are extremely sensitive to climate change, due to change

in water provision from melting glaciers and the impact of temperature rise on biodiversity, and human disturbance, due to land transformation, burning, mining activity and drainage. As peat land habitats can be viewed as green islands in the arid environment of the Bolivian Cordilleras, several studies have shown that their biodiversity is tightly related to their size and habitat heterogeneity, which depends on the provision of melt water from surrounding glaciers. Here we investigated the relationship between glacier influence, peat land area and environmental heterogeneity on the organization of aquatic metacommunities living in pool networks characteristic of Bolivian peat lands. We select 200 pools of 20 peat lands in the Cordillera Real (above 4500 m. asl) where we analyzed the metacommunity structure of zooplankton, macrophytes, algae and macroinvertebrates at different levels of spatial scale (α , β and γ diversity). We found that the aquatic environmental heterogeneity of peat lands was positively correlated with the percent of glacier cover in the catchment and positively affected β and γ diversity. Local diversity in each pool was best explained by the percentage of macrophytes cover and water conductivity. The turbidity levels of the peat lands were positively correlated to the percent of glacier cover in the catchment.

124 THE CHALLENGE OF ACHIEVING NO NET LOSS IN THE FORESTS OF CENTRAL AFRICA

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The Tri-National Dja - Odzala - Minkebe Forest landscape (TRIDOM) covers 178000 km² across the borders of Cameroon, Gabon and the Republic of Congo. Almost 97% is covered by sparsely populated lowland tropical rainforest and is globally important for the conservation of large mammals (elephants, gorillas, chimpanzees). It is also an emerging iron ore province with several deposits currently being explored and two mining projects ready for exploitation. Encouraging investment while respecting the legal and customary rights of local populations and conserving biodiversity represents a major challenge. Conservationists fear that the needed infrastructure (railroads, roads, transmission lines, hydropower dams) and the associated impacts (especially from the influx of population) will lead to the fragmentation of TRIDOM. It risks being reduced to a mosaic of vulnerable, isolated protected areas, no longer fit to conserve its mega-fauna or maintain large scale ecosystem processes, but developing mining projects with a no-net loss (NNL) or even a net gain (NG) biodiversity objective as a condition for access to finance raises considerable technical and institutional challenges. A landscape-level approach is needed to take into account and mitigate indirect and cumulative impacts. Land-use rights are granted through



sector-specific concessions that have varying requirements in terms of biodiversity and rural livelihoods. Elaborating long-term arrangements for implementing and financing biodiversity offsets will thus require close collaboration between financial institutions, mining companies, conservation NGOs and government bodies from different sectors. We investigate the opportunities and obstacles for achieving NNL/NG objectives in the TRIDOM and draw lessons for other biodiversity-rich landscapes faced with the perspective of large-scale environmental and socio-economic changes.

CAVE DISTURBANCES AND ITS EFFECTS TO CAVE-DWELLING BATS IN A SMALL ISLAND IN SOUTHERN PHILIPPINES

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Caves are among the habitats and/or resources that are critically important to the ecology of a number of species, especially cave-dependent species like bats. These habitats are utilized by bats as sites for roosting, courtship and mating, maternity, and hibernation. More than 2,000 caves have been documented in the Philippines, yet cave research is very poor. To address and fill the gaps of knowledge on caves and cave bats in the country, a baseline study on the ecology of cave-dwelling bats in a highly disturbed small island in the southern region was conducted. Thirty caves with different diversity, architecture, microclimate, and disturbances were surveyed, wherein the types and degree of disturbances were correlated to the species richness and abundance of cave-dwelling bats. A total of 16 anthropogenic disturbances were identified outside and inside the caves surveyed, including proofs of bat hunting activities. The survey showed that most caves in the island are moderately to highly disturbed. Important disturbances to consider are visitation/tourism, guano harvesting, and proofs of bat hunting such as bamboo poles, remains of bonfires, torches, and nets. A positive and significant relationship was determined with species richness, abundance, and degree of disturbance in this study. Statistical results showed that disturbed caves have high species richness and abundance. However, the architecture of the cave plays an important role on the presence of high species richness and abundance in disturbed caves. These findings also pose alarm as it reveals that disturbances are concentrated in species rich and abundant caves. Hence, conflicts between cave use (especially tourism) and cave conservation are perceived, as caves with high species richness and abundances (often large caves) are also the most prized tourist destinations.

MODELLING HYBRIDIZATION WITH DENSITY-DEPENDENT RANGE EXPANSION AND ITS IMPLICATIONS FOR CONSERVATION

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The dynamics of range expansion need to be taken into account when studying the genetic consequences of an invasive species spreading and interbreeding with native populations. This is also critical when interbreeding results from shifts in the natural distribution of species due to climate change. Among the species interactions that take place during range expansions, hybridization is of growing concern in conservation biology. Models aimed at studying the genetic consequences of species range expansion have been recently developed but usually assume dispersal to be independent from local population densities. However, organisms may disperse because they are attracted by conspecifics, or to the contrary because they prefer depopulated areas. These behaviours are referred to as positive or negative migratory responses toward conspecifics. Here, through spatially explicit simulations, we assess the effects of various forms of density-dependent dispersal during range expansion on the genetic introgression between two interacting species. We show that massive introgression of neutral genes in the invasive species occurs in all the density-dependent dispersal models (positive and negative), even when hybridization is relatively low. For a given hybridization rate the levels of introgression are lower when dispersal is negatively related to local densities and higher under positive density-dependent dispersal. Our results suggest that organisms that tend to disperse due to conspecific attraction are more affected by genetic introgression. As a consequence they are more threatened by hybridization, which in turn is enhanced by anthropogenic factors and global climate change. We applied our theoretical framework on a real case of hybridization between European wildcat and domestic cat in Switzerland. We highlight that considering density-dependent dispersal in the models has the potential to improve their predictive power and has evident species management implications.

CONSERVATION OF ENDANGERED MARINE SPECIES AND TRADITIONAL ECOLOGICAL KNOWLEDGE: CASE STUDY OF HIPPOCAMPUS INGENS "PACIFIC SEAHORSE" IN PERU.

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