

## Editorial

# Profiling patterns of habitat management for wildlife conservation

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The current issue of TCS includes seven papers: a Conservation Letter and six Research Articles. Collectively these papers address a series of issues associated with patterns of habitat management and wildlife conservation. Below is a brief account of each of the papers published in this issue.

**Brancalion *et al.***, argue that ecological restoration is a key tool to mitigate the negative impact of habitat loss and fragmentation, land degradation, overexploitation of natural resources, and biological invasions in human-modified landscapes in the tropics. The authors stress that connectivity, tree cover, restoring degraded forest fragments to sustain regeneration, and supporting sustainable socioeconomic development at large spatial scales are indispensable strategies for conservation.

Natural tree cavities are a critical and limited resource for wildlife as sites for shelter, breeding and rearing young. Therefore artificial nest boxes are a useful instrument for in-situ conservation efforts. In their paper, **Warakai *et al.*** report on the use of artificial nest boxes in human managed forests in New Guinea. In less than a year after logging, artificial nest box occupancy reached 33%, mainly used by mammalian gliders, birds, snakes and other reptiles. The authors conclude that artificial nest boxes are an important tool for wildlife conservation in human-managed areas of forests.

In their contribution, **Rohit Naniwadekar and Aparajita Datta**, highlight declining populations of Asian hornbills, including five of the 32 Asian hornbill species that occur in northeast India. The researchers studied variation in population densities of four hornbill species in the Namdapha Tiger Reserve, finding that population density is highly variable. They argue that because hornbills have large area requirements and display seasonal movements, large reserve such as the Namdapha Tiger Reserve, are essential for conservation of their populations.

Small changes in vegetation can cause great changes in amphibian specie communities in the forests of Colombia. **Cortes et al.**, investigated the composition of amphibian ensembles along a vegetation gradient in the coastal Pacific rainforests in Colombia. The authors found that although the species richness was similar among the vegetation types studied, the composition of the ensembles and total amphibian abundance were different in each case. In particular, they report that canopy cover was the key variable in the composition of the ensembles for each cover type. Habitats with over 76% canopy cover and with a high density of woody plants and a thick layer of leaf litter provided the necessary habitat conditions for amphibian species typical in rainforests. The authors conclude that amphibian succession and restoration in tropical forests seems to be guided by small changes in vegetation structure, rather than by microclimatic variables.

Traditional patterns of land use are rapidly changing in Sri Lanka due to human population growth with important impacts upon Asian elephant populations. **Patorini et al.**, investigated the use of shifting agriculture areas by Asian elephants and the availability of fodder in active fields during the dry season, The authors radio-tracked a juvenile and an adult male from two herds. Although their results are preliminary, they discovered elephants extensively use shifting cultivation areas during the dry season. A study of the vegetation showed that grass was plentiful in early dry season, representing an important but transient food source for elephants. The authors conclude that shifting agriculture fields under active cultivation are a significant dry season food source for elephants.

**Cove et al.**, used camera-traps to survey medium and large mammal diversity in the San Juan – La Selva Biological Corridor, Costa Rica, where the connectivity of the corridor is affected by the spread of large-scale agriculture, cattle ranching, and a growing human presence. The authors used an occupancy modeling approach to estimate corridor species richness and species-specific detection probabilities in 16 forested sites within four different matrix-use categories: eco-lodge reserves, tree plantations/general reforestation, cattle ranches, and pineapple/agricultural plantations. While corridor average richness was estimated at 20.4 species there was a concentrated occurrence of medium and large mammals in small forest patches. The authors comment that occupancy modeling has only recently been applied to camera-trap data and they suggest that this approach provides robust richness and detection probability estimates and should be further explored.

The thin-spined porcupine, *Chaetomys subspinosus*, is an endemic mammal of the Atlantic forest of northeastern Brazil with its population classified as declining. **Castilho et al.**, investigated the knowledge of the thin-spined porcupine by rural inhabitants and its uses within two protected areas. Through 125 semi-structured interviews with rural residents of the Una Wildlife Refuge and the Serra do Conduru State Park, the authors discovered that local knowledge was higher among males with lower levels of formal education who were current or past hunters than among those who were not. In addition, they recommend greater control of potential threats such as hunting and of use of fire in the protected area.

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