

The extirpation of species outside protected areas

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Land-based bird populations are becoming confined to nature reserves in some parts of the world—raising the risk of global extinction—due to the loss of suitable habitat, according to a report led by UCL.

Researchers analysed biodiversity in the area known as Sundaland, which covers the peninsula of Thailand, Borneo, Malaysia, Sumatra, Java and Bali, one of the world's most biologically degraded regions.

The study, published today in *Conservation Letters*, focuses on galliformes—heavy-bodied ground-feeding birds such as pheasants, grouse and quail—as their numbers are well-recorded and they are amongst the most threatened species in some parts of the world.

Scientists found that up to 13 populations (25 per cent of galliform populations in the area) have been extirpated (made locally extinct) in the region and no longer exist outside [nature reserves](#) ([protected areas](#)). The island of Sumatra has suffered the highest proportion of extirpations among the areas studied, having lost 50 percent of its galliform species in unprotected land.

As a result, certain species are only found in protected areas—raising questions about the ultimate goal of conservation. The researchers argue that these areas were never intended to be a last resort for the existence of species and are also coming under increasing threat from human activity.

Professor Elizabeth Boakes (UCL Life Sciences) said: "Land outside of protected areas is increasingly being lost to agriculture and infrastructure, leading to species becoming confined to Sundaland's protected areas. Biodiversity in the unprotected landscape is required to maintain connectivity and ecosystem function.

"It is also critical that protected areas are managed effectively. However, nearly 20 per cent of Malaysia's and over 40 per cent of Indonesia's protected land is subject to intense human pressure.

"As one of the most biologically degraded areas, Sundaland offers a stark warning to the rest of the world should global rates of land conversion continue unabated. Conservation's end goal is not islands of biodiversity, marooned in a sea of destruction. More land must be managed in a way that accommodates biodiversity for the long term."

Sundaland is a biological hotspot, meaning it is rich in biodiversity but at risk of destruction. Despite the existence of protected areas, forest cover in Sumatra declined by five per cent between 1990 and 2000, while Kalimantan's protected lowland forests declined by more than 56 per cent between 1985 and 2001.

In addition to this, protected areas are not necessarily permanent, with downgrading over the last few years equating to a loss of 8360km² of protected land. As they become more isolated in agricultural landscapes or by the spread of roads and other infrastructure, species lose the opportunity to track and adapt to climate change.

An example of this is that just 12 per cent of Borneo's protected areas are topographically diverse enough to allow species to survive a high warming scenario.

Dr. Philip McGowan, Newcastle University School of Natural and

Environmental Sciences and Chair of IUCN Species Survival Commission Task Force on post 2020 biodiversity targets said: "These findings present new insights into how we should view protected areas and their ability to conserve [species](#) across landscapes.

"At a time when there is debate about how much land should be given over to protected areas, it is how they are integrated into global [biodiversity](#) targets that is perhaps critical. These targets are currently being reviewed by the Convention on Biological Diversity, which is also discussing what should follow them when they expire in 2020."

Southeast Asia's deforestation rate is the highest among tropical regions, above five per cent annually in parts of Sumatra and Sarawak. Sundaland's lowland forests are rapidly disappearing, giving us an insight into the future global conservation status of the remainder of the world if land outside of protected areas continues to be lost, putting the reserves at increased risk from climate change and [human activity](#).

The report was led by UCL Life Sciences, with the University of Queensland School of Biological Sciences and Newcastle University School of Natural and Environmental Sciences. The research was funded by the Leverhulme Trust.

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