Extinction threat due to habitat loss may be greater than believed

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Photo by David Storch

(Phys.org) -- As human encroachment continues to shrink the habitable area for other animal species, a new study suggests that associated extinctions may be more severe than previously thought.

Working with David Storch from Charles University in Prague, Yale researchers Petr Keil and Walter Jetz found that the relationship between geographic area and richness of species primarily depends on a single critical characteristic — the mean size of species' geographic ranges.

To a greater degree than expected, this holds true for almost 20,000 species of amphibians, birds and mammals worldwide, the authors report in a paper forthcoming in *Nature* and available now online.

"Once you've accounted for the smaller geographic range of, for example, amphibians compared with mammals," said Jetz, "we find striking and almost rule-like consistency among continents. The way the number of endemic species increases with area suggests that potential extinctions due to diminished habitat are approximately proportional to the area destroyed. This highlights the potentially severe consequences of habitat loss on species diversity."

The research offers a new take on a fundamental concept in ecology, the standard species-area relationship, which states that the larger the region, the more species live in it.

The findings also suggest that the search for general principles underpinning Earth's increasingly threatened biodiversity is fertile ground for further study, Jetz said.

Jetz is associate professor in Yale's Department of Ecology and Evolutionary Biology. Keil is a postdoctoral associate in Jetz' lab. Storch is lead author.

Provided by Yale University