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Original Research Article

Identifying refuges for Borneo's elusive Hose's civet

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ABSTRACT

Human-induced environmental changes, particularly climate change, pose a threat to many tropical montane species, making the identification of optimal future habitat a conservation priority. Here we used maximum entropy (Maxent) and boosted regression trees to predict suitable habitat of the threatened Bornean highland endemic Hose's civet (*Diplogale hosei*), that is currently available, and for future time periods (2050s and 2080s), considering future land cover and climate change predictions. Next, we identified areas that were consistently suitable under current and future model predictions as forest refuges. Our analysis predicted that Hose's civet is restricted mainly to the highlands of Borneo to an area less than 20,000 km² (about 2% of the entire island of Borneo). Changes in land cover have little impact on predicted suitable area for the species. However, we predicted habitat loss due to climate change to approximate 86% by 2080, except under a "green economy scenario" which showed stable or increasing suitable habitat. Refuges were small, about 11% of 2010 habitat, and mostly restricted to lower montane forest. About 28–35% of refuges lie within the current protected area network though much is designated as commercial forests within the proposed Heart of Borneo (HoB). For the conservation of Hose's civet and likely other Bornean highland endemics, we recommend increased wildlife and forest law enforcement in identified protected refuges and sustainable timber harvesting practices in surrounding commercial forests, both within the HoB and the extensions we identified. Results of our green model showed that efforts to reduce greenhouse gas emissions will likely contribute immensely to the long-term conservation of highland species such as Hose's civet.

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