New study examines how species colonize habitats opened by anthropogenic land cover change

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As plants expand into new open habitats, geographical and climatic factors may matter more than species-specific traits, according to a study published September 11, 2019 in the open-access journal *PLOS ONE* by Miki Nomura of the University of Otago in New Zealand, and colleagues.

Humans have substantially modified the global land surface, with deforestation being the most widespread land cover change. As human activity converts original closed forest habitat to a more open habitat, ecosystems change accordingly. In this study, Nomura and colleagues investigated the relative roles of geographic features, climate characteristics and species-specific traits in determining the ability of plant species to take advantage of recently opened habitats in New Zealand. They used 18 herbaceous species of the genus Acaena (Rosaceae), which are predominantly found in open habitats, and examined their current prevalence in naturally-open and recently-opened habitats across New Zealand, noting each species' ability to disperse into new areas as well as examining the geography and climate of each habitats.

The researchers found that the species studied differed in their ability to colonize newly opened habitat. However, while a species' specific ability to disperse into new areas did affect how well it colonized the habitat, geographic and climatic factors were more important. For example,

habitats opened up by recent human activity appear to be characterized by warmer and wetter climatic conditions than naturally-open habitat, and plants adapted to these conditions were especially able to colonize such areas.

According to the authors, understanding how species respond to such structural habitat change is important for predicting how ongoing land cover change may influence future ecosystems.

The authors add: "To explain the variations in the studied species' ability to colonize new habitats, the spatial arrangement of habitats and the climate conditions were more important than dispersal ability."

More information: Miki Nomura et al, Can we predict which species win when new habitat becomes available?, *PLOS ONE* (2019). DOI: 10.1371/journal.pone.0213634

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