**Edge effects shape the spatial distribution of lianas and epiphytic ferns in Australian tropical rain forest fragments**

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**Abstract**

**Question**

In fragmented forests, edge effects lead to changes in the distribution of plant species. In particular, tropical forest edges are increasingly dominated by lianas. Will this increase in lianas lead to changes in their interactions with other plant morphological groups? If so, will this alter the local distributions and abundance of other species?

**Location**

Plots located at increasing distances from the nearest forest edge and in remnant fragments of rain forest in the Atherton Tablelands, far northeast Queensland, Australia.

**Methods**

We mapped the distribution of trees, lianas and epiphytic ferns to better understand the role of forest disturbance in shaping their competitive and facilitative interactions. We then used specific spatial point-process analyses to examine the effects of the spatial distribution of trees on the presence and abundance of lianas and epiphytic ferns.

**Results**

Tree aggregation near forest edges was lower than that in the interior. The higher abundance of lianas near edges was associated with increased spatial segregation between lianas and epiphytic ferns. This segregation suggests there is competition between these two functional groups, and that lianas, being much more abundant, probably outcompete epiphytic ferns.

**Conclusions**

The ability of lianas to thrive in disturbed tropical rain forests appears to reduce the abundance of epiphytic ferns, probably via direct competition for space. Epiphytic ferns provide unique microclimates and harbour much biodiversity, and their decline could negatively affect many animals and plants that rely upon them.