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## Hurricane Wilma: When Lianas Protect Trees

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### Abstract

It has been proposed that global change increases hurricane's frequency and liana abundance; and that lianas pull and break trees. Indeed, trees hosting live lianas should have a higher probability to be broken during hurricanes. We tested this when Hurricane Wilma stroke North Eastern Yucatan Peninsula (October 2005). There we have 6 pairs of 400m<sup>2</sup> forest plots. We marked and identified all trees  $\geq 3,16$  cm dbh and lianas  $\geq 1$  cm diameter at ground level. Before the hurricane we cut the lianas in one plot of each pair. We located: three, two and one pair of plots in the  $\geq 55$ yr, 18yr, and 10yr-old stands respectively. For the  $\geq 55$ yr-old stands, the % of snapped-trunk trees was smaller in the liana-cut (4%, SD=0,21), than in uncut plots (7%, SD=2,17), suggesting that lianas “helped” the hurricane to snap trees. For the 18yr-old stand, the hurricane snapped more trunks in the liana-cut plots (averages: liana-cut=8%; liana-uncut=1,3% snapped trees), suggesting that lianas avoided tree-snapping. The same occurred in the 10yr-old stand (liana-cut=9%; liana-uncut=2,7% snapped-trees). Liana-cutting did not change the % of other damage types. For example, in the  $\geq 55$ yr-old stands, the % of trees having only large branches remaining were: Liana-cut=0,8% (SD=1,3), and liana-uncut= 1,3% (SD=2,2). Dominant lianas were: *Cydista spp* and *Arrabidaea spp* (both soft-bodied Bignoniaceae, in the  $\geq 55$ yr-old stands), and *Dalbergia glabra* (heavy-bodied Papilionoidae, in both, 18- and 10yr-old stands). We suggest *D. glabra* individuals functioned as “fixing-cables” avoiding snapping. Results suggest that liana-cutting before logging may be not-necessary and can be structurally detrimental in secondary forests in hurricane areas.

**Keywords:** Hurricanes, Liana-cut, Mexico, tree-snapping