

# **Center for Community-Based Resource Management (CBRM)**

**Natural Resources Institute, University of Manitoba**

## **CBRM Database**

<b>Date:</b>	<b>30/Nov/2014</b>	<b>Entry Number:</b>	<b>1344</b>
<b>Case Study Name:</b>	<b>Beta-Diversity in Tropical Forest Trees</b>		
Authors:	Richard Condit, Nigel Pitman, Egbert G. Leigh Jr., Jérôme Chave, John Terborgh, Robin B. Foster, Percy Núñez V., Salomón Aguilar, Renato Valencia, Gorky Villa, Helene C. Muller-Landau, Elizabeth Losos, Stephen P. Hubbell		
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Region:	Central America		
Country:	Panama, Ecuador and Peru		
Ecosystem Type:	Tropical Forest		
Social Characteristics:	Urban communities		
Scale of Study:	Ecosystem		
Resource Type:	Forestry		
Type of Initiative:	Research driven-project		

Community-Based Work:	Ecosystem assessment
Keywords:	Beta-diversity, Alpha-diversity, Dispersal, Tropical trees, Species-area, Panama, Ecuador and Peru
<b>Summary:</b>	<p>The high alpha-diversity of tropical forests has been amply documented, but beta-diversity—how species composition changes with distance—has seldom been studied. We present quantitative estimates of beta-diversity for tropical trees by comparing species composition of plots in lowland terra firme forest in Panama, Ecuador, and Peru. We compare observations with predictions derived from a neutral model in which habitat is uniform and only dispersal and speciation influence species turnover. We find that beta-diversity is higher in Panama than in western Amazonia and that patterns in both areas are inconsistent with the neutral model. In Panama, habitat variation appears to increase species turnover relative to Amazonia, where unexpectedly low turnover over great distances suggests that population densities of some species are bounded by as yet unidentified processes. At intermediate scales in both regions, observations can be matched by theory, suggesting that dispersal limitation, with speciation, influences species turnover.</p>