

## **Logging cuts the functional importance of invertebrates in tropical rainforest**

### **Abstract**

Invertebrates are dominant species in primary tropical rainforests, where their abundance and diversity contributes to the functioning and resilience of these globally important ecosystems. However, more than one-third of tropical forests have been logged, with dramatic impacts on rainforest biodiversity that may disrupt key ecosystem processes. We find that the contribution of invertebrates to three ecosystem processes operating at three trophic levels (litter decomposition, seed predation and removal, and invertebrate predation) is reduced by up to one-half following logging. These changes are associated with decreased abundance of key functional groups of termites, ants, beetles and earthworms, and an increase in the abundance of small mammals, amphibians and insectivorous birds in logged relative to primary forest. Our results suggest that ecosystem processes themselves have considerable resilience to logging, but the consistent decline of invertebrate functional importance is indicative of a human-induced shift in how these ecological processes operate in tropical rainforests.