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Abstract for an Invited Paper  
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**Statics and dynamics of ecosystems<sup>1</sup>**

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Understanding an ecological community represents a formidable many-body problem - one has an interacting many-body system with imperfectly known interactions and a wide range of spatial and temporal scales. In tropical forests across the globe, ecologists have been able to measure certain quantities such as the distribution of relative species abundance; the probability that two trees drawn randomly a specified distance apart belong to the same species; and the dynamics of species turnover. A simple analytic framework will be presented for describing the statics and dynamics of ecosystems and its predictions will be benchmarked against observational data.

I. Volkov et al., Nature 424, 1035-1037 (2003); Phys. Rev. Lett. 92, 218703 (2004); Nature 438, 658-661 (2005).

T. Zillio et al., Phys. Rev. Lett. 95, 098101 (2005).

S. Azaele et al., Nature (2006) in press.

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