

# **The Introduced Hawaiian Avifauna Reconsidered: Evidence for Self-Organized Criticality?**

*Timothy H. Keitt, Pablo A. Marquet*

## **Abstract**

Over the last century, many bird species have been introduced into the Hawaiian islands. The data indicate a scenario in which island communities build up to a critical number of species, above which avalanches of extinction occur. Plotting the distribution of extinction event sizes approximates a power-law in accordance with the notion of a self-organized critical system. The lengths of time between introduction and extinction for different species also exhibit power-law scaling. These results suggest that ecological communities are not characterized by a well defined equilibrium, but rather by a detailed balance which is minimally stable to perturbations such that the introduction of species can trigger extinction cascades.