

# **Trophic cascades revealed in diverse ecosystems**

**Michael L. Pace, Jonathan J. Cole,  
Stephen R. Carpenter and James F. Kitchell**

**New studies are documenting trophic cascades in theoretically unlikely systems such as tropical forests and the open ocean. Together with increasing evidence of cascades, there is a deepening understanding of the conditions that promote and inhibit the transmission of predatory effects. These conditions include the relative productivity of ecosystems, presence of refuges and the potential for compensation. However, trophic cascades are also altered by humans. Analyses of the extirpation of large animals reveal loss of cascades, and the potential of conservation to restore not only predator populations but also the ecosystem-level effects that ramify from their presence.**

---

Michael Pace and Jonathan Cole are at the Institute of Ecosystem Studies, Millbrook, New York, NY 12545, USA (pacem@ecostudies.org; colej@ecostudies.org); Stephen Carpenter and James Kitchell are at the Center for Limnology, University of Wisconsin, Madison, WI 53706, USA (srcarpen@facstaff.wisc.edu; kitchell@macc.wisc.edu).

---