The Future of Invasive Species Research

Jennifer Funk, Chapman University
Evolutionary adaptation

Functional traits

Species interactions

Impacts of invasive species
Evolution: invaders adapt to climate change

- *Avena barbata* exposed to three water treatments for five years
- Seeds collected and grown in common garden for two years
- Treatment differences reflect natural selection

Nguyen et al. (in review) *Journal of Ecology*
Evolution: adaptation of natives to competition

Rowe and Leger (2014) Evolutionary Applications
Can functional traits suggest management strategies?

Species interactions: plant-soil feedbacks

Kuebbing et al. (2015) Ecology
Don’t judge species on their origins

Conservationists should assess organisms on environmental impact rather than on whether they are natives, argue Mark Davis and 18 other ecologists.

All Is Not Loss: Plant Biodiversity in the Anthropocene

Erle C. Ellis¹*, Erica C. Antill¹, Holger Kreft²

Novel ecosystems: theoretical and management aspects of the new ecological world order

Richard J. Hobbs¹*, Salvatore Arico², James Aronson³, Jill S. Baron⁴, Peter Bridgewater⁵, Viki A. Cramer¹, Paul R. Epstein⁶, John J. Ewel⁷, Carlos A. Klink⁸, Ariel E. Lugo⁹, David Norton¹⁰, Dennis Ojimaⁱ¹, David M. Richardson¹¹, Eric W. Sanderson¹², Fernando Valladares¹³, Montserrat Vilà¹⁴, Regino Zamora¹⁵ and Martin Zobel¹⁶

Impacts of invasive species

Hawaii Volcanoes National Park
1995

*Melinis* (grass)

Soil N pool

Mack et al. (2001) *Ecological Applications*
Impacts of invasive species

Hawaii Volcanoes National Park
2011

Melinis (grass)

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Soil N pool

Morella (N-fixing tree)

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