

# The Future of Invasive Species Research

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Evolutionary adaptation



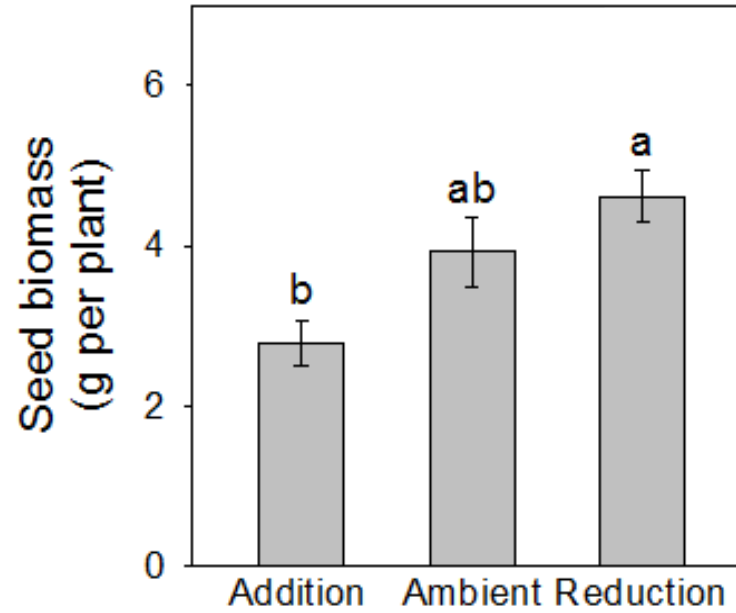
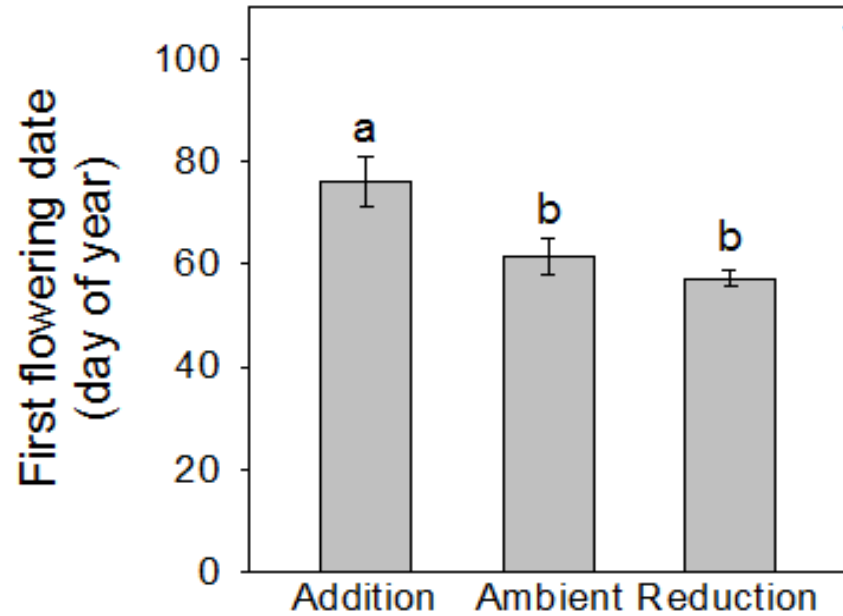
Functional traits



Species interactions

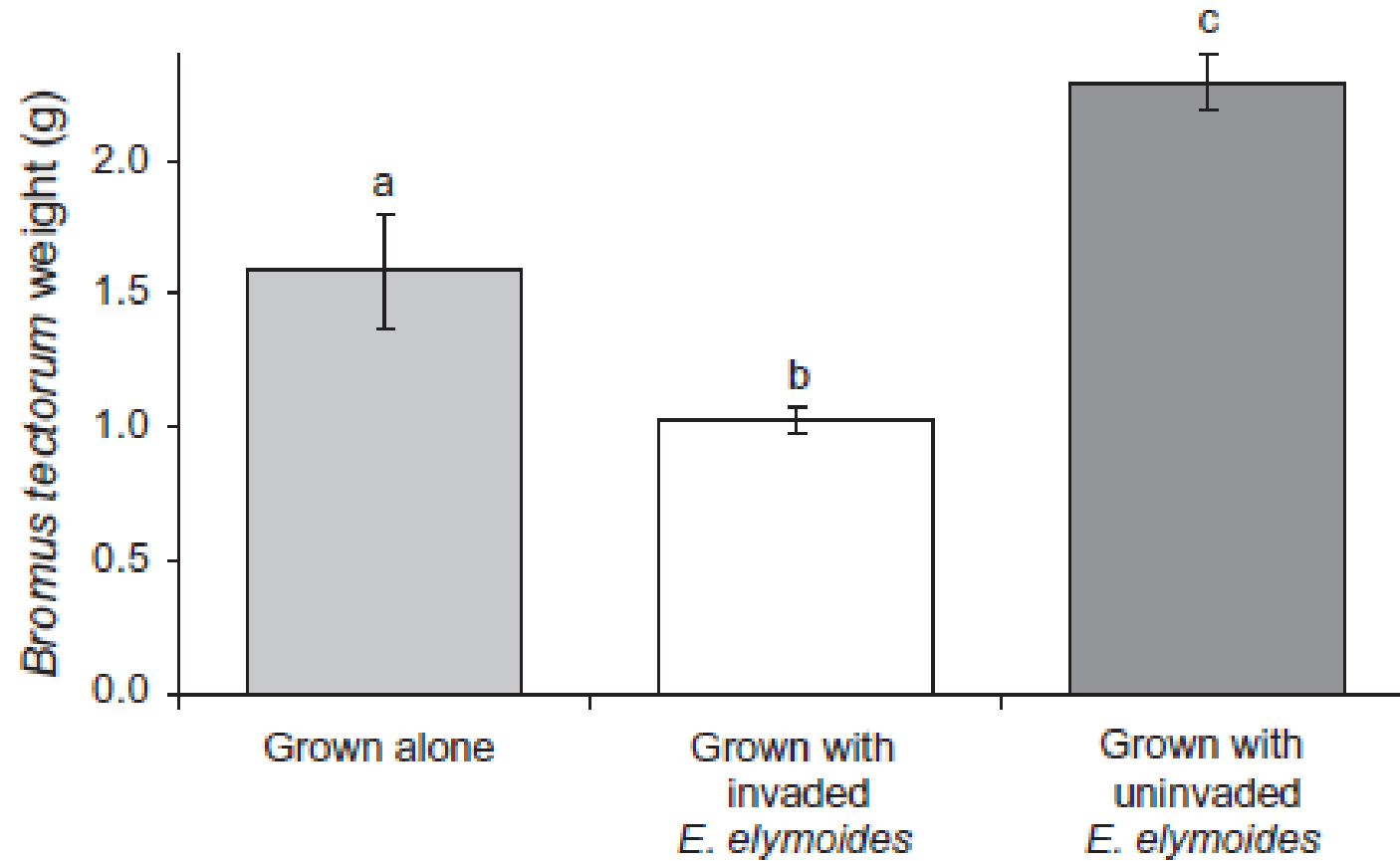
Impacts of invasive species

# Evolution: invaders adapt to climate change

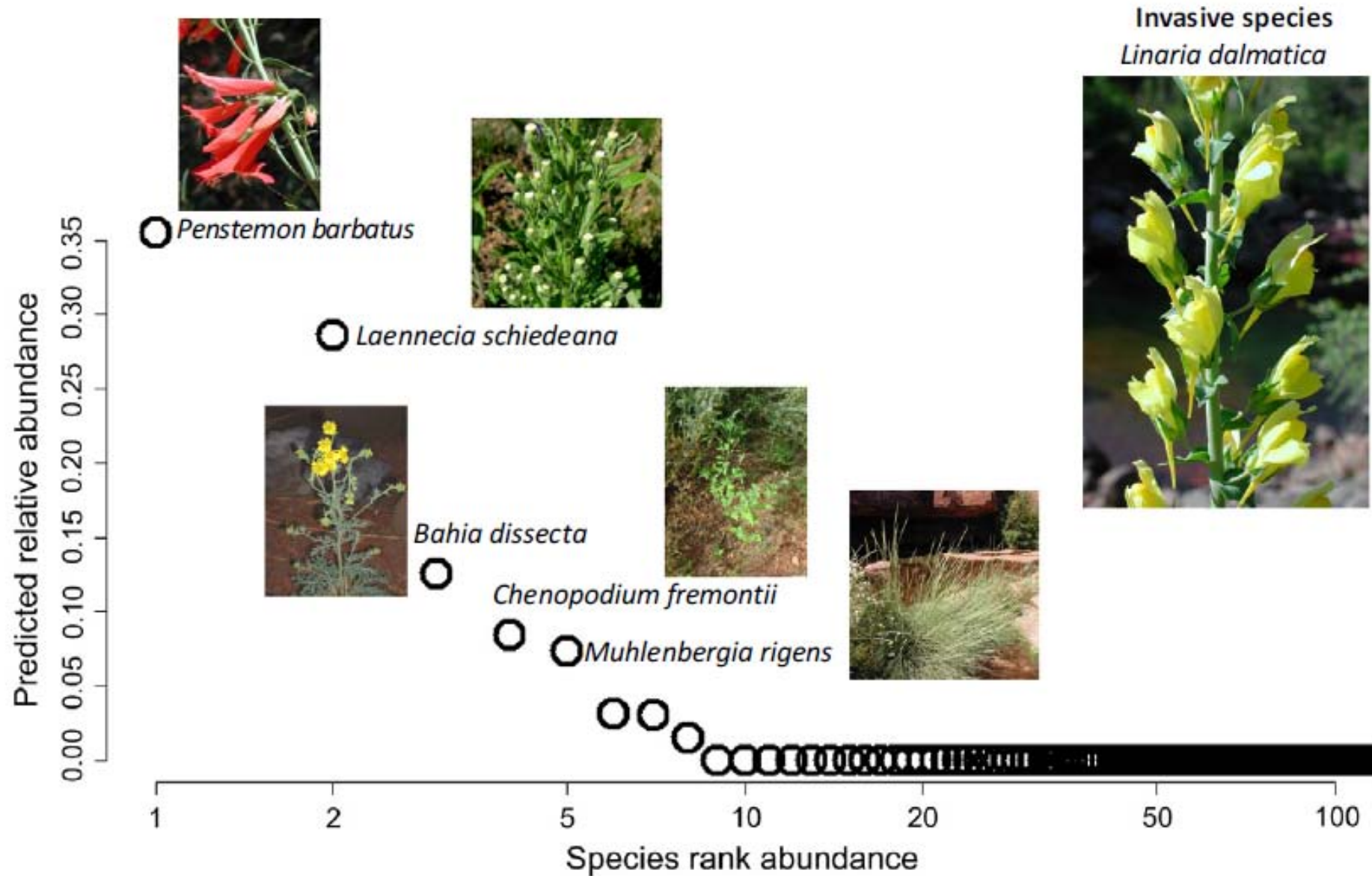


- *Avena barbata* exposed to three water treatments for five years
- Seeds collected and grown in common garden for two years
- Treatment differences reflect natural selection

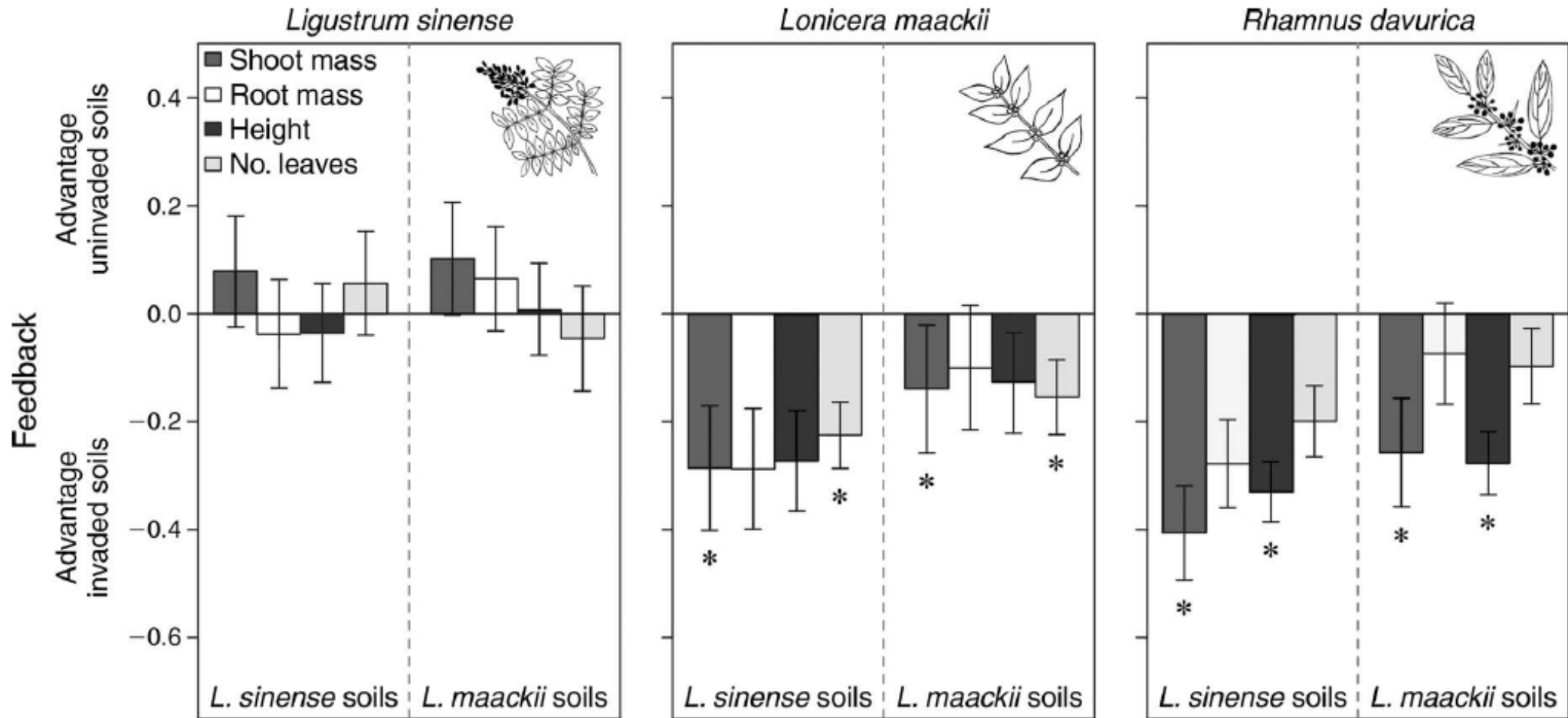
# Evolution: adaptation of natives to competition



# Can functional traits suggest management strategies?



# Species interactions: plant-soil feedbacks



# 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.

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## All Is Not Loss: Plant Biodiversity in the Anthropocene

Erle C. Ellis<sup>1\*</sup>, Erica C. Antill<sup>1</sup>, Holger Kreft<sup>2</sup>



**PLOS one** January 2012 | Volume 7

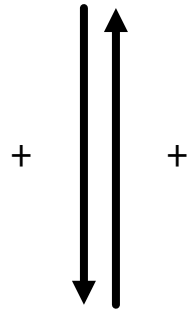
### Novel ecosystems: theoretical and management aspects of the new ecological world order

Richard J. Hobbs<sup>1\*</sup>, Salvatore Arico<sup>2</sup>, James Aronson<sup>3</sup>, Jill S. Baron<sup>4</sup>, Peter Bridgewater<sup>5</sup>, Viki A. Cramer<sup>1</sup>, Paul R. Epstein<sup>6</sup>, John J. Ewel<sup>7</sup>, Carlos A. Klink<sup>8</sup>, Ariel E. Lugo<sup>9</sup>, David Norton<sup>10</sup>, Dennis Ojima<sup>4</sup>, David M. Richardson<sup>11</sup>, Eric W. Sanderson<sup>12</sup>, Fernando Valladares<sup>13</sup>, Montserrat Vilà<sup>14</sup>, Regino Zamora<sup>15</sup> and Martin Zobel<sup>16</sup> *Global Ecology and Biogeography*. (2006) **15**, 1–7

# Impacts of invasive species

Hawaii Volcanoes National Park  
1995

*Melinis* (grass)



Soil N pool

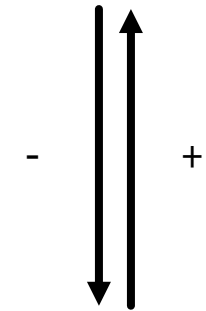




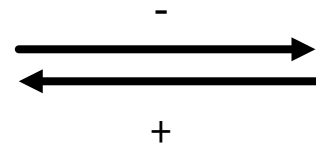
# Impacts of invasive species

Hawaii Volcanoes National Park  
2011

*Melinis* (grass)



Soil N pool



*Morella*  
(N-fixing tree)

