

# Species Matter: Predicting Ecosystem Responses to Climate Change



Elsa Cleland

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## CURRENT RESEARCH

### Understanding ecosystems to design creative approaches to restoration

The cost to control invasive species and the damages they inflict upon property and natural resources in the US is \$137 billion each year. These invasive plants, animals, or other organisms are introduced to an area outside of their original range and cause incredible harm to their new environment. In fact, invasive species are recognized by many scientists as one of the leading threats to biodiversity -- an important tenet of life as we know it. Dr. Elsa Cleland, an Associate Professor in the Ecology Behavior & Evolution Section at the University of California, San Diego, studies the impacts of environmental change on species and ecosystems, including invasive species. With the hope to not only understand ecosystems' and species' responses but also to design scientific-based strategies to help protect them, Dr. Cleland and her team use a variety of creative approaches to bring the science of restoration to life.

Working specifically in California, a "hot-spot" both for current biodiversity and predicted future climate change, Dr. Cleland studies the wonderfully diverse plant communities to understand both short term changes in species abundance and also long term evolutionary potential of species to adapt to these changes. Thus, her research helps to protect our natural resources by understanding how they function in addition to contributing to incredible efforts in restoration and conservation applications. While many researchers study model systems because they are easy to manipulate, Dr. Cleland is focused on performing large-scale experiments in diverse natural systems to gain realism. In so doing, she and her team are able to delve into the mechanistic basis of responses with follow-up smaller scale...

## AFFILIATION

 University of California, San Diego

## EDUCATION

- Ph.D., in Ecology, 2004, Stanford University
- B.S., in Biology, 1996, Duke University

## RESEARCH AREAS

Environment, Ecology, Natural Disasters / Emergency, Global Policy

## FUNDING REQUEST

Your contributions will support the continued research of Dr. Elsa Cleland, of the University of California, San Diego as she performs large-scale experiments in diverse natural systems to respond to the myriad environmental changes occurring today. Her work requires funding for people and experimentation. While \$70K/year could fund a postdoctoral fellow and \$50K/year could fund a graduate student, smaller donations will allow individual projects to flourish and make a big difference as well.

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