

Win-Win Scenarios in Conservation



Brad Cardinale
Associate Professor, Natural Resources and Environment

CURRENT RESEARCH

Prioritizing conservation of the world's biological diversity to meet basic human needs

Even though you might not always see them, nature provides people with "services" that are essential for our survival. Everything we eat, drink, breathe, and build comes from a species somewhere. Species and the habitats they live in produce our crops and fisheries, clean up our pollution, give us oxygen to breathe, purify our drinking water, control pests and disease, and provide us with bioenergy. It is nature's services that make Earth habitable and prosperous for humans.

But nature's services are being compromised by the rapid loss of species from our planet. We are going to lose between one-third, and one-half of all species on Earth in our lifetime. We do not have the time, money, or people to save them all. Dr. Brad Cardinale, of the University of Michigan, works to prioritize conservation efforts by trying to figure out how many species and which one's need to be saved to protect nature's services. He capitalizes upon biodiversity to create solutions for biofuels, freshwater quality, climate regulation, and pollution thereby determining how human health and well-being are linked to the great variety of life on our planet. In so doing, he is finding win-win scenarios where conservation of the world's biological diversity will also meet basic human needs.

It is projected that in the next 5-10 years, his research group and their colleagues will be able to say with some accuracy how many species we need to: (1) maximize the yield and stability of algal biofuel production, (2) accelerate release of O₂ into, and removal of CO₂ from, the atmosphere, (3) clean up several forms of pollution from freshwater streams and lakes. To accomplish these goals, Dr. Cardinale simulates species extinctions in...

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AFFILIATION

 University of Michigan

EDUCATION

- B.S., in Biology, 1993 , Arizona State University
- M.S., in Fisheries and Wildlife, 1996 , Michigan State University
- Ph.D., in Biology, 2002 , University of Maryland

AWARDS

- World's Most Influential Scientific Minds, 2014
- Elected Fellow, American Association for the Advancement of Science, 2013
- Elected member, Science Committee of Future Earth, 2013
- Harold J. Plous Memorial Award, 2010
- Bradley Cardinale, 2009

RESEARCH AREAS

Environment, Ecology, Clean Energy, Clean Energy

FUNDING REQUEST

Dr. Cardinale is testing and developing 100+ natural combinations of algae that are superior producers of biofuel, or show promise in retaining water quality and curbing algal blooms. Your donations will support the \$300-500K yearly costs for supplies, and personnel needed for experiments and surveys of natural streams/lakes, and help him determine how ecosystem goods and services are influenced by changes in the numbers and types of species, to find scenarios where conservation can meet human needs.