

Island-scale study reveals climate-change effects

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(PhysOrg.com) -- A large-scale UC Davis experiment with ants, lizards and seaweed on a dozen Caribbean islands shows that predicting the effects of environmental change on complex natural ecosystems requires a large laboratory.

The study, which was led by UC Davis ecologist Jonah Piovia-Scott, is described in today's issue of the journal *Science*.

Piovia-Scott said previous studies have found that environmental changes (such as shifts in temperature, precipitation or storm severity) can affect ecosystems by adding or taking away plant and animal species, as well as by shifting the seasonal timing of key events (such as reproduction and migration).

“What we learned from our work in the Bahamas is that such changes can also alter how intact ecological communities function,” said Piovia-Scott. “But it took a big experimental setup to reveal those changes, and it will take more experiments like this one to learn how to develop successful conservation and management strategies.”

In their 2008-2009 experiment, Piovia-Scott and colleagues put [seaweed](#) on Caribbean islands to imitate the effects of [environmental change](#) (overfishing and nutrient runoff are expected to encourage global algae growth, and seasonal storms that deposit seaweed on islands are becoming more frequent as the climate warms). Then they recorded how the presence of the seaweed altered the interactions between island

plants, the insects that ate the plants, and the [ants](#) and [lizards](#) that ate those insects.

The details are reported in “Effects of Experimental Seaweed Deposition on Lizard and Ant Predation in an Island Food Web” by Piovia-Scott and fellow UC Davis ecologists David Spiller and Thomas Schoener.

Provided by UC Davis

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