

Reconciliation ecology: The fun way to adapt to climate change

August 3 2010

A University of Arizona ecologist plans to involve Tucson neighborhoods in a giant test of reconciliation ecology.

Reconciliation ecology designs ways for the natural world to exist in harmony with people, while also actively protecting native biodiversity.

"The threat to biodiversity is much, much, much worse than most people understand," said Michael Rosenzweig, director of UA's Tumamoc: People & Habitats and of its Alliance for Reconciliation Ecology. "No species is safe from extinction."

His research shows that without intervention, the number of species the planet can support in the long term has declined more than 90 percent in the last century.

Global warming is almost certainly accelerating the extinction process, said Rosenzweig, who is also a UA professor of ecology and evolutionary biology.

"The good news is that by paying attention to the land we do use, we can avert the extinction catastrophe," he said. "That's reconciliation ecology -- when you use the land, pay attention to other species."

Maintaining the diversity of species that now exist requires "lot and lots of good habitat," he said. But he's not talking about setting aside nature preserves.

Cities and suburbs can provide much of the needed habitat, he said. To do so, people must use their yards, their urban parks and the land around establishments such as schools, places of worship and businesses to provide habitat for native species.

To test his ideas, he plans to work with neighborhoods in Tucson to encourage residents to act locally to preserve the plant species native to the area.

Rosenzweig will discuss reconciliation ecology and the plans for his grand experiment at 3:50 p.m. Tuesday, Aug. 3 in Ballroom BC of the David L. Lawrence Convention Center in Pittsburgh. His talk at the annual meeting of the Ecological Society of America is titled, "Reconciliation Ecology: The Fun Way to Adapt to Climate Change."

To figure out how best to do reconciliation ecology in Tucson, Rosenzweig and his colleagues are focusing on the 300-some species of native plants found on Tumamoc Hill, an 870-acre, century-old ecological reservation in central Tucson.

By developing ecologically reasonable subsets of the 300-some native plants on Tumamoc Hill, the researchers will be able to suggest groups of 12 to 40 species for people to plant on their land.

To create subsets of species that will coexist readily in a backyard or neighborhood, the team made a database that describes characteristics of each plant species.

In addition to using ecological characteristics of the plants, the database includes plant traits important to people as they design landscapes to live with. Those characteristics include whether the plant is thorny, whether it flowers in the spring or summer or fall, and how large it will become.

The team also programmed a variety of computer instructions to select a set of native plants that might live together successfully and have qualities people desire, such being thornless or having showy flowers in the spring.

The researchers have dubbed one of those instructions "The Belle of the Ball," because it can highlight a particular species and provide a list of the native plants that would be compatible with conserving that special species.

The Belle of the Ball algorithm would help people use their house or neighborhood to protect a rare plant, such as the Tumamoc globeberry vine, known to scientists as *Tumamoca macdougalli*. The vine, first discovered on Tumamoc Hill, generally needs shrubs to climb into and has only been found in deserts in southern Arizona and the Mexican state of Sonora.

Rosenzweig will enlist Tucson residents through their neighborhood associations. The residents will be actively involved, because only with their participation will it be possible to conduct a large-scale test of whether the various artificially selected subsets of Tumamoc's 300-some native plants can thrive together.

By involving large groups of people and having each artificial plant community planted in several different urban sites, the researchers will be able to see which of the novel plant communities grow well.

"In five-to-10 years, we'll have a much better idea of how this works," Rosenzweig said.

He anticipates that eventually a person will be able to log into a website and pick a tried-and-true association of native plants for his yard. As places fill with [native plants](#), Rosenzweig expects native wildlife will

thrive also.

"It's the fun way to adapt to climate change because people will enjoy living in these new, nature-filled habitats," Rosenzweig said. "This would be creating massive expanses of habitat that would allow species to relocate naturally as the climate changes."

Provided by University of Arizona

Citation: Reconciliation ecology: The fun way to adapt to climate change (2010, August 3)
retrieved 27 April 2024 from

<https://phys.org/news/2010-08-reconciliation-ecology-fun-climate.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.