



“When some species are removed, it can cause a reduction in the productivity of that environment.”

A FINE BALANCE

CLIMATE CHANGE IS PUTTING THE EARTH'S BIODIVERSITY IN SERIOUS JEOPARDY. UBC'S BIODIVERSITY RESEARCH CENTRE IS AIMING TO UNDERSTAND THE IMPACT OF THIS SHIFT

In the high-altitude ridges of Costa Rica, the Golden Toad existed peacefully for centuries. Although only two inches long, its brilliant, bright yellow exterior made it an arresting presence in the cloud-covered tropical forests about 30 km above the city of Monteverde. Its exceptional skin was so striking that a renowned herpetologist claimed the toad appeared to have been dipped in enamel paint. But within 30 years of its discovery, not a single specimen of this formerly abundant species, known to be an important indicator of environmental change in its sensitive ecosystem, has been seen. In 2007, the Golden Toad was officially categorized as extinct. More notably, it is considered to be Costa Rica's first extinction due to global warming.

“Global warming is an example of change wrought by humans that requires other species to adapt or face extinction,” says Sally Otto, Director of UBC's Biodiversity Research Centre. “The problem with diversity loss due to causes like climate change is that we don't always know if a species' extinction is going to cause a massive shift in the stability of that ecosystem. When some species are removed, it can cause a reduction in the productivity of that environment or the ability of that environment to resist invasion by introduced species.”

Otto isn't waiting around to find out these consequences. Under her leadership, the Biodiversity Research Centre's 50 researchers and 200 staff are contributing to a global effort to understand how species interact and evolve, and how the loss of biodiversity (the variety and relationships of all living things) is affecting the planet.

In early 2010, these researchers will occupy a common home in the new Beaty Biodiversity Centre, which will act as both a world-class research facility and a public museum. The research wing will provide laboratories and facilities for biodiversity researchers from such diverse fields as zoology, botany, earth and ocean sciences, microbiology and forest sciences. This interdisciplinary perspective serves as the ideal approach to pursue in-depth investigations into

the effects of climate change, pollution, habitat destruction, introduced species and many other threats to biodiversity.

The other part of the new centre, the Beaty Biodiversity Museum, aims to make biodiversity research at UBC more accessible to the public. The museum's massive collection includes specimens of over two million plants, fishes, fossils, birds, reptiles, fungi, shells, mammals and insects that will be displayed, for the first time, to the public. Also on public display will be an 85-foot-long blue skeleton, the first on display in Canada.

“Our aim with the Beaty Biodiversity Museum is to get the public interested in biodiversity. By seeing and appreciating the diversity of life, we hope to engender a stronger desire to protect it,” says Otto. “As a culture, we need to spread the message that we're the stewards of our environment and if we don't take better care then we're going to lose more and more species.”

Species at risk

The Beaty Biodiversity Centre will become another key centre dedicated to biodiversity research at UBC. At UBC Okanagan, the Centre for Species at Risk and Habitat Studies (SARAHS) is already working steadfastly to address questions relevant to the structure and function of habitats and populations of species at risk. Core research areas include targeting the dynamics of habitats and species across multiple temporal and spatial scales.

“What is so unique about the Okanagan setting is that we are in one of the most bio-diverse regions in the entire province,” says Karen Hodges, Canada Research Centre chair in Conservation Biology at UBC Okanagan. “The south Okanagan has a multitude of species, many of which are at risk in Canada, so our field opportunities are quite different than being on the peninsula in Vancouver.”

Although not directly affiliated, SARAHS and the Beaty Biodiversity Centre will work collaboratively to advance knowledge of biodiversity and its contribution to more productive ecosystems. ■