

Abstract

Designing a Sustainable Southern California: Exploring Inter-Disciplinary Studies of Complexity in Natural and Human Systems

A critical challenge for humanity in the 21st century will be adapting our technologies and lifestyle choices to live in harmony with our natural resource base and to protect the integrity of the Earth's natural ecosystems. For scientists and educators, this requires us to understand both the functioning of complex biological systems and the dynamic interactions between human and natural systems. We also must educate citizens so they understand the impacts of lifestyle choices and are empowered to adopt sustainable lifestyles. In this context, sustainability is defined to mean that the current generation can satisfy its needs without jeopardizing the viability of future generations, and while conserving the diversity of ecosystems and biological species.

This proposal seeks National Science Foundation support for an Incubation Grant to bring together faculty and researchers from several departments for development of an interdisciplinary research and education plan centering around Riverside County's unique ecology. Initially, the program will involve faculty from Conservation biology, Soil Science, the College of Engineering- Center for Environmental Research and Technology (a laboratory whose principal focus is on air quality), Political Science, and Anthropology. As the program matures, we expect involvement from faculty in a variety of departments encompassing the physical sciences, social sciences, and humanities.

This project will take the first steps toward identifying interdisciplinary research and educational opportunities relating to biocomplexity in Riverside County, which stretches from the outskirts of Los Angeles to the Arizona border. It also will provide the resources for investigators to share data sets and models (including data from the Riverside County Integrated Plan, which is under way) for exploratory research into new approaches for modeling and analysis.

The deans and faculty of the University of California, Riverside, have begun to develop an integrated approach to research and curriculum that will use Riverside County as a living laboratory to illustrate academic concepts and to provide research opportunities. This Incubation Grant will serve as a catalyst for designing and implementing this vision. Consequently, it will lead to a significant amount of creative, innovative approaches to research and education applicable not only here but also to academic settings and environmental conditions throughout the world.