

Vignette - ESSE21 Module - Loma Linda University

Title: Landuse/Land Cover Change: Cases of Coastal Zone Change

URL: <http://resweb.llu.edu/rford/ESSE21/LUCCModule/>

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Description:



This learning module provides an integrated look at the concepts, tools, and methods for doing land use/land cover (LULC) change detection with remote sensing and image processing, using real case material and data within the arena of tropical coastal zone management (CZM). It is part of an ESSE (Earth System Science Education) learning module used by Loma Linda University, the

University of Redlands, Cal Poly Pomona, the University of Alaska Fairbanks, Lehigh University, Lincoln University and others. It has been tested in several courses on remote sensing and can be adapted for both advanced as well as beginner levels at the undergraduate and graduate level.

The module builds on the latest concepts and methodologies for doing LULC analysis as demonstrated by the leaders in the field, i.e. FAO's GLCN-LCTC network, the IGBP, USGS and others. The goal is to go beyond the "how" of doing change detection and image processing, to asking students to look at the "why"--what are the "driving forces" or human dimensions of global change (HDGC) involved in these real places.

We ask students to put themselves in the shoes of real land managers, policy-makers, and local community members in real places in Mesoamerica--particularly **Honduras**--to asses how these analytical tools can promote good decision-making and improve

livelihoods as well as protect the environment. It will take students virtually to one of the most important **biodiversity hotspots** in the world--the **Mesoamerican Biological Corridor**. Furthermore, it adds the element of adventure and exploration to learning.

See the image below of the visitor center at the **Cuero y Salado Wildlife Refuge** on the North Coast of Honduras. This refuge is a critical site for protection of manatee and other endangered species. Several students and faculty at Loma Linda and the University of Redlands have been involved in collecting data for this module at this site (see photos below). The online learning module gives you a lot more via virtual tours and links to many data sources, documents and organizations.



Visitor Center of the *Cuero y Salado Wildlife Refuge* Honduras

More important, we challenge students to see the links between LULC issues in other places and how those distant driving forces might impact their own life and place on Planet Earth--we want to make real the goal of linking the global to the local. And, we want to help students and faculty--working together with real people in real places--to explore the ethical and value dimensions of global change and how we live our lives. See below some photos of graduate and undergraduate students at work in the target sites on both the Pacific and Atlantic coasts of Honduras where we're working, as well as some of our local partners and community members.





A manatee uses its flippers to "walk" along the substrate at the Belize barrier reef.

Photo: Alan Stevens



Marie-Lys with two summer interns, Shauna King and Leigh Bird.

Photo: Marie-Lys Bacchus

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