

RSim: A Regional Simulation to Explore Impacts of Resource Use and Constraints

Background:

Historically, environmental concerns have focused on impacts within the installation resulting from onsite activities. More recently, land use changes occurring outside the fence line of installations have resulted in conflicting goals for both the installations and their surrounding communities. As a result, there is a need to examine impacts of land use change and the effects on the management of resources within installations. The application of ecosystem management approaches to military lands and regions that contain them is critical because of the unique resources on these lands and the fact that conservation issues could jeopardize military missions if not appropriately managed. The model developed by this project addresses this critical need by enabling application of ecosystem management approaches to military lands and their surrounding regions.

Objective:

The goal of this project is to develop a user-friendly regional simulation that integrates environmental effects of on-base training and testing with off-base development.

Summary of Process/Technology:

The computer simulation environment for this project builds upon the LUCAS (Land-Use Change Analysis System) model. LUCAS is being re-engineered for modeling land-use change, resource use, and land management policies for the Fort Benning region in southwest Georgia. The major ecological conditions to be considered for the Fort Benning application are limited by available resources to focus on effects of land use and management decisions on air, water, noise, threatened and endangered species, and game species and their habitats. In this project, a Regional Simulation model (RSim) will be designed to integrate environmental effects of on-base training and testing and off-base development. A risk assessment approach will be used to determine impacts of single and integrated risks. The simulation environment will be available via web interface, and the model will be provided in a gaming mode so that users can explore repercussions of military and land-use decisions.

Benefit:

The simulation tool developed through this project will be of general applicability to land owners and managers but will be of special interest to military planners at Department of Defense installations. The approach will allow consideration of several criteria at the same time including air, water, noise and species. Acceptable land uses will be those that maintain standards within all of these categories.



An example of conflicting land use adjacent to Ft. Benning: This photo shows evidence of military activity (i.e., vehicle tracks) bordering residential property.

Accomplishments:

This project began in FY 2002. Accomplishments will be noted upon completion of the project.

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For further information see: <http://www.esd.ornl.gov/programs/SERDP/RSim/>