

## **Project Summary**

### **Rocky Mountains Cooperative Ecosystem Studies Unit**

**Project Title: Integrating Modeling and Empirical Approaches to Improve Predictions of Tropical Forest response to climate change**

**Discipline:** Natural  
**Type of Project:** Research  
**Funding Agency:** USGS  
**Other Partners/Cooperators:** Colorado State University  
**Effective Dates:** 7/18/2013 - 7/17/2015  
**Funding Amount:** \$39,528

**Investigators and Agency Representative:**

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**Project Abstract:** The goals of this research are: 1) to enhance predictive capability across different tropical forest types of how tropical forest carbon and nutrient cycles will respond to increased temperatures; 2) improve communication and understanding across disciplines; and 3) inform a large-scale warming experiment in Puerto Rico.

The objectives are: 1) to compare and contrast warming scenarios for different types of tropical forests using the CENTURY, MAESTRA, and SORTIE models. This objective requires assembling model parameterizations for at least two forests per model, run warming scenarios to investigate the range and variability of tropical forest responses at multiple scales, and conduct multi-dimensional sensitivity analysis for each model to variations in subcomponent temperature functions: 2) investigate model linkages. This objective will create connections between several of the proposed models in order to feed valid model output from CENTURY, MAESTRA, and SORTIE up to the global-scale model CLM-4.

**Outcomes with completions dates:** July 17, 2015

**Keywords:** climate change tropical forest, warming models, USGS, Colorado State University