

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Mapping and forecasting Invasive Species and their Impacts on Natural and Social Systems

Discipline: Natural
Type of Project: Research
Funding Agency: USGS
Other Partners/Cooperators: Colorado State University
Effective Dates: 9/1/2014 - 8/31/2019
Funding Amount: \$296,075

Investigators and Agency Representative:

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Project Abstract:

Despite the statistical and ecological challenges associated with SDMs, the techniques continue to be critical tools for scientists and resource managers; especially in the study of invasive species. As a result, predicting the spread of invasive plants, animals and pathogens has developed into one of extraordinary interest to the American public, generating diverse stakeholder support ranging from land management agencies, states, tribes, and conservation organizations (Lodge and Shrader-Frechette 2003). New integrative modeling systems, such as SAHM, will not only help improve the ability to detect and predict new invasions; but also provide wider access to SDMs and other geospatial technologies. Although some uncertainty will always remain with predicting how a new species will respond in a new environment, SDM techniques remains a vital means for developing cost-effective mitigation strategies, planning long-term management goals, and guiding the formulation of environmental policy.

The objectives of this research are:

1. Modeling the distribution of invasive alien zoonotic diseases and pests, such as bark beetle and other insects.

2. Testing models implemented in SAHM for 3-D environments, focusing on lionfish in marine environments and aquarium species in freshwater environments.

3. Testing SAHM with remote sensing predictors to map the current distribution of invasive species.

Outcomes with completions dates: July 31, 2015

Keywords: mapping, invasive species, impacts, natural systems, social systems, USGS, Colorado State University