**Position Description: Post-Doctoral Scientist in Vegetation Climate Vulnerability Assessment**

Montana State University is seeking a Post-Doctoral Scientist for a North Central Climate Sciences Center (NC CSC) project on vulnerability of biological resources under climate and land use change. Our Impacts and Vulnerability Team within the North Central Climate Sciences Center (NC CSC) is developing tools and outputs to help inform resource managers on the potential impacts of climate change on the forests and grasslands across the NC CSC domain. Statistical habitat suitability models will be used to assess the potential impact of climate change on tree species and regression-based model selection techniques will be used to quantify climate and habitat predictors of grassland phenology and to project phenology under future climate scenarios.

**Duties**

Contribute to the coordination and integration of the foundational and solicited science/management teams comprising the NC CSC program;

Develop and apply statistical habitat suitability models to project the potential impact of climate and land use change on tree species;

Quantify the climate and habitat correlates of grassland phenology and projected phenology into the future under alternative climate and land use scenarios;

Develop tools and products for climate adaptation planning decision support in the context of the NC CSC Resource for Vulnerability, Adaptation, and Mitigation Planning framework (http://revampclimate.colostate.edu/revamp).

**Required Qualifications:**

A Ph.D. degree in ecology, remote sensing, statistics, geography, or a closely related field;

Training in spatial analysis, vegetation, physiological ecosystem, landscape, and/or conservation ecology;

Experience in ecological analysis, remote sensing, statistical analysis, and/or geographic information systems;

Demonstrated ability to execute and publish ecological research;

Experience in working on integrated science teams.

**Desired Qualifications**

Knowledge of and ecological research experience in the US Northern Rocky Mountains and High Plains.

**Project Summary**

The goal of the proposed work is to assess the vulnerability of forest and grassland vegetation to climate change and drought in the greater ecosystems centered on public and Native American Lands across the NC CSC domain. Objectives are as follows.

1. Quantify change in the spatial patterns of natural cover types as influence by land use intensification for 2000 to present and projected to 2100.

2. Summarize the responses ecological processes to past (1950-present) and projected (2010-2100) climate change.

3. Develop species habitat distribution models for dominant forest / shrub species and project species habitat suitability under IPCC climate scenarios.

4. Statistically relate grassland phenology to climate, soils, and landform and project potential changes in grassland phenology under IPCC climate scenarios.

5. Synthesize the results from Objectives 1-3 in the form of vulnerability assessments for major greater wildland ecosystems in the NC CSC domain.

The study area includes the forest, shrubland, and grassland cover types across the NC CSC domain. The spatial units for analysis include the Greater Wildland Ecosystems centered on federal and Native American lands and EPA Type III ecoregions. Objective 1 will summarize the responses ecological processes to past (1950-present) and projected (2010-2100) climate change using PRISM data and IPCC CMIP 5 climate projections. These will be inputs to the TOPS ecological model to project snow pack, soil moisture, runoff, and gross primary productivity. Objective 2 will develop species habitat distribution models for dominant forest / shrub species and project species habitat suitability under IPCC climate scenarios. Forest Inventory and Analysis data will be used to develop statistical models using the SAHM software and used to project tree species habitat suitability under future climate scenarios. Objective 3 will use MODIS NDVI data to develop statistical models of grassland phenology based on climate, soils, and landform and project potential changes in grassland phenology under IPCC climate scenarios. Objective 4 will synthesize the results from Objectives 1-3 in the form of vulnerability assessments for major Greater Wildland Ecosystems in the NC CSC domain.

**Application Procedures:**

Email a letter of interest, C.V., and the names and contact information of three references by August 15, 2014 or sooner to:

Andrew Hansen

Ecology Department

Montana State University

Bozeman, MT 59717

hansen@montana.edu

406 994-6046.

http://www.homepage.montana.edu/~hansen/

The position is contingent upon funding and will remain open until a qualified applicant is recruited.