



NATIONAL *fish, wildlife & plants*  
CLIMATE ADAPTATION STRATEGY

Project Title: Modeling Effects of Climate Change on Cheatgrass Die-Off Areas in the Northern Great Basin

Headline Title (2-5 words): Effects of Climate Change on Northwest Cheatgrass

Brief Summary (Abstract): A project to model and predict areas of potential cheatgrass die-offs under future climate change scenarios.

Project Location: Areas of Nevada, Oregon, and Idaho

Partners: Researchers involved represent the U.S. Geological Survey Earth Resources Observation and Science Center and the Bureau of Land Management Idaho and Great Basin Restoration Initiative.

Background: Cheatgrass (*Bromus tectorum*) is a dominant invasive species across large areas of the Great Basin. In recent years, the die-off of cheatgrass has been observed across relatively large areas in the region with an estimated 500,000 acres of affected area reported in the general vicinity of Winnemucca, NV. However, actual extent of the phenomenon could be considerably larger as die-offs are occurring in smaller areas across portions of the Northern Great Basin. As part of the Bureau of Land Management's (BLM) Integrated Cheatgrass Dieoff Project, U.S. Geological Survey (USGS) Earth Resources Observation Systems (EROS) Center scientists in collaboration with Don Major, BLM Landscape Ecologist, have developed a cheatgrass performance model that incorporates seasonally integrated normalized difference vegetation index (NDVI) from the enhanced Moderate Resolution Imaging Spectroradiometer (eMODIS) along with environmental attributes.

Project Goals: Project researchers expanded the cheatgrass performance model to provide baseline data. Based on the die-off areas in the area surrounding Winnemucca and in the Owyhee Uplands, researchers predicted these areas of potential cheatgrass die-offs under future climate projections and made climate-based forecasts of these die-off areas.

Strategy Goals Implemented: Goal 5, Strategy 5.3, Action 5.3.4.: Develop and use models of climate-impacted physical and biological variables and ecological processes at temporal and spatial scales relevant for conservation.

Goal 5, Strategy 5.3, Action 5.3.2: Improve modeling of climate change impacts on vulnerable species, including projected future distributions and the probability of persistence.