

# USGS Fort Collins Science Center Remote Sensing and Invasive Species

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with help from . . .

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Woody Turner, Diane Wickland, Ed Sheffner, Jeff Pedelty, John Schnase (NASA)  
...and many others!

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THE NATIONAL INVASIVE SPECIES COUNCIL (NISC)



Meet the Invasive Species Challenge.

Know the NISC Plan, Manage the Problem.

PREPARE, PREVENT, PROTECT.



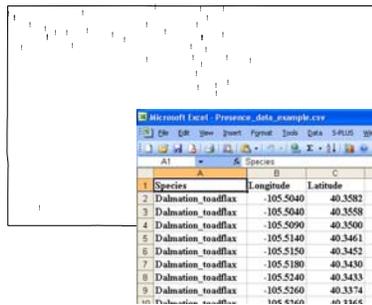
<http://www.jjanthony.com/kudzu/vehicles.html>



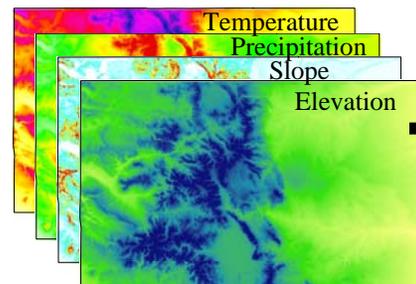
- **Prevention**
- **Early Detection and Rapid Response**
- **Control and Management**
- **Restoration**
- **Organizational Collaboration**

# Our Current Approach: Predicting invasive spread through species distribution modeling

Response  
variable



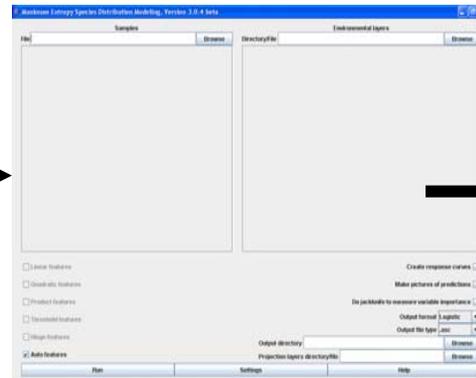
Predictor  
variables



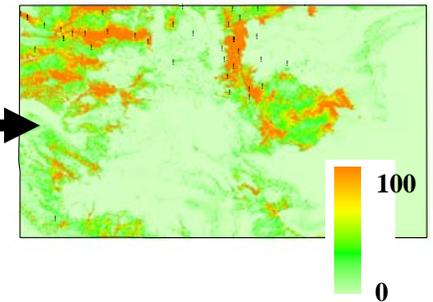
+



Model  
algorithm



Model  
predictions



Insert LDCM data here.

Example: Potential habitat distribution of invasive plant dalmation toadflax (*Linaria dalmatica*) in Colorado, USA



**Potential Future Direction:  
incorporate disturbance in habitat models,  
model vectors and spread, and  
better tracking through time.**

<http://naes.agnt.unr.edu>



[www.mountainhome.af.mi](http://www.mountainhome.af.mi)



<http://hike.mountainzone.com>

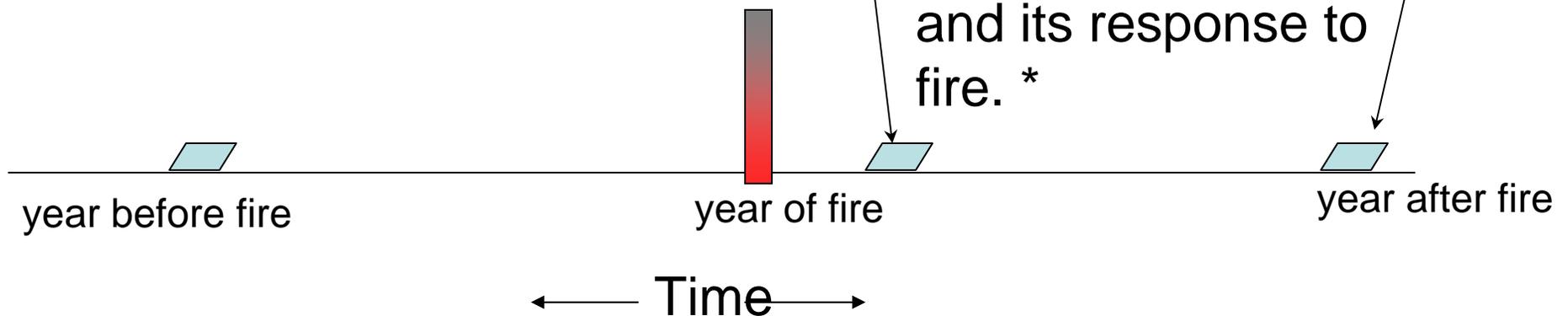
**Cheatgrass (*Bromus tectorum*)**

# delta Normalized Burn Ratio

Scene 2:  
selected for either an  
extended severity  
assessment

**or**  
a perimeter  
assessment  
depending on the  
ecosystem affected  
and its response to  
fire. \*

Scene 1: Selected  
from the “peak  
growing season”  
prior to a fire(s)\*



\* From Monitoring Trends in Burn Severity, <http://mtbs.gov>

see also: Roy, D. P. etc., 2006. *IEEE Geoscience and Remote Sensing Letters*, 3(1): 112-116.

# Fires in Grand Teton National Park

