

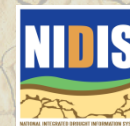
# **The National Drought Mitigation Center: Translating Research into Usable Information**

**Mark Svoboda, Climatologist  
Monitoring Program Area Leader  
And  
Michael Hayes, Director**

**National Drought Mitigation Center  
School of Natural Resources  
University of Nebraska-Lincoln**



**NOAA-CSI/MAPP Webinar Series, November 22, 2013**



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# National Drought Mitigation Center




**Mission: To lessen societal vulnerability to drought by promoting planning and the adoption of appropriate risk management techniques.**



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# About the NDMC



**Dr. Michael Hayes**  
NDMC Director  
**Contact:**  
402.472.4271  
[Email](#)  
[Vitae](#)

➤ **Established in 1995**


➤ **Founder: Dr. Wilhite**

➤ **Current Director: Dr. Mike Hayes**


➤ **Staff: 16 people, tremendous diversity**

➤ **Located at the University of Nebraska-Lincoln**

## NDMC Program Area Leaders



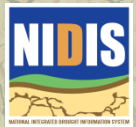
**Dr. Cody L. Knutson**  
Planning and Social Science Program Area Leader  
**Contact:**  
402.472.6118  
[Email](#)  
[Vitae](#)



**Mark Svoboda**  
Climate Based Monitoring Program Area Leader  
**Contact:**  
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[Email](#)  
[Vitae](#)

## NDMC Staff

 <p><b>Dr. Deborah Bathke</b> Climatologist <b>Contact:</b> 402.472.6199 <a href="#">Email</a></p>	 <p><b>Tonya Bernadt</b> Education and Outreach Specialist <b>Contact:</b> 402.472.2712 <a href="#">Email</a></p>	 <p><b>Karin Callahan</b> GIS/Remote Sensing Specialist <b>Contact:</b> 402.472.7556 <a href="#">Email</a></p>
 <p><b>Ann Fiedler</b> Administrative Assistant <b>Contact:</b> 402.472.6707 <a href="#">Email</a></p>	 <p><b>Brian Fuchs</b> Climatologist <b>Contact:</b> 402.472.6775 <a href="#">Email</a></p>	 <p><b>Denise Gutzmer</b> Drought Impact Specialist <b>Contact:</b> 402.472.6726 <a href="#">Email</a></p>
 <p><b>Tonya Haigh</b> Research Specialist <b>Contact:</b> 402.472.6781 <a href="#">Email</a></p>	 <p><b>Jeff Nothwehr</b> GIS and Web Specialist <b>Contact:</b> 402.472.8293 <a href="#">Email</a></p>	 <p><b>Chris Poulsen</b> Geospatial Analyst <b>Contact:</b> 402.472.8828 <a href="#">Email</a></p>
 <p><b>Kelly Helm Smith</b> Communications and Drought Resources Specialist <b>Contact:</b> 402.472.3373 <a href="#">Email</a></p>	 <p><b>Dr. Tsegaye Tadesse</b> Climatologist <b>Contact:</b> 402.472.3383 <a href="#">Email</a> <a href="#">Vitae</a></p>	 <p><b>Nicole Wall</b> Outreach and Research Specialist (Public Participation focus) <b>Contact:</b> 402.472.6776 <a href="#">Email</a></p>
 <p><b>Deborah Wood</b> Publication Specialist <b>Contact:</b> 402.472.6705</p>		



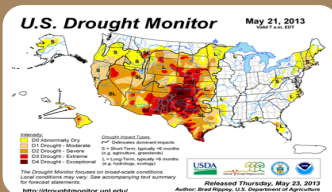
# National Drought Mitigation Center

- ▶ ***Bridge and translate science*** to policy/decision makers and the public
- ▶ Developing ***usable*** information and services
- ▶ Users drive and guide our research and activities from the ***beginning...***





# NDMC Program Objectives



*Improve the science of drought monitoring, planning, and mitigation*



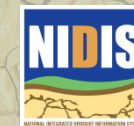
*Build awareness of drought & its impacts on society and the environment, and how human actions affect our vulnerability to drought*



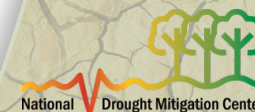
*Focus the attention of policy makers on the importance of drought policy and planning in the wise stewardship of natural resources*



*Conduct and maintain operational tools, research, outreach and training*



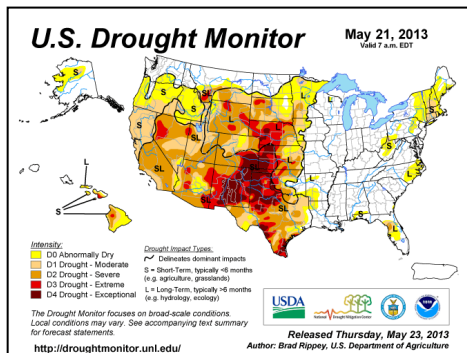
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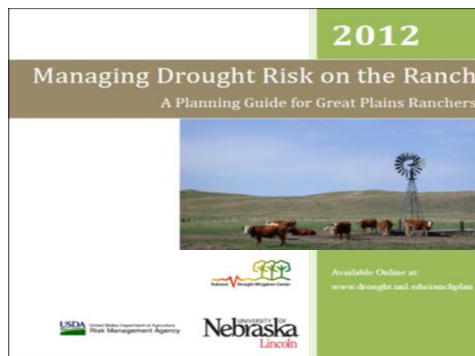
# Program Areas

## National Drought Mitigation Center

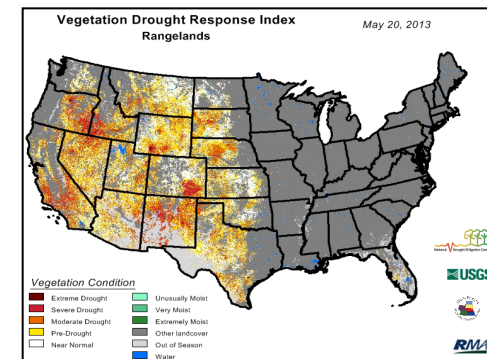
### Monitoring



### Planning and Social Science



### GIS Science



Research

Applications

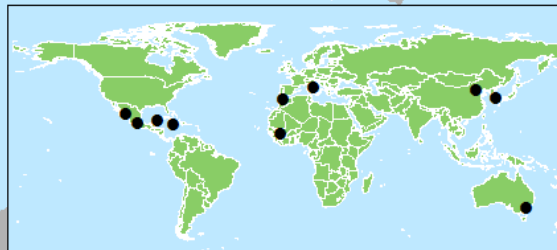
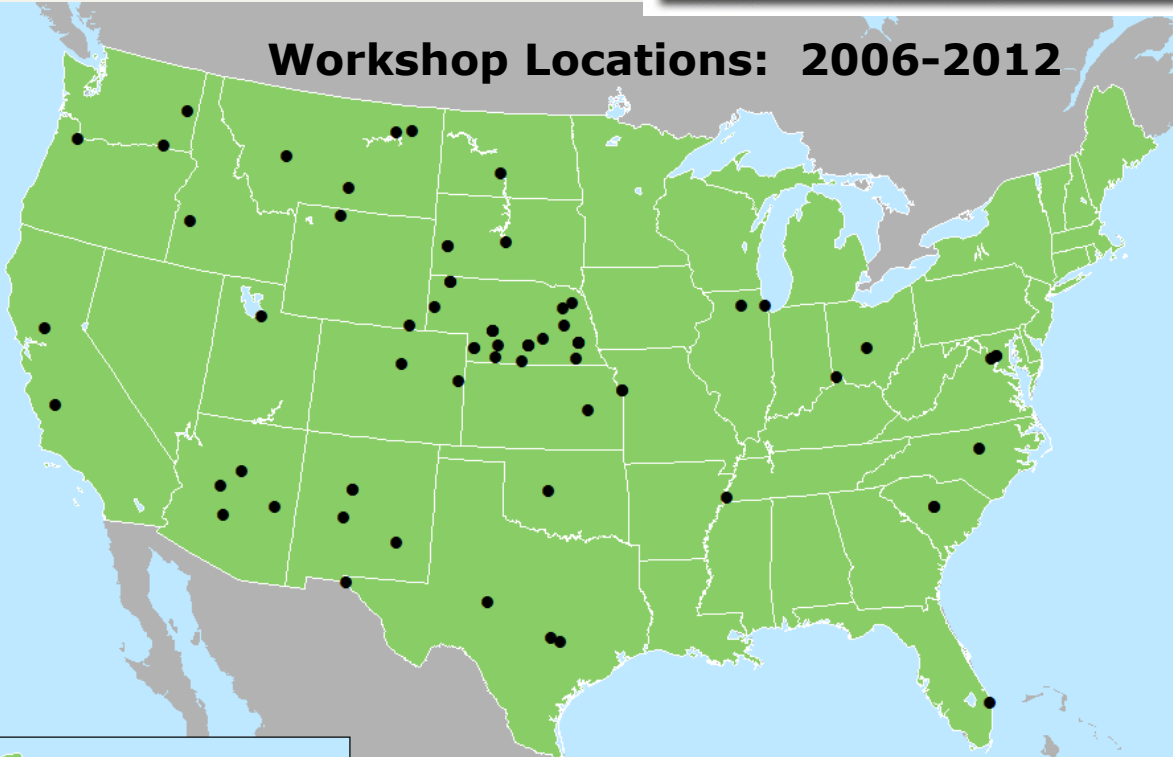
Operations

Education

# Education, Feedback and Outreach



## Workshop Locations: 2006-2012



## Managing Drought Risk on the Ranch Professional Development Webinar Series

10 am Central Time

January - May, 2013

Last Wednesday  
of each month

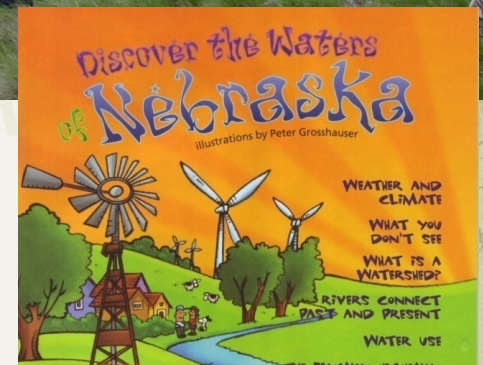
Each session will include a briefing on current drought status, followed by a session on a specific topic or tool related to drought planning.

**January 30:** Managing Drought Risk on the Ranch: The Planning Process

Jerry Volesky, Range and Forage Specialist at the West Central Research and Extension Center, and Lynn Myers, Tippetts-Myers Ranch

**February 27:** Avoiding Analysis Paralysis: Monitoring and Setting Critical Dates for Decision Making During Drought

Dwayne Rice, Rangeland Management Specialist, USDA-NRCS



**EDEN**  
EXTENSION DISASTER EDUCATION NETWORK

Reducing the Impact of Disasters Through Education

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**Drought**

**Key & Emerging Issues**

- Individuals & Families
- Crop and Livestock
- Community

**Quick Find Key Current and Future Issue Resources**

**National VOMD Drought and Wildfire Taskforce**

**eXtension**

The Drought articles and FAQs on extension can be reached through the:

- extension Drought pages

Articles are grouped under the following headings:

- Livestock and Pasture
- Crops
- Home and Landscape

**extension**  
more mind reach

Agroecological Disasters  
Families & Communities  
Hazards & Threats  
Human Health



# Activities

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### Drought

Key & Emerging Issues

Individuals & Families

Crop and Livestock

Community

Quick Find Key Current and Future Issue Resources

National VOAD Drought and Wildfire Taskforce

Archived Webinars

Resource Collection

eXtension

Point of Contact

Pat Skinner

Contact info

### eXtension

The Drought articles and FAQs on eXtension can be reached through the

- eXtension Drought pages

Articles are grouped under the following headings:

Livestock and Pasture

Crops

Home and Landscape

Links to the latest [eXtension.org](http://eXtension.org) articles and FAQs related to drought are provided below.

Last Updated: 7/17/2012 9:03 PM

### More Info on Drought from eXtension

- Drought Resources Content  
Last Updated: 1/18/2013 1:17 PM
- Hundreds of U.S. counties labeled disaster areas due to drought  
Last Updated: 1/10/2013 11:43 AM
- Drought Monitor officials: Historic 'Flash Drought' of 2012 to Continue into 2013  
Last Updated: 1/3/2013 9:41 AM



Agricultural Disasters



Families & Communities



Hazards & Threats



Human Health



Disaster Watch

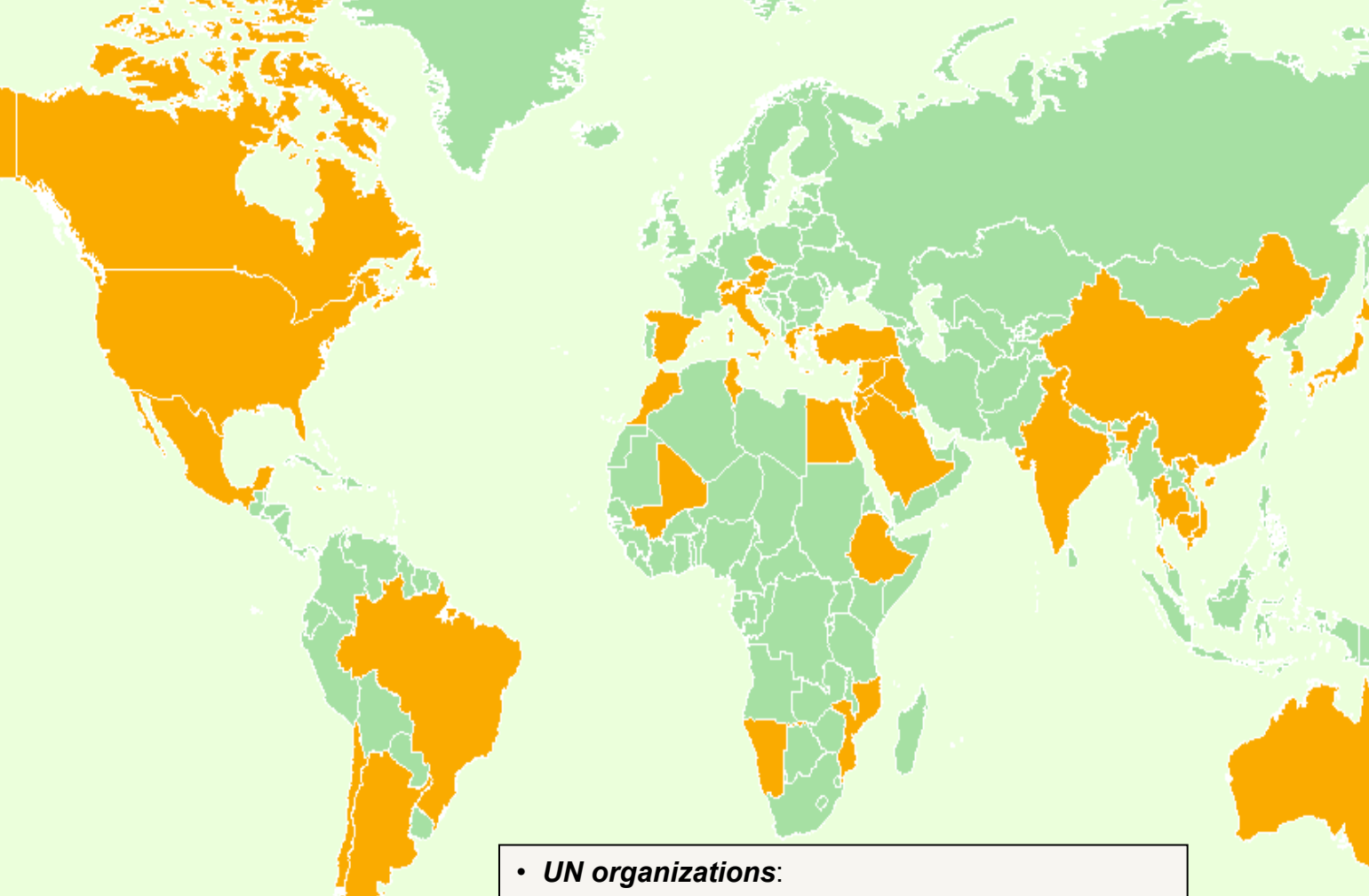


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# NDMC International Activities



• **UN organizations:**  
    \* **FAO, ISDR, UNDP and CCD**

• **World Meteorological Organization (WMO)**

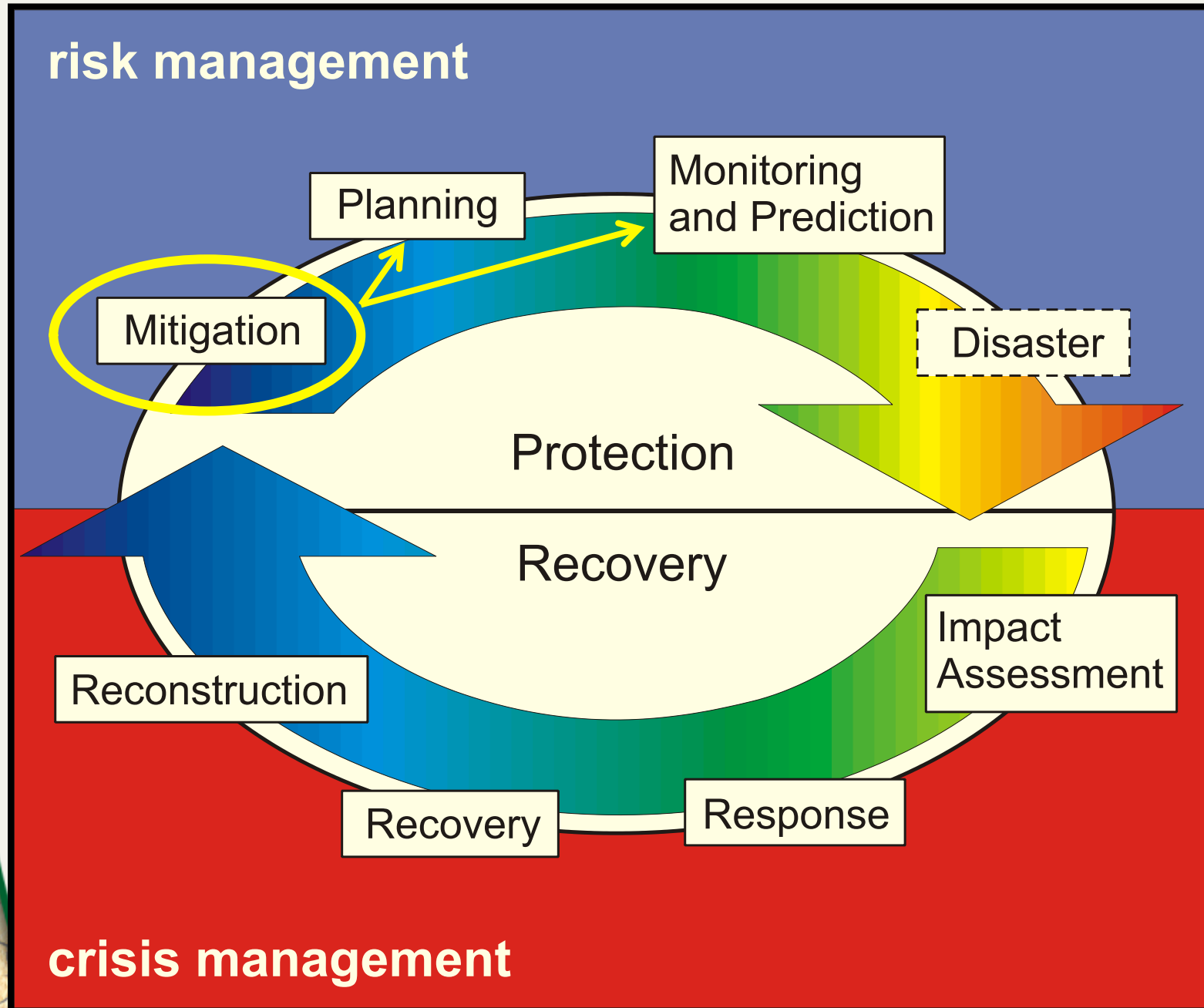
• **USAID, World Bank**

• **Various regional and national drought centers**

• **Numerous government agencies and universities in different countries**

- **UN organizations:**
  - \* **FAO, ISDR, UNDP and CCD**
- **World Meteorological Organization (WMO)**
- **USAID, World Bank**
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# The Cycle of Disaster Management



# Getting past the hydro-illogical cycle

Hydroillogical Cycle  
(Passive)



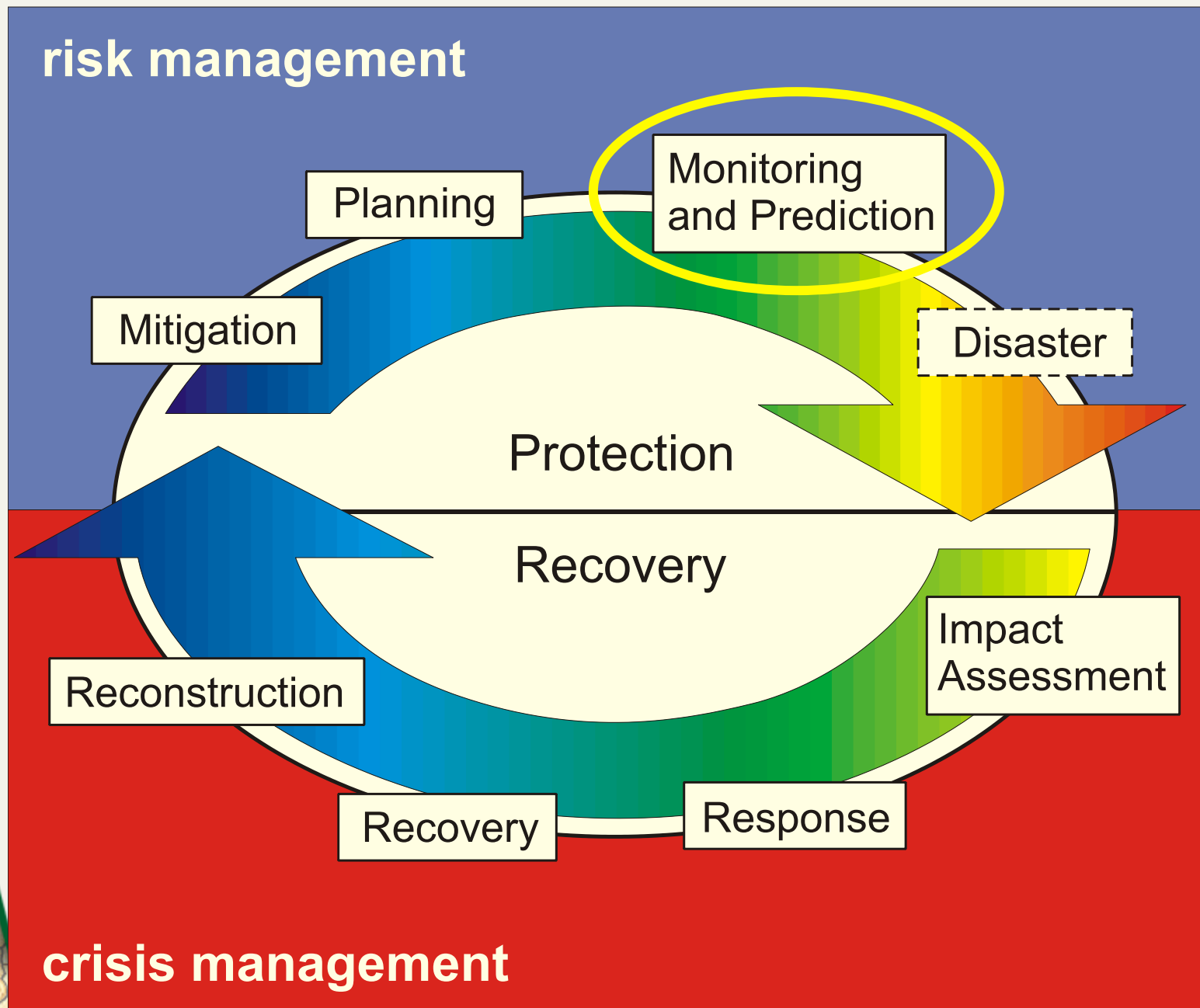
State of mind: Anxiety tied to climate

Drought-Ready Cycle  
(Active, Engaged)



State of mind: Secure, alert, prepared

# The Cycle of Disaster Management



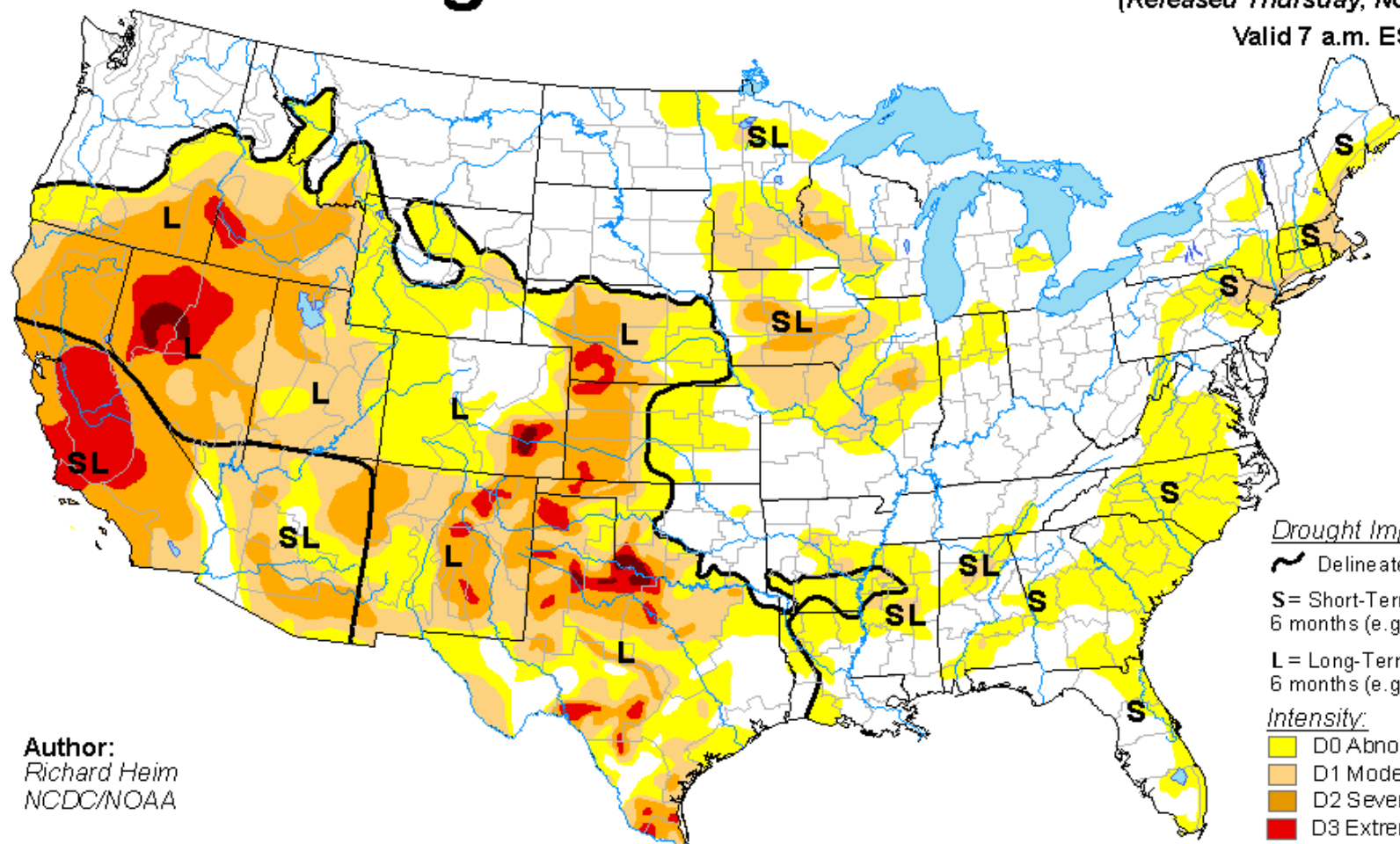


# U.S. Drought Monitor

November 19, 2013

(Released Thursday, Nov. 21, 2013)

Valid 7 a.m. EST



Author:  
Richard Heim  
NCDC/NOAA

## Drought Impact Types:

~ Delineates dominant impacts

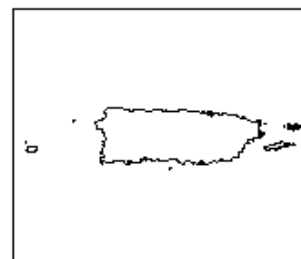
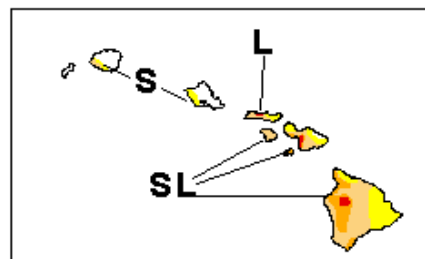
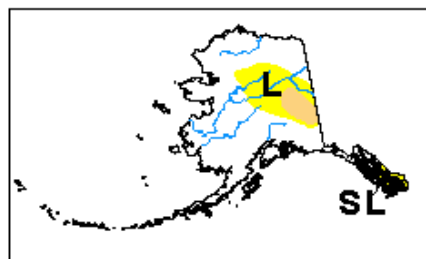
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

## Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

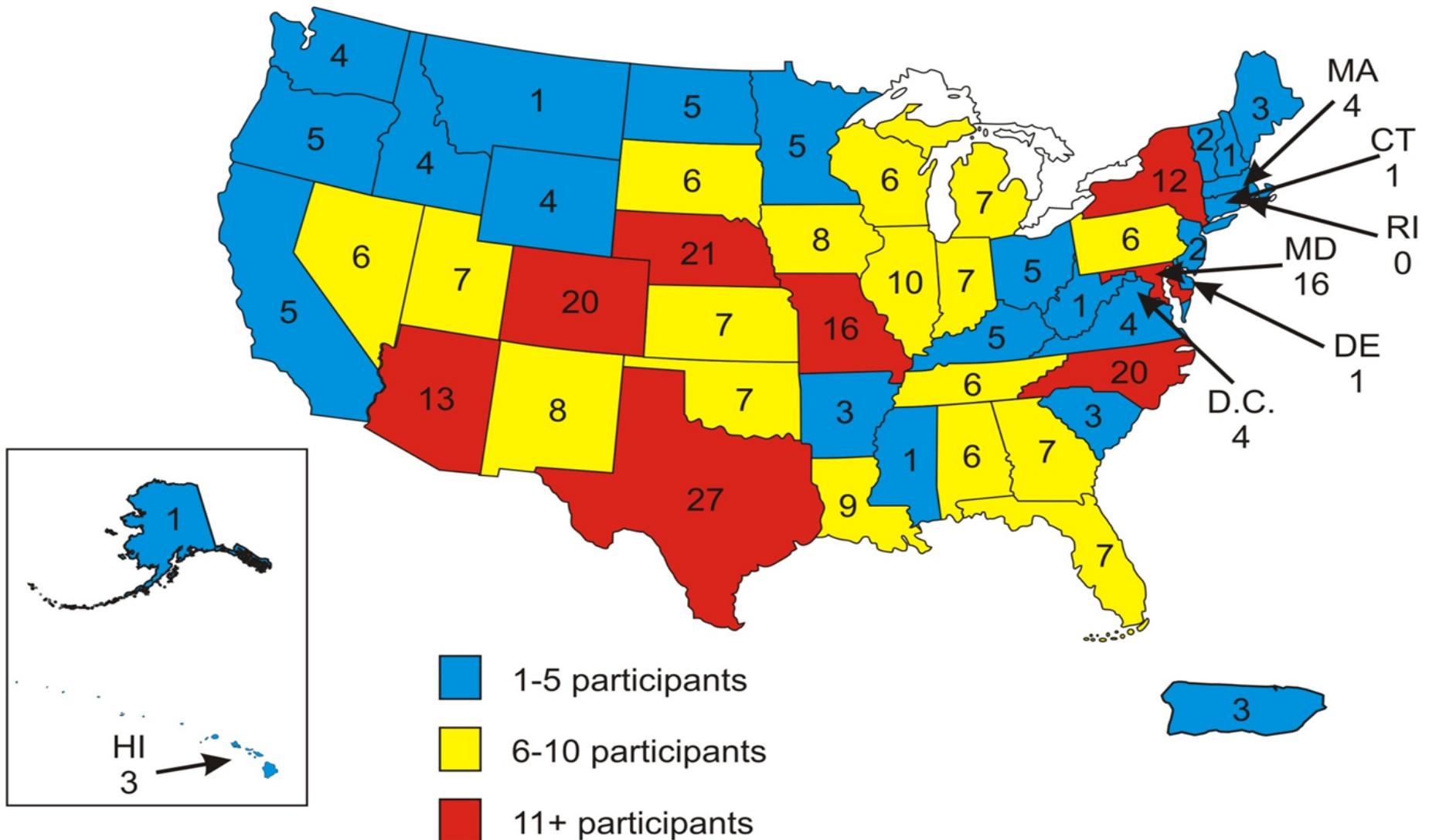
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



<http://droughtmonitor.unl.edu/>

# USDM Listserve Subscribers

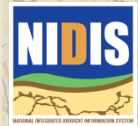
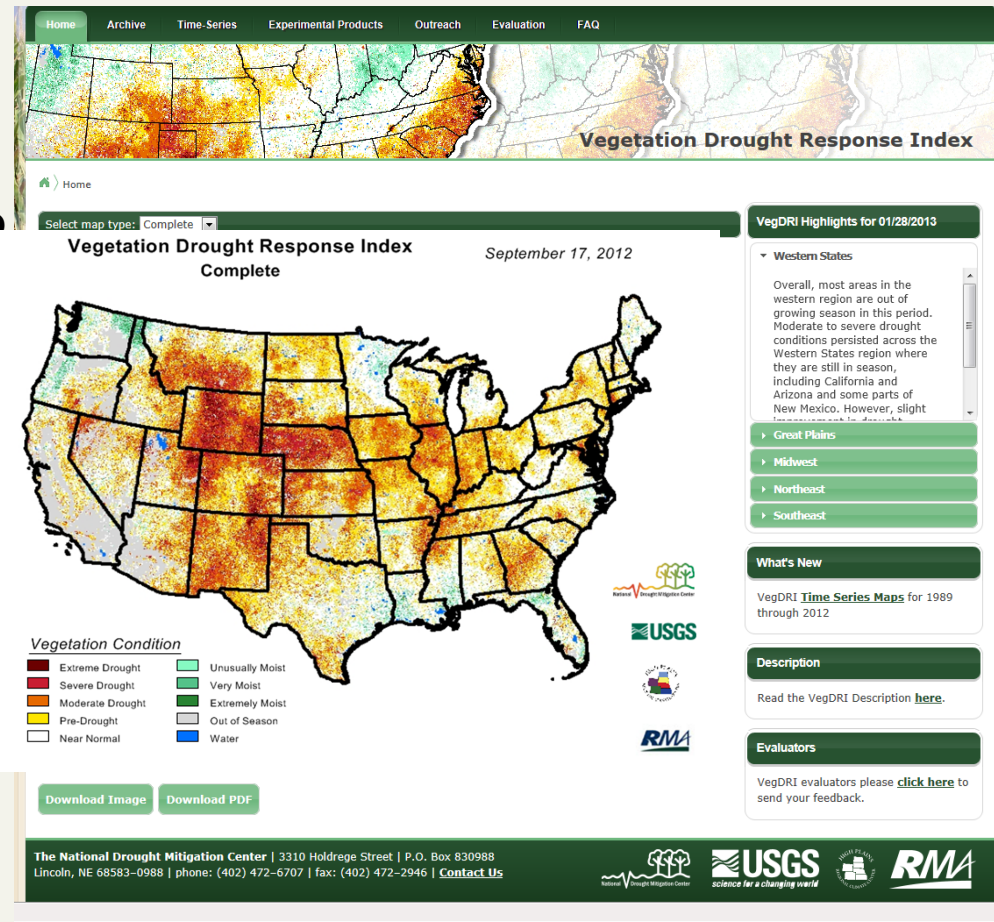
(as of November 1, 2013)



# Vegetation Drought Response Index (VegDRI):

- **Partnership** w/ USGS + HPRCC
- **20+ year archive** back to 1989
- **Augment** *in situ* obs
- **Hybrid** indicator combines satellite, biophysical and climate indicators together to detect **vegetation stress**
- **Weekly (MODIS) & bi-weekly (AVHRR)** production over contiguous U.S.
- **Value-added** products:
  - National, state and sub-state maps
  - Change maps
  - Area statistics
  - Descriptive narrative
  - Animations

 [vegdiri.unl.edu](http://vegdiri.unl.edu)



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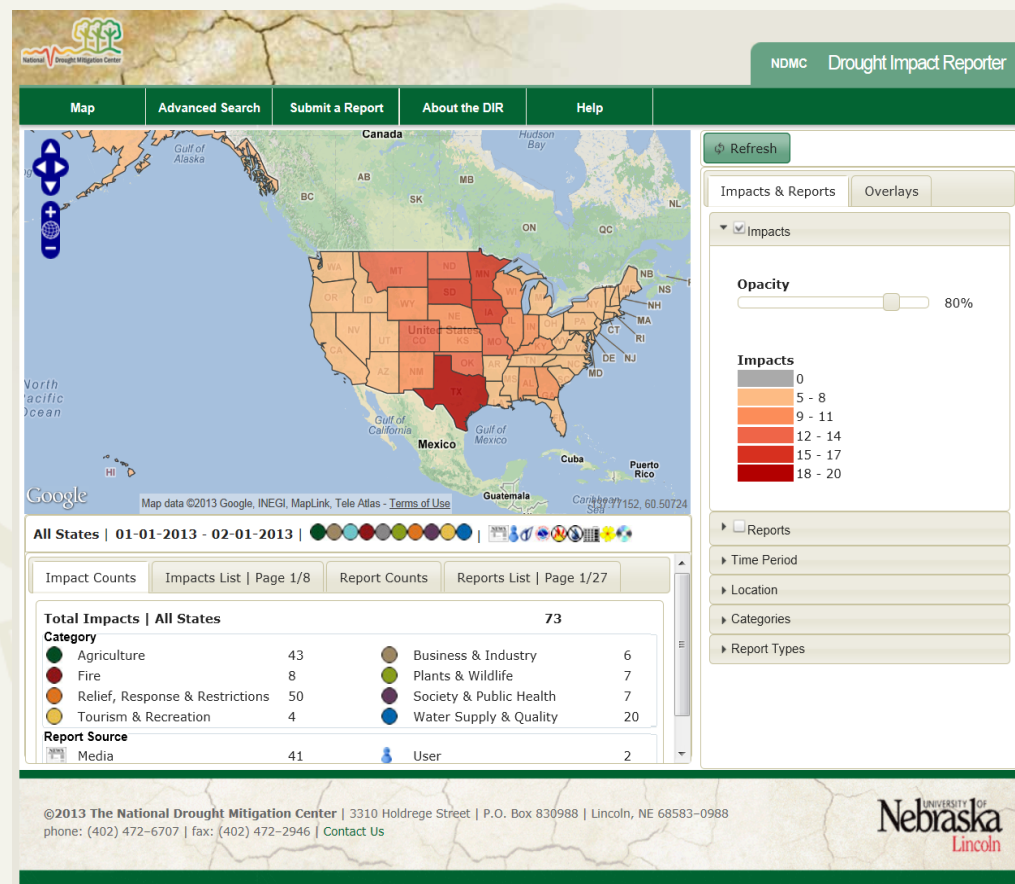




# Drought Impact Reporter (DIR):

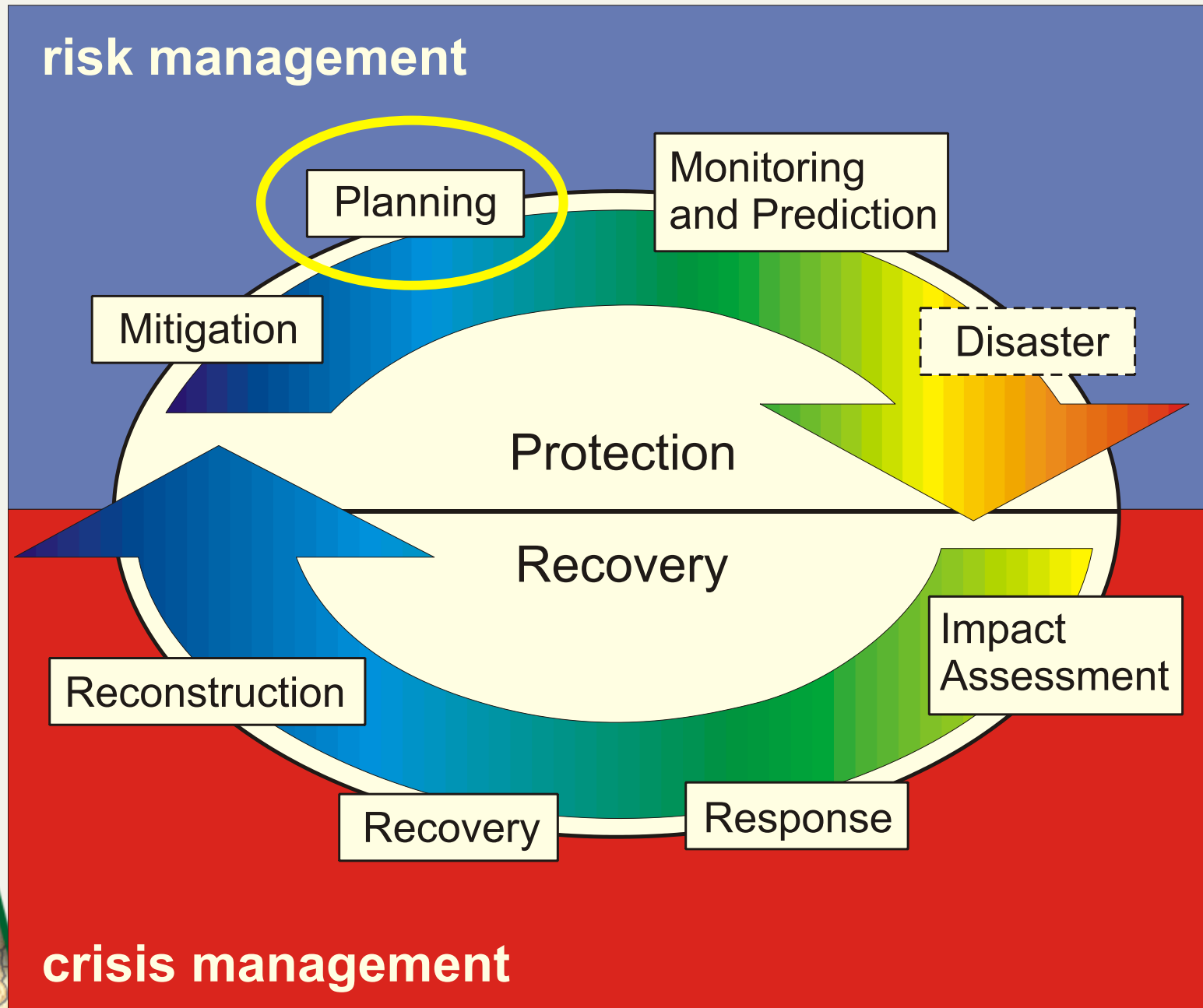
- On-line since **2005**
- **17,045** media reports and **16,000+** impacts in our database to date and growing
- Establishing a **"baseline"** of impacts due to droughts over time
  - "Face of drought"
  - Risk/vulnerability
  - Climate change
- **Ground truth** indices/RS
- Quantitative **AND** qualitative
- **Open to the public!**

 [droughtreporter.unl.edu](http://droughtreporter.unl.edu)





# The Cycle of Disaster Management

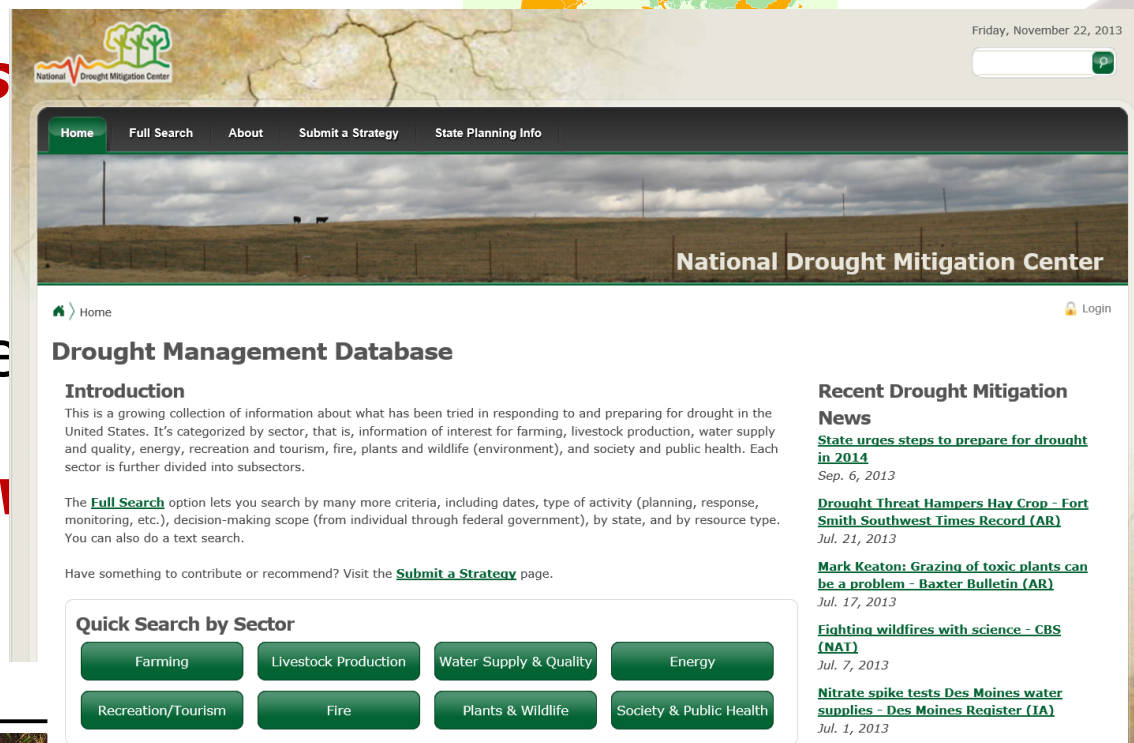
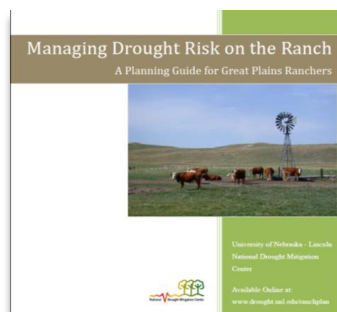
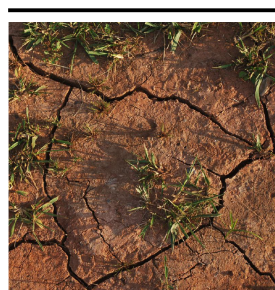


# Planning Tools

- Planning at all scales
- All drought planning tools
- Planning at all scales
- Planning at all scales
- Planning at all scales



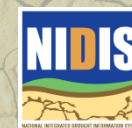
## Drought-Ready Communities



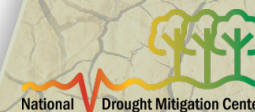
State

Community

Individual



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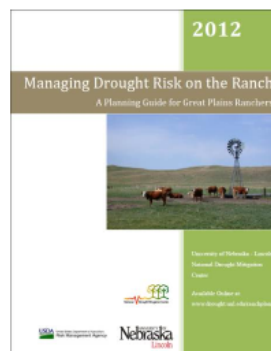
Overview Register Login

## Managing Drought Risk on the Ranch

Drought is a normal part of climate...it will happen again. Fortunately, there are things you can do before, during, and after drought to reduce your risk. Ranchers are increasingly implementing new ways to better prepare for and respond to drought.

The information, strategies and resources on this site are designed to provide livestock producers in the **Great Plains region** with information on how to incorporate management strategies to reduce the threat drought poses to livestock and forage operations.

[Download "Managing Drought Risk on the Ranch" Handbook](#)



If you are unable to download this document, you would like to receive a paper copy by mail, please contact the NDMC at [ranchplan@unl.edu](mailto:ranchplan@unl.edu) or 472-6781.

[How to use this site](#)

**Drought Conditions**

[U.S. Drought Monitor](#)

### Workshops and Webinars



10 am Central Time

January - May, 2013

Last Wednesday  
of each month

Each session will include a briefing on current drought status, followed by a session on a specific topic or tool related to drought planning.

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Jerry Volesky, Range and Forage Specialist at the West Central Research and Extension Center, and Lynn Myers, Tippetts-Myers Ranch

**February 27:** Avoiding Analysis Paralysis: Monitoring and Setting Critical Dates for Decision Making During Drought

Dwayne Rice, Rangeland Management

- **NDMC**
- **USDA-RMA**
- **USDA-SARE**
- **Cooperative Extension**
- **NIDIS**

2012

## Managing Drought Risk on the Ranch

A Planning Guide for Great Plains Ranchers



University of Nebraska - Lincoln  
National Drought Mitigation  
Center

Available Online at:  
[www.drought.unl.edu/ranchplan](http://www.drought.unl.edu/ranchplan)



USDA United States Department of Agriculture  
Risk Management Agency

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# Drought Risk Atlas (DRA):

- Set to launch in **Fall 2013**
- **~3000** stations archived
  - 139 clusters/regions developed and analyzed
  - SPI, SPEI, PDSI, sc-PDSI and Deciles through 2010
  - Weekly gridded maps for all parameters back to early 1900s
- Created to answer questions about the **characteristics of drought:**
  - Frequency/return periods
  - Duration
  - Trends
  - Intensity
  - Spatial extent

 **Coming Soon!**



Friday, February 01, 2013

**Drought Risk Atlas**

Home | Climate | Data | Methodology | About | Help

Current Location » Home

### Welcome to the Drought Risk Atlas

#### Introduction

The idea of updating and expanding a national drought atlas was developed from the original Drought Atlas that was done in conjunction with United States Army Corps of Engineers by Hoskings, Wallis and Guttman in the early 1990s. The original Drought Atlas consisted of those stations in the Historical Climate Network (HCN), numbering approximately 1,000 stations. The period of record at the time was limited, as many stations only had records from the 1940s to present, and these data points were put into their respective climate divisions. A monthly time step was used to calculate the Palmer Drought Severity Index (PDSI). With the new Drought Atlas, bringing precise data down to spatial scales that would allow decision makers to use this tool to better understand drought in their respective region and to make a better decision.

For the new National Drought Atlas, the idea was to expand the data both in the number of stations analyzed and the period of record to include the most complete long-term stations, some of which are not part of the HCN. Using a weekly time-step to calculate multiple drought indices at each station location, not on a climate division scale, allows for a more precise representation of drought histories. The Standardized Precipitation Index (SPI), Palmer Drought Severity Index (PDSI), Deciles, the United States Drought Monitor and other Climatological data are included in the new drought atlas. Along with the Climatological data, gridded maps created on a weekly time-step are available for the entire United States.

**The National Drought Mitigation Center** | 3310 Holdrege Street | P.O. Box 830988 | Lincoln, NE 68583-0988  
phone: (402) 472-6707 | fax: (402) 472-2946 | Contact Us

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**NIDIS**  
NATIONAL INTEGRATED DROUGHT INFORMATION SYSTEM

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National Drought Mitigation Center



# Final Thoughts

- ▶ ***Boundary organizations*** play a critical engagement and dissemination role in collaboration with many of you on this webinar...especially NIDIS
- ▶ Developing ***usable*** information and services is critical (trust factor too)
- ▶ ***Tools help bridge*** the gap between monitoring/early warning, prediction and preparedness (decision support)
- ▶ Goal is to ***link scientific knowledge w/ the actions*** needed to reduce impacts and future risk



# Contact Information:

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**[msvoboda2@unl.edu](mailto:msvoboda2@unl.edu)**  
**402-472-8238**

**National Drought Mitigation Center**  
**School of Natural Resources**  
**University of Nebraska-Lincoln**

