

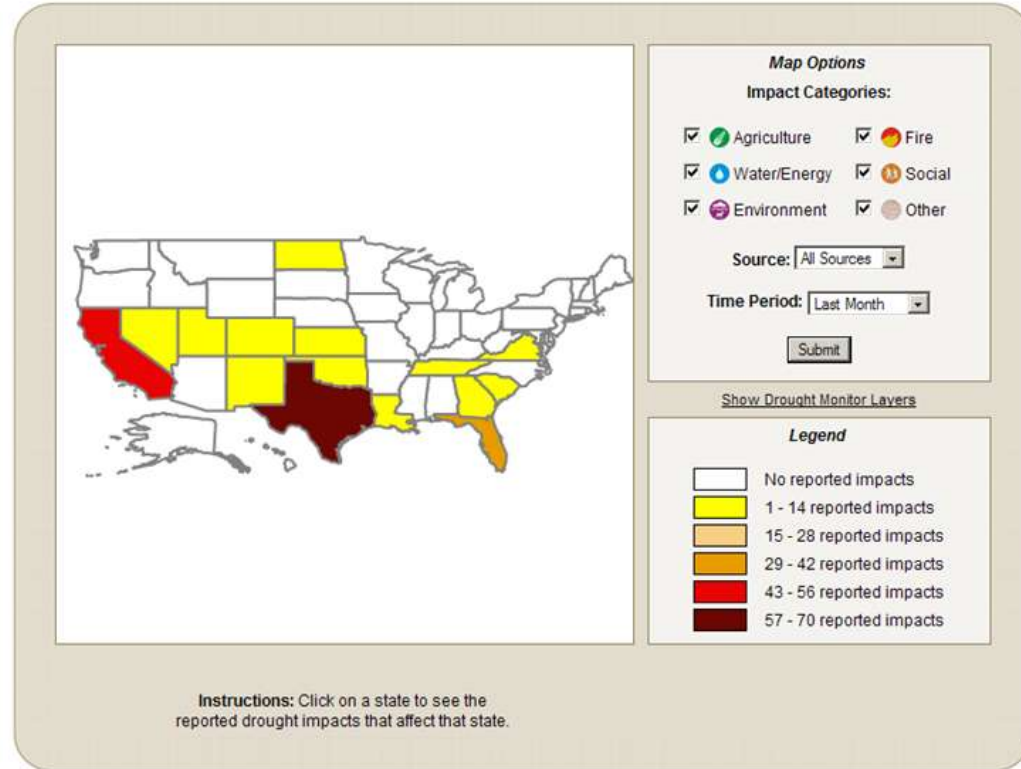
**Drought Impact Collection:
Activities at the
National Drought Mitigation Center and
potential transferability to North America?**

**Mark Svoboda, Climatologist
Monitoring Program Area Leader**

**National Drought Mitigation Center
University of Nebraska-Lincoln**

The Drought Impact Reporter v2

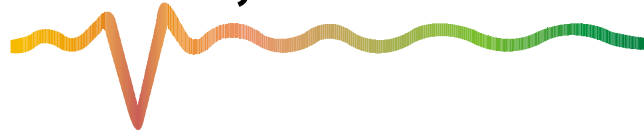
<http://droughtreporter.unl.edu>



Sponsor: USDA-Risk Management Agency and National Oceanic and Atmospheric Administration's Transition of Research Applications to Climate Services Program (TRACS)

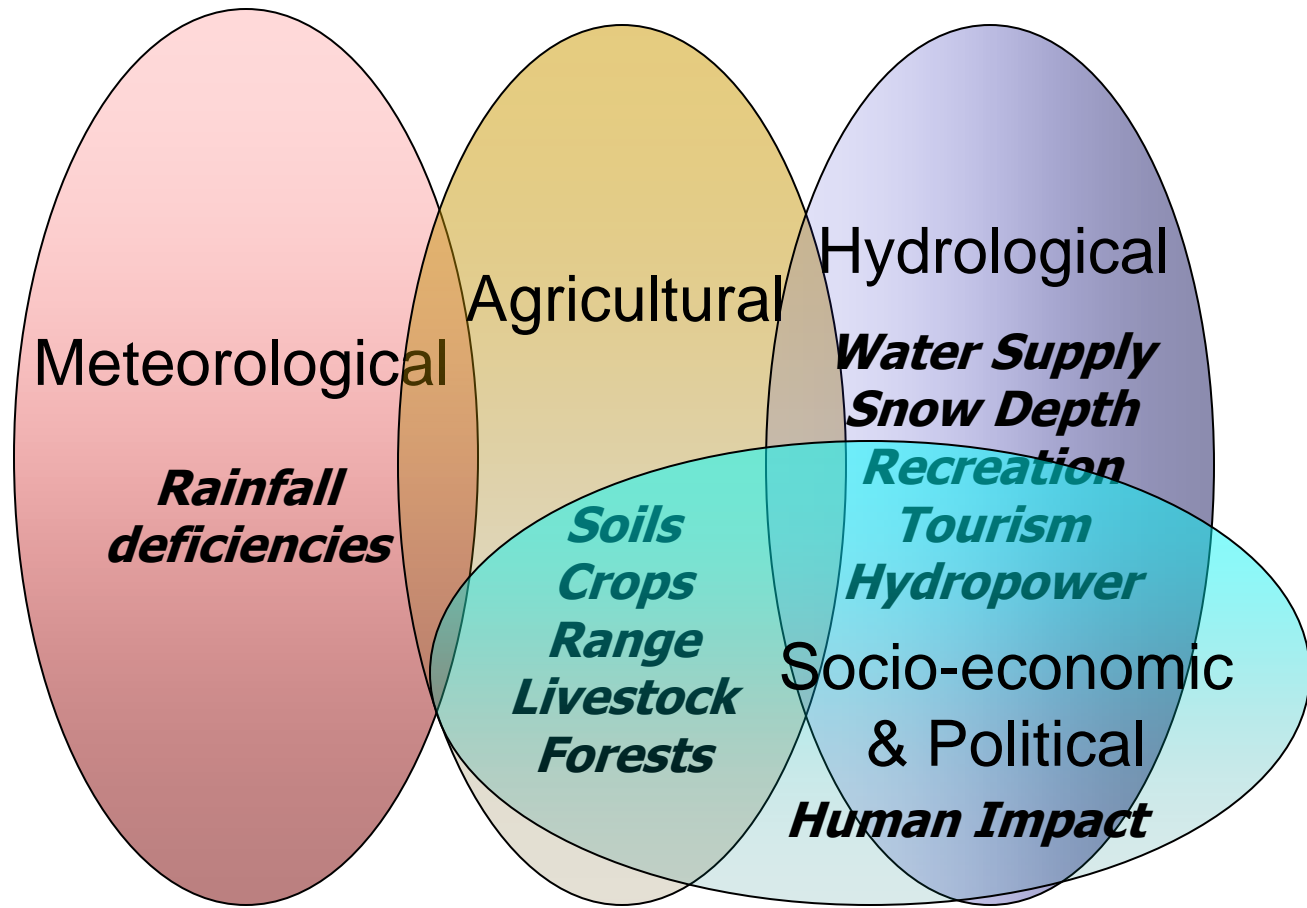
Billion Dollar Disasters

NCDC, 1980-2008



<u>Disaster</u>	<u>Events</u>	<u>Damage\$</u>
Hurricanes	27	367
Tornadoes	16	34
Droughts	14	180
Floods	13	70
Fires	9	21
Winter-related	11	39
Total	90	711

What we've learned: Defining Impacts



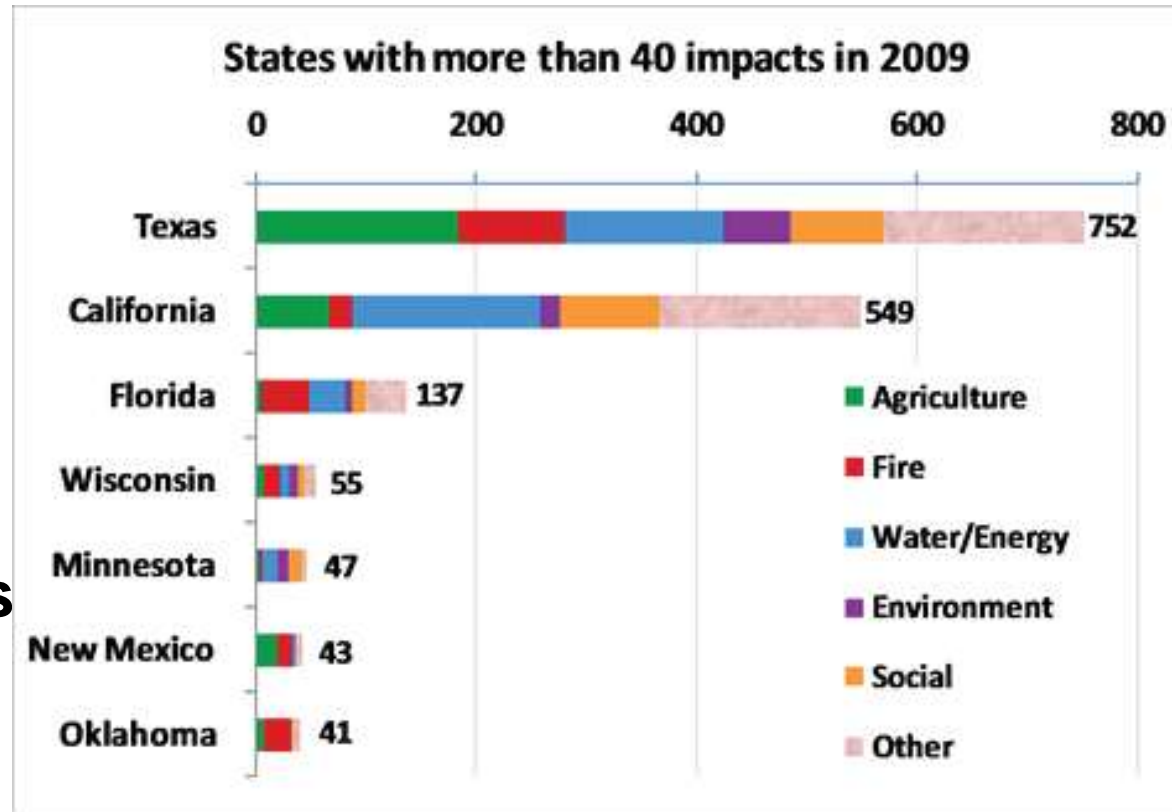
Why Track Drought Impacts?

- Establish an impacts **baseline** for monitoring
 - Climate change
- To know where to direct **relief**
- To reduce **vulnerability** in advance of the next drought
- **“Ground truth”** indices
- No single method exists for collecting and/or **quantifying** drought losses
- Very little in the way of **environmental** or **qualitative** collection

Some DIR Factoids



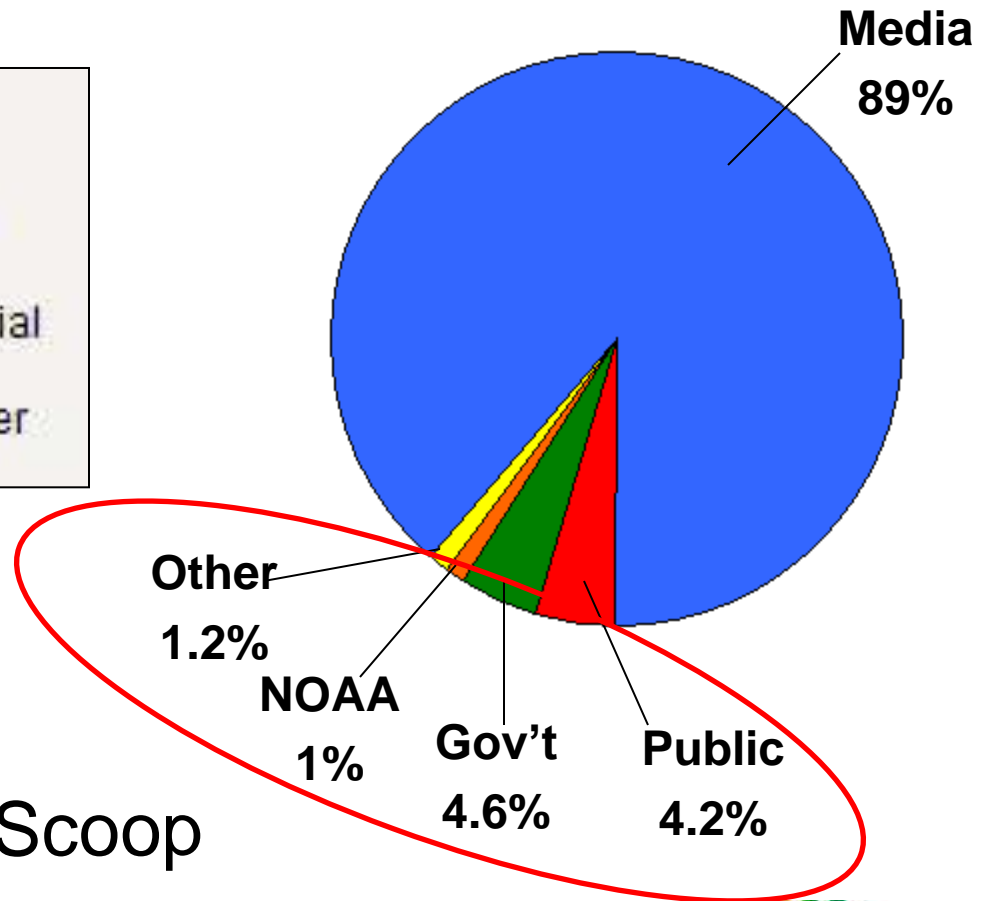
- Established in 2005
- DIR DB now contains ~12,000 impacts
- 1,891 impacts added in 2009



What's in the Current DIR?

Impact Categories:

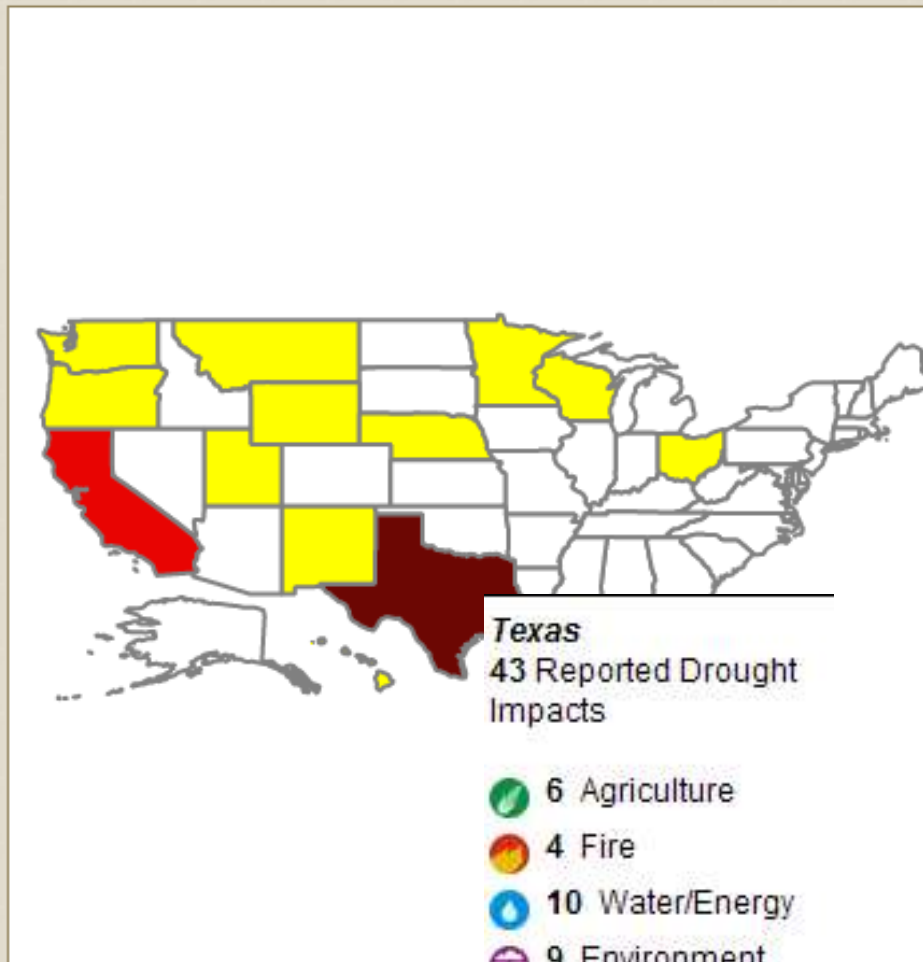
<input checked="" type="checkbox"/>  Agriculture	<input checked="" type="checkbox"/>  Fire
<input checked="" type="checkbox"/>  Water/Energy	<input checked="" type="checkbox"/>  Social
<input checked="" type="checkbox"/>  Environment	<input checked="" type="checkbox"/>  Other



Utilizing CustomScoop

Drought Impact Reporter, October 5, 2009







[View Drought Impacts](#) | [Add A Drought Impact](#) | [Time-Lapse Animation](#) | [About](#) | [Help](#) | [User Login](#)



Instructions: Click or reported drought impact

Map Options

Impact Categories:







- | | |
|--|--|
| <input checked="" type="checkbox"/>  Agriculture | <input checked="" type="checkbox"/>  Fire |
| <input checked="" type="checkbox"/>  Water/Energy | <input checked="" type="checkbox"/>  Social |
| <input checked="" type="checkbox"/>  Environment | <input checked="" type="checkbox"/>  Other |

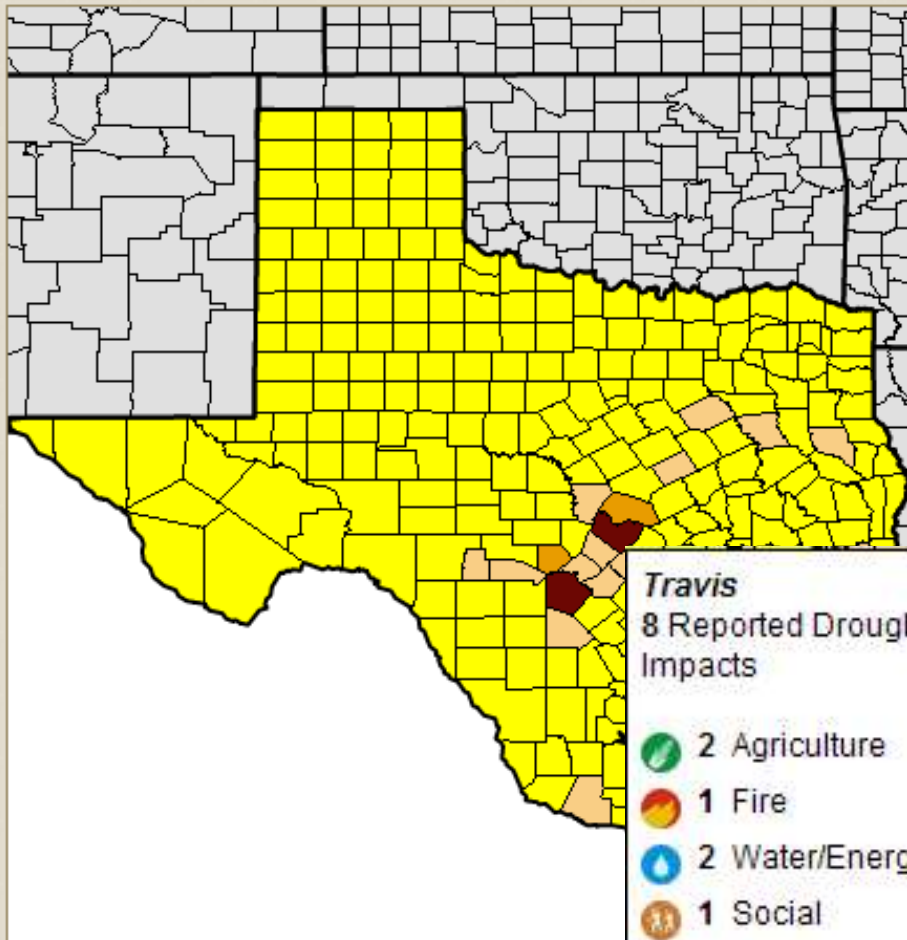
Source:

Time Period:

[Show Drought Monitor Layers](#)

Legend

- | | |
|---|--------------------------|
|  | No reported impacts |
|  | 1 - 9 reported impacts |
|  | 10 - 17 reported impacts |
|  | 18 - 26 reported impacts |
|  | 27 - 34 reported impacts |
|  | 35 - 43 reported impacts |



Map Options

Impact Categories:

<input checked="" type="checkbox"/> Agriculture	<input checked="" type="checkbox"/> Fire
<input checked="" type="checkbox"/> Water/Energy	<input checked="" type="checkbox"/> Social
<input checked="" type="checkbox"/> Environment	<input checked="" type="checkbox"/> Other

Source: ▾

Time Period: ▾

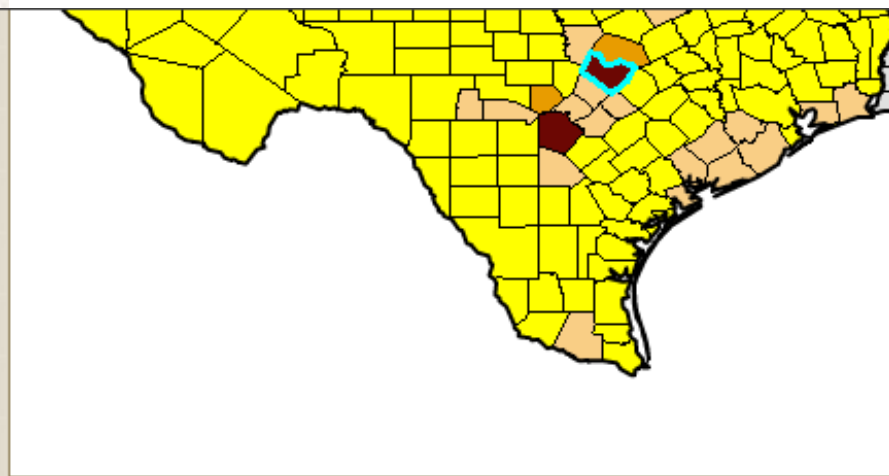
[Show Drought Monitor Layers](#)

Legend

	No reported impacts
	1 - 2 reported impacts
	3 - 4 reported impacts
	5 reported impacts
	6 - 7 reported impacts
	8 - 9 reported impacts

[Zoom To Entire U.S.](#)

Instructions: Click on a county to list the reported drought impacts that affect it.



Submit

Show Drought Monitor Layers

Legend

- No reported impacts
- 1 - 2 reported impacts
- 3 - 4 reported impacts
- 5 reported impacts
- 6 - 7 reported impacts
- 8 - 9 reported impacts

[Zoom To Entire U.S.](#)

Sources: All Sources, Categories: All Categories
 Date Range: September 5, 2009 to October 5, 2009

5 reported drought impacts for Travis County, Texas:

1. [Farmers and ranchers in](#) Texas who have lost livestock grazing... (click to read more)

Categories: Agriculture Other

Source: Media

Dates of Impact: 2009-01-01 to 2009-09-15

External URL: <http://www.beaumontenterprise.com/news/local/texa...>

2. [A ban on outdoor](#) burning is in effect for 30... (click to read more)

Categories: Fire Other

Source: Media

Dates of Impact: 2009-01-13 to 2009-09-15

External URL: <http://www.oakhillgazette.com/link.asp?twindow=De...>

3. [The low water level](#) of Lake Travis is exposing more... (click to read more)

Categories: Social Water/Energy

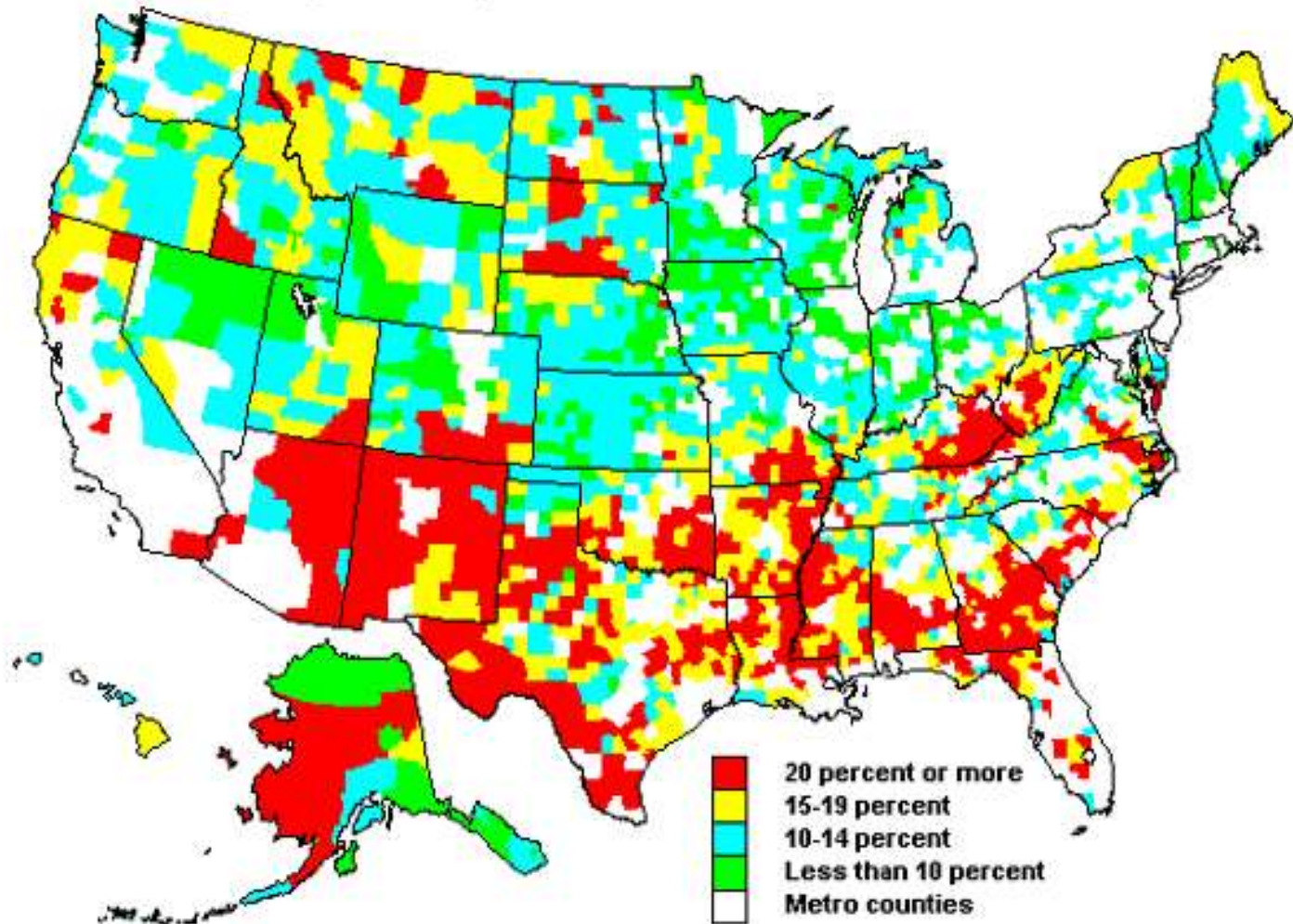
Source: Media

Dates of Impact: 2009-09-10 to 2009-09-10

Vulnerability: Not all impacts are created equal

Rural Poverty Rates, 1997

Nonmetro counties with high shares of poor residents are concentrated in the South and Southwest



Source: U.S. Census Bureau, Small Area Income and Poverty Estimates, 1997.

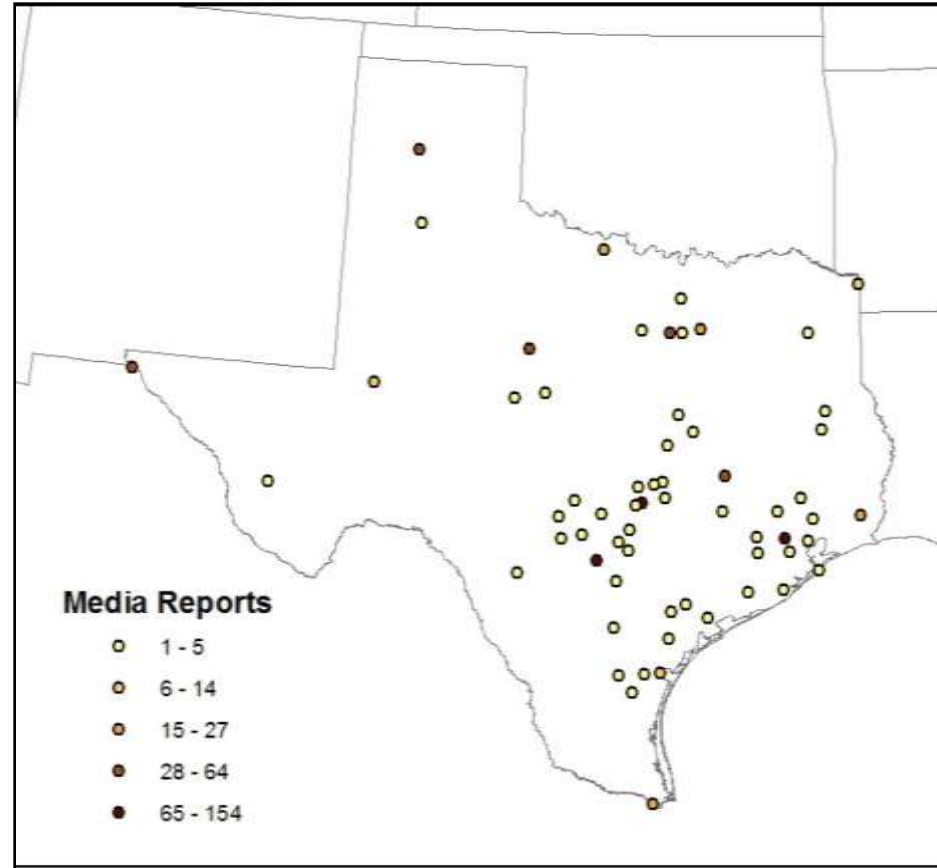
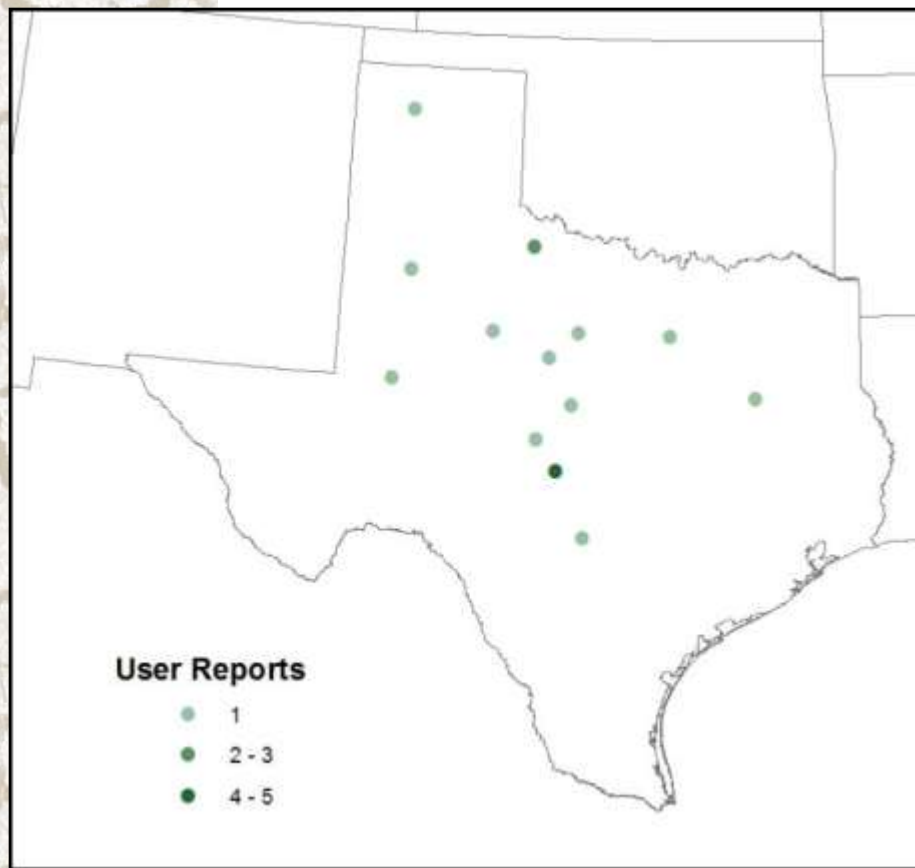
What we've learned: Impacts vs. Reports

Report: Often an observation of dryness or drought *before* an impact occurs

→ indicator of awareness, vulnerability

Impact: More tangible, even quantifiable, happens at a specific place and time

Lessons learned: User Reports






What We've Learned: Refine Categories

Current

Map Options











Impact Categories:

<input checked="" type="checkbox"/>  Agriculture	<input checked="" type="checkbox"/>  Fire
<input checked="" type="checkbox"/>  Water/Energy	<input checked="" type="checkbox"/>  Social
<input checked="" type="checkbox"/>  Environment	<input checked="" type="checkbox"/>  Other

Source:

Time Period:

Planned

- [+] Media Reports
-  Society & Public Health
-  Agriculture
-  Disaster Declarations & Aid
-  Energy
-  Water Supply & Quality
-  Wildfire
-  Plants & Wildlife
-  Other Business & Industry
-  Tourism & Recreation
-  General Awareness

Lessons learned: Need “government layers”

Disaster Declarations and Relief

USDA Secretarial Disaster Declaration S2424

The U.S. Department of Agriculture designated 17 Wyoming counties primary natural disaster areas, making all farm operators in the designated areas eligible for low-interest emergency (EM) loans from the USDA's Farm Service Agency (FSA). 26 secondary counties are eligible because they are contiguous.

Start Date: Dec. 31, 2005
End Date:
Termination Date: June 24, 2007
Approval Date: Oct. 11, 2006
Description: Drought, excessive heat, high winds, wildfires

[View county list](#)
[View full press release](#)
[Contact Information](#)

Legend

Visible

- Secretarial Disaster Declarations
- SSD S2424
 - Primary County
 - Secondary County
- SSD S2435
- Relief Programs
 - Low Interest Emergency (EM) Loans
 - Livestock Assistance Program (LAP)
 - Emergency Haying and Grazing of CRP Acreage
- Boundaries

Continental United States Alaska Hawaii

Promoting the “drought impact reporting” idea to their volunteers...



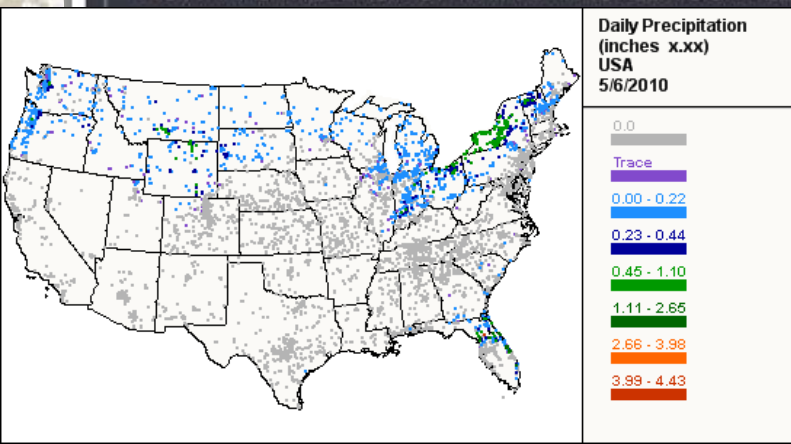
* **14,000+** volunteers covering all 50 states!!

* CoCoRaHS “Message of the Day”

* Monthly e-mail reminders

* Guide to reporting drought impacts

* Banners on the Web



Courtesy: Henry Reges, Colorado State University

About the DIR

Map

Submit

Help

Welcome, Drought Fan!



Impacts

First 1 2 3 4 5 Last

Pecan Crop in Guadalupe County devastated by drought

12/14/2009 • 12/20/2009

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper.

Monte Vista Water District in stage two water restrictions

12/20/2009 • 12/30/2009

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Geese drawn to Lubbock lakes as area lakes dwindle

12/15/2009 • 12/15/2009

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper.

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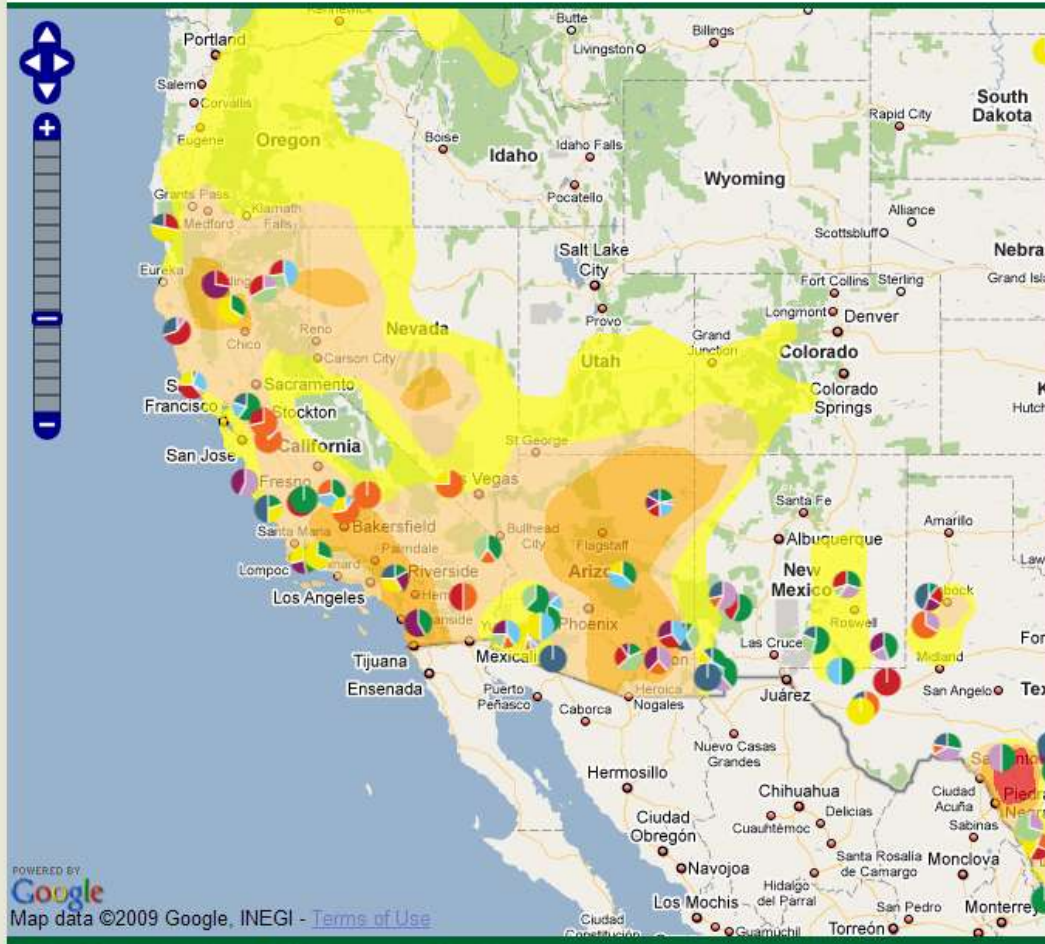


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 - Plants & Wildlife
 - Society & Public Health
 - Tourism & Recreation
 - Water Supply & Quality
- Burn Bans
- Water Restrictions
- CoCoRaHS Reports
- NWS Drought Statements
- Drought Monitor
 - D0 - Abnormally Dry
 - D1 - Moderate Drought
 - D2 - Severe Drought
 - D3 - Extreme Drought

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Welcome, Drought Fan!



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 - County Warning Areas

100%

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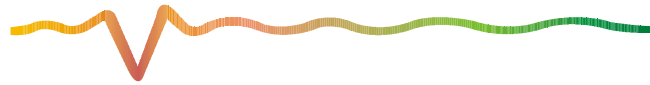
Drought impacts research questions:

- Is relief targeted effectively and equitably?
- Can a well-trained, locally rooted drought spotter “beat” statistical indicators? At what scale are observations relevant?
- Are rural and disadvantaged populations represented in impact reporting and in relief?
- What besides economic losses can and should be quantified?

Other Impacts Research and Efforts:

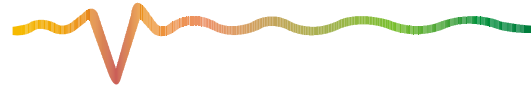
- CoCoRaHS
- States: AZ, HI, CA, TX, reporting impacts – how connected to policy process is it?
- Case studies: North Carolina landscapers
- Transferability to North America?

Challenges



- Systematic impact assessments are needed
- Convince decision-makers that their mitigation/adaptation actions will reduce future drought impacts
 - Quantify impacts and benefits
 - Incorporate into drought planning/mitigation
 - Continual education and awareness
 - It is also hard for mitigation measures to compete for funding with the many urgent and immediate emergency funding needs facing governments

Summary



- Drought is not just a physical event
- Vulnerability matters
- Impacts (establish a baseline)
- Promote and Encourage Citizen Science
 - Planning, Mitigation, and Adaptation



Please visit the NDMC website for more information: <http://www.drought.unl.edu>



National Drought Mitigation Center
University of Nebraska–Lincoln

The National Drought Mitigation Center (NDMC) helps people and institutions develop and implement measures to reduce societal vulnerability to drought. The NDMC, based at the University of Nebraska–Lincoln, stresses preparation and risk management rather than crisis management.

- What is Drought?** *An overview of drought • Discussion of drought indices • Drought and climate change • Drought and El Niño*
- Planning for Drought** *Why plan for drought • 10-Step Planning Process • State, tribal, and local drought plans • Drought planning contacts*
- Monitoring Drought** *Drought monitoring tools • SPI maps • Climographs • Dust Bowl • Historical drought*
- Drought Risk and Impacts** *Reducing drought risk • Drought impacts • Drought vulnerability analysis*
- Mitigating Drought** *Putting a drought plan together • Existing drought plans and studies • Drought mitigation tools/initiatives • Water conservation*

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What's New at NDMC

- [Central California Workshops](#)
- [NDMC Welcomes New Members](#)
- [DroughtScope - Winter 2009](#)

Quick Links! *Drought for Kids* *For Media* *Other Drought-related Sites* *U.S. Drought Monitor* *NDMC's Drought Impact Reporter*

Thanks!

Contact me at:
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msvoboda2@unl.edu