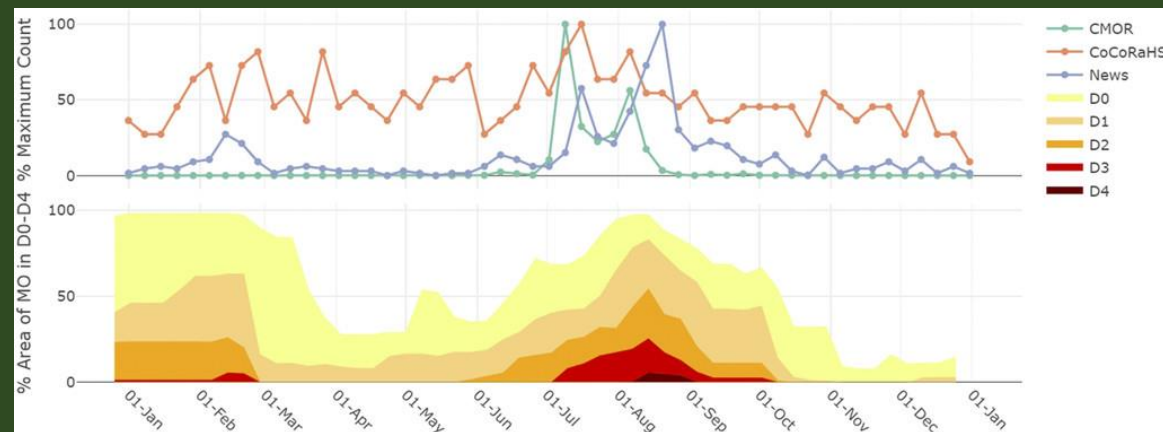


Tuning in to drought chatter: Detecting deviation from expectation

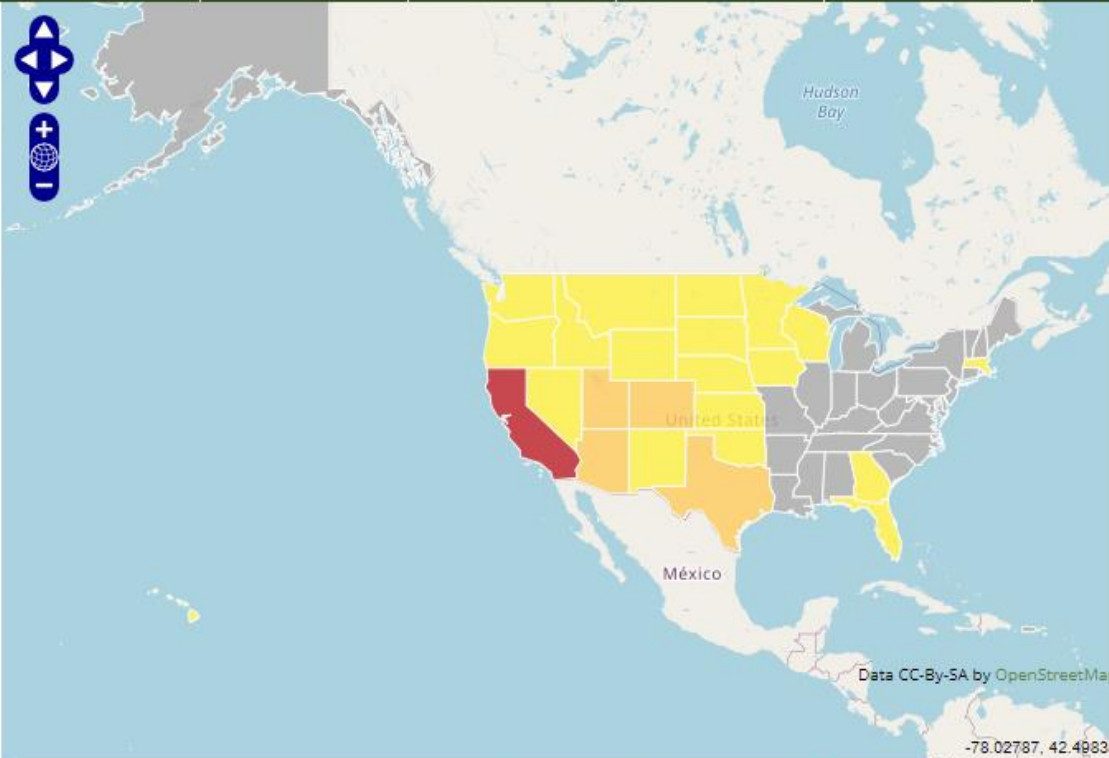
Kelly Helm Smith

Kickoff: EU Network of Drought Observatories, June 16, 2022



go.unl.edu/MO2018_timeline





All States | 05-15-2022 - 06-15-2022 |

Impact Counts Impacts List | Page 1/13 Report Counts Reports List | Page 1/120

County Impacts | All States 127

Category					
	Agriculture	47		Business & Industry	8
	Energy	2		Fire	23
	Plants & Wildlife	28		Relief, Response & Restrictions	99
	Society & Public Health	14		Tourism & Recreation	15
	Water Supply & Quality	88			

Report Source	
	Media 127

Refresh

Impacts & Reports Overlays

▾ Scales

- National
- Multistate
- State
- County
- City

▾ Impacts

Opacity 80%

Impacts

- 0
- 1 - 9
- 10 - 18
- 19 - 27
- 28 - 36
- 37 - 45

Reports

Drought Declarations


▸ Time Period

▸ Location

▸ Categories

▸ Report Types

Drought Impact Reporter: go.unl.edu/DIRdash



Drought Impact Reporter Dashboard
National Drought Mitigation Center, University of Nebraska

Last Updated
6/15/2022

Dashboard Filter Options

Select a Date Range
Last 90 Days

Select State/Territory
Select one or more

Select County
Select one or more

Agriculture Impacts
No Filter

Business & Industry Impacts
No Filter

Energy Impacts
No Filter

Fire Impacts
No Filter

Plants & Wildlife Impacts
No Filter

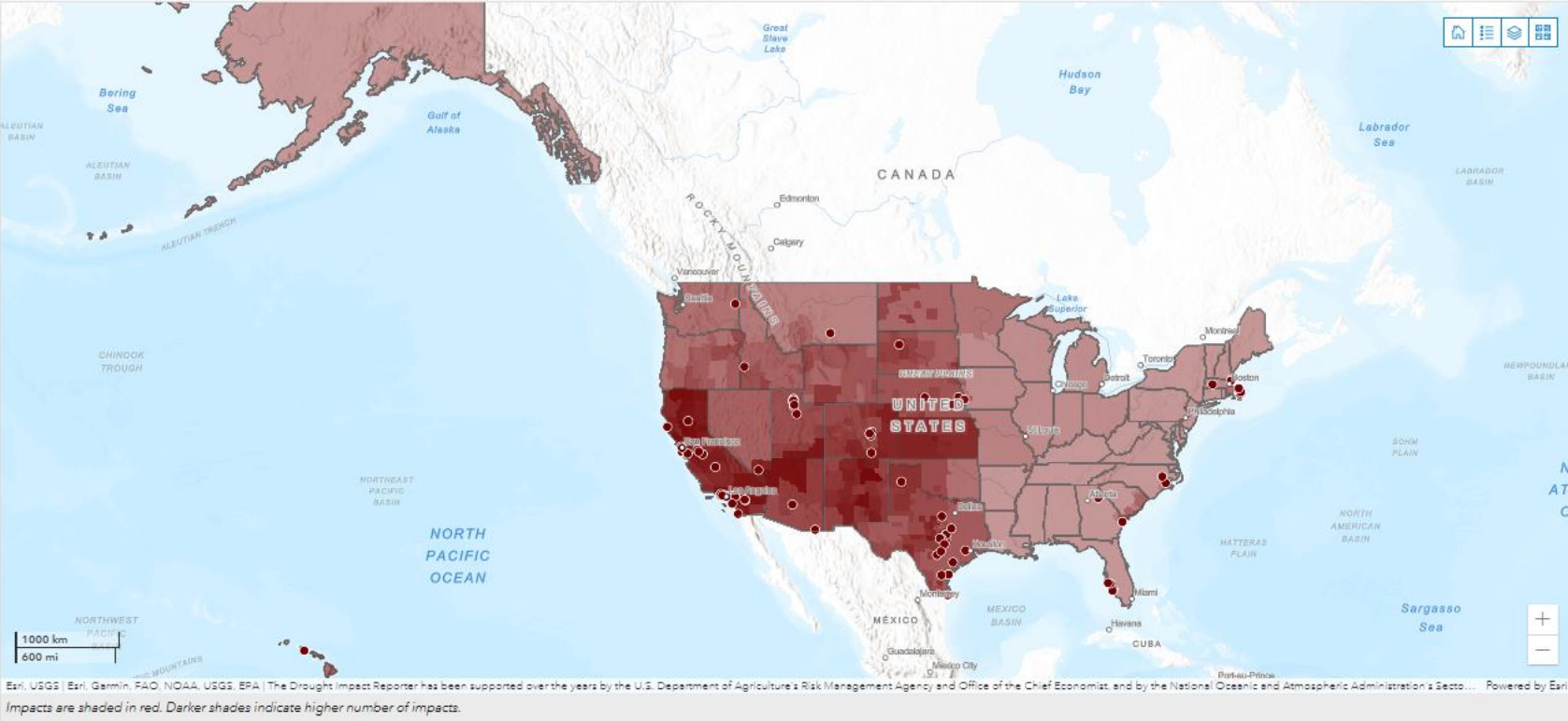
Relief, Response & Restrictions Impacts
No Filter

Society & Public Health Impacts
No Filter

Tourism & Recreation Impacts
No Filter

Water Supply & Quality Impacts
No Filter

Impact ID
Enter Impact ID Number



Impacts are shaded in red. Darker shades indicate higher number of impacts.

About the Drought Impact Reporter

The Drought Impact Reporter (DIR) dashboard presents drought impacts recorded for states, counties, and cities. The National Drought Mitigation Center launched the DIR in 2005 as the nation's first comprehensive database of drought impacts. Impacts have been systematically culled from daily media reports since July 2005, most relating to present drought, but a few reports have been about historic droughts. The earliest impacts are dated 1850.

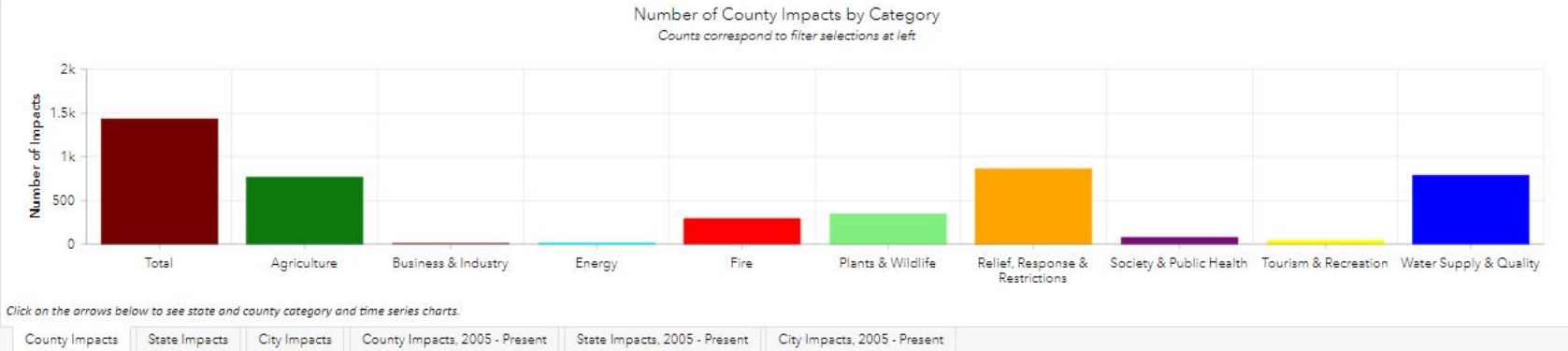
Why track drought impacts? 1) To help policy-makers determine where to direct relief; 2) to help researchers enhance understanding of what happens when expected rain or snow doesn't arrive; 3) to help planners know where to address underlying vulnerability, to reduce future impacts. Of course, private citizens, homeowners, farmers and ranchers, business owners and others can plan ahead if they know how drought or water shortage affects them.

The impacts in the DIR are primarily based on news stories. A moderator goes through results from an automated search each day and creates an impact when she finds evidence of an event that meets our definition of a drought impact, "a loss or change at a specific place and time due to drought."

News-based impacts represent a very broad scan and depend on human awareness. For other drought impact data and assessments, please see the Drought Impacts Toolkit.

[About](#)
[How to Use](#)
[RSS Feeds](#)
[Partners](#)
[Contact](#)

Number of County Impacts by Category
Counts correspond to filter selections at left



Category	Number of Impacts
Total	1450
Agriculture	800
Business & Industry	0
Energy	0
Fire	300
Plants & Wildlife	400
Relief, Response & Restrictions	900
Society & Public Health	100
Tourism & Recreation	50
Water Supply & Quality	800

Click on the arrows below to see state and county category and time series charts.

[County Impacts](#)
[State Impacts](#)
[City Impacts](#)
[County Impacts, 2005 - Present](#)
[State Impacts, 2005 - Present](#)
[City Impacts, 2005 - Present](#)

◀ 1 of 1433 ▶

County Impacts
Limited to 1,500 impacts in order of most recent. Displayed impacts correspond to filter selections.

County: Nueces County
State: TX

Duration: 6/13/2022 - 7/13/2022

Title:
More wildlife searching for food in Corpus Christi, Texas

Description:
More wildlife was making its way into local neighborhoods for the food and water, according to local Texas game wardens. A bobcat was seen on a trail cam in the backyard of a Kings Crossing neighborhood on Corpus Christi's South Side. People were encouraged to put out water for wildlife. KRISTV NBC 6 Corpus Christi (Texas), June 13, 2022

Impact ID: 57311

Impact Source:
<https://moderator.droughtreporter.unl.edu/RSSfeed/ImpactView/57311>

Impact Category:
Agriculture: 0
Business & Industry: 0
Energy: 0
Fire: 0
Plants & Wildlife: 1
Relief, Response & Restrictions: 0
Society & Public Health: 0
Tourism & Recreation: 0

[County Impacts](#)
[State Impacts](#)
[City Impacts](#)



Tools

Map-based tools track drought impacts:

- The Drought Impact Reporter Dashboard
- Condition Monitoring Observer Reports (CMOR)
- The Visual Drought Atlas
- The Media Drought Index
- Drought Tweets
- CoCoRaHS condition monitoring reports



Emerging Impacts

These resources are regularly updated sources of information on drought impacts or on other environmental conditions that may be related to drought.



Impact Assessments

State agencies, non-governmental organizations and others may conduct post-drought assessments to better understand how drought affected agriculture, health, food security, energy, communities and other areas of interest, and to document responses and outcomes.

Go.unl.edu/DIRdash droughtimpacts.unl.edu/Tools.aspx

Go.unl.edu/CMOR_drought

Go.unl.edu/multi-tool

Go.unl.edu/droughttweets

Go.unl.edu/droughtnews

Drought Impact Reporter Dashboard
National Drought Mitigation Center, University of Nebraska

Dashboard Filter Options

- Select a Date Range
- Select State/Territory
- Select County
- Agriculture Impacts
- Business & Industry Impacts
- Energy Impacts
- Fire Impacts
- Plants & Wildlife Impacts
- Recreation & Recreation Impacts
- Society & Public Health Impacts
- Tourism & Recreation Impacts
- Water Supply & Quality Impacts
- Impact ID

About the Drought Impact Reporter

Why track drought impacts? To help policymakers determine where to direct relief, to help researchers enhance understanding of what happens when drought occurs, and to help the public understand the impact of drought.

Condition Monitoring Observer Reports (CMOR) 2022
National Drought Mitigation Center, University of Nebraska

CMOR Filter Options

- Select Date Range
- Year to Date
- Period of Record
- Select State
- Select County
- Select How Dry or Wet
- Reports with Photos
- Display Name
- CMOR Reports with Photos

About CMOR Reports

Photo Copyright

Drought Impacts Multi-Tool
National Drought Mitigation Center, University of Nebraska

Filter Options

- Select a Date Range
- Year to Date
- Select State
- Select County
- Select How Dry or Wet
- Reports with Photos
- Display Name
- CMOR Reports with Photos

About the Media Drought Index (MDI)

Fiber News Stories

Drought Tweets

Media Drought Index (MDI)

Media Drought Index (MDI) Time Series for Selected State

Drought Severity and Coverage Index (DSCI) Time Series for Selected State

State with highest MDI

4.5
Montana

Most stories per million people

47
Montana

News stories added for the week

1.1k
50 US States and D.C.

State	MDI
AK	0.00
AL	0.00
AR	0.00
AZ	0.00
CA	0.00
CO	0.00
CT	0.00
DC	0.00
DE	0.00
FL	0.00
GA	0.00
HI	0.00
IA	0.00
ID	0.00
IL	0.00
IN	0.00
KS	0.00
KY	0.00
LA	0.00
MA	0.00
MD	0.00
ME	0.00
MI	0.00
MN	0.00
MO	0.00
MS	0.00
MT	4.5
NC	0.00
ND	0.00
NH	0.00
NJ	0.00
NM	0.00
NV	0.00
OH	0.00
OK	0.00
OR	0.00
PA	0.00
RI	0.00
SC	0.00
SD	0.00
TN	0.00
TX	0.00
UT	0.00
VA	0.00
VT	0.00
WA	0.00
WI	0.00
WV	0.00
WY	0.00

Condition Monitoring Observer Reports (CMOR)

Go.unl.edu/CMOR_drought

Drought Condition Monitoring Observer Reports

National Drought Mitigation Center, University of Nebraska



- Dashboard Year to Date
- Dashboard 2018 - Yesterday
- Detail Year to Date
- Detail 2021
- Detail 2020
- Detail 2019
- Detail 2018
- Info

Filter Options

Select Date Range

Predefined Calendar

- Year to Date
 - Past 30 Days
 - Past 7 Days

Reset

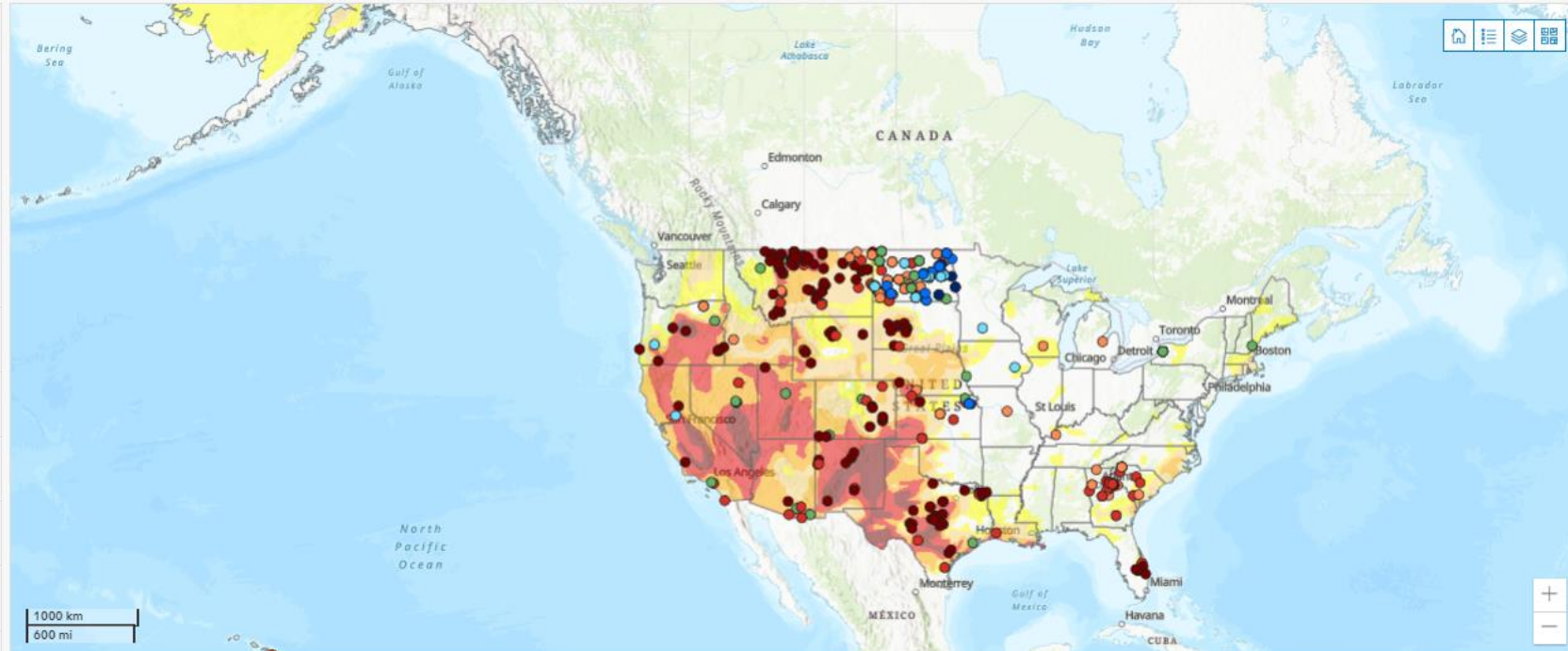
Select State
Select one or more

Select County
Select State First

Select How Dry or Wet
Select one or more

Reports with Photos
Show All Reports

Display Name
Select one or more



Eri, USGS | Eri, Germin, FAO, NOAA, USGS, EPA | The U.S. Drought Monitor is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration. Powered by Eri. Click on the Layer icon at the top-right of the map to view reports by impact category.



* Click on the arrows below to scroll through category charts.

CMOR Reports

5 of 483

Report Details

* Display limited to 2000 reports.

State/Territory: Georgia
County: Coffee

Date: 6/14/2022

How dry or wet is it? Moderately Dry

How much experience do you have with conditions there?
less than 5 years

Description and/or caption information:
This is of a creek that runs through a farm in our county. Normally it is really high and is constantly flowing. As you can see, there is hardly any water in the creek at all.



photo1-20220614-115101.jpg

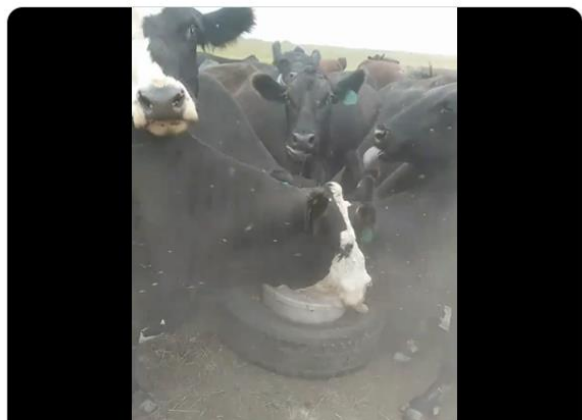


Drought tweets -- Go.unl.edu/droughttweets



Drought Tweets

A sure sign the grass is going to shit is when they go after the mineral like this.



0:01 1,249 views

10:36 AM · Aug 14

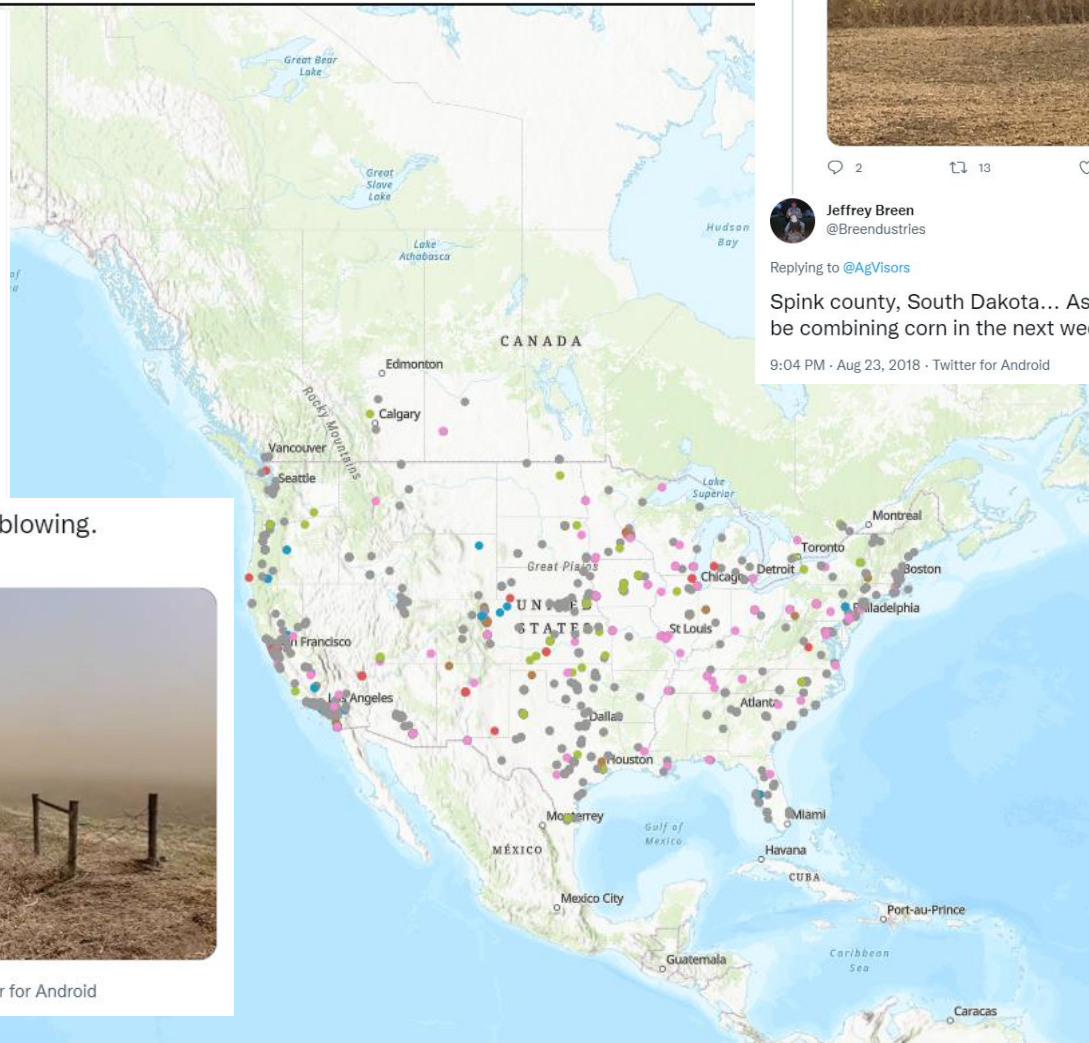
1 Quote Tweet

#dustbowl22. Tilled soybean ground blowing. Minnehaha County, South Dakota.



0:08 5,738 views

1:36 PM · Apr 23, 2022 from South Dakota, USA · Twitter for Android



AgVisors @AgVisors · Aug 23, 2018
Soybeans coming off in Spink Co. Today!!



2 13 26

Jeffrey Breen @Breedustries

Replying to @AgVisors
Spink county, South Dakota... Asking for a friend ... I'll be combining corn in the next week or 2 #drought18

9:04 PM · Aug 23, 2018 · Twitter for Android

"It's so dry you don't want to drop a wrench in the wheat stubble, you'll never find it in the cracks"

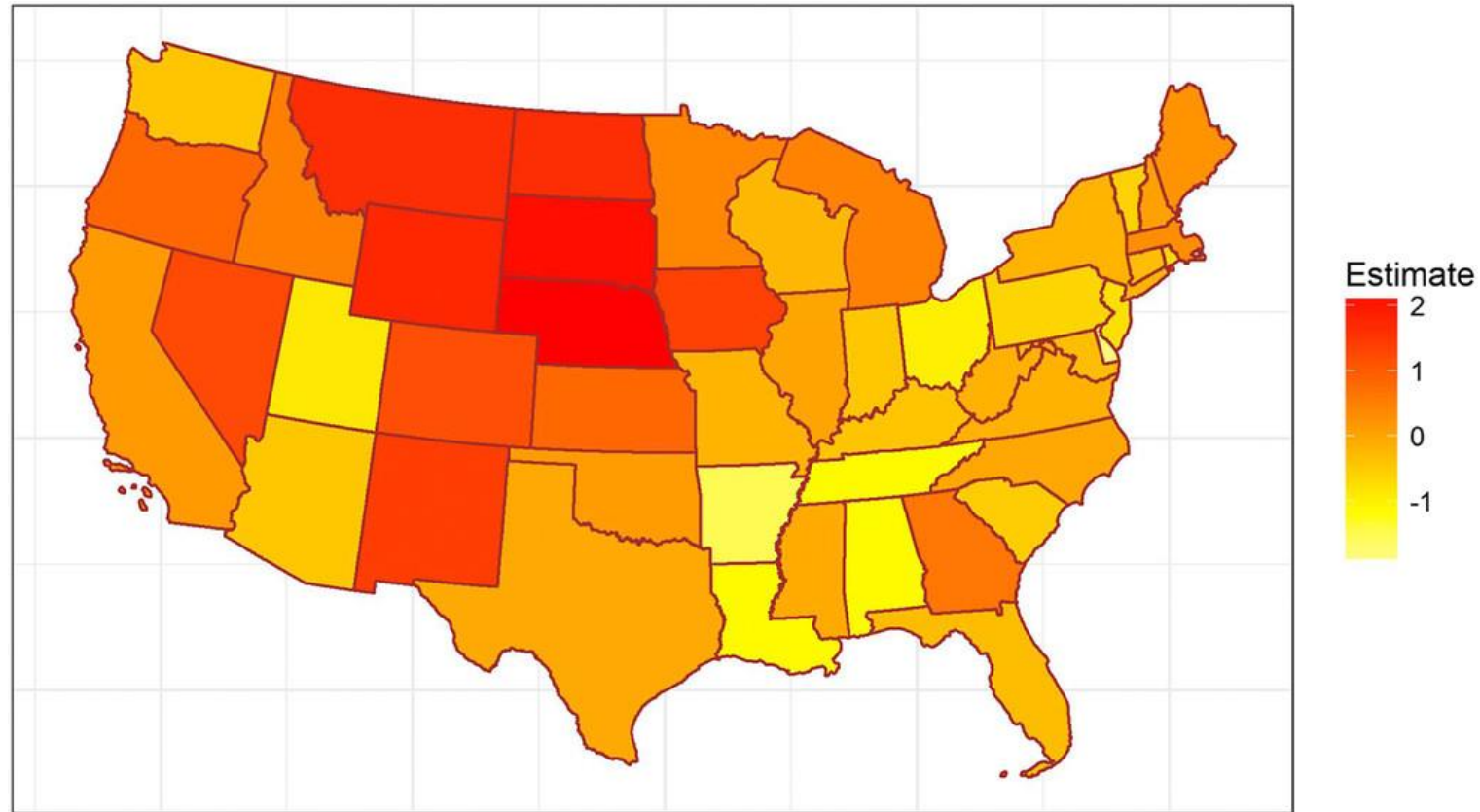
I never believed that quote till now. My brother didn't want to lose his leatherman tool so he used a wheat plant instead.

At least it'll reduce soil compaction. #SDwx



8:41 PM · Jun 29, 2021 · Twitter for iPhone

Finding: Geographic differences in tweeting behavior



Bulletin of the American Meteorological Society 101, 10; [10.1175/BAMS-D-19-0342.1](https://doi.org/10.1175/BAMS-D-19-0342.1)

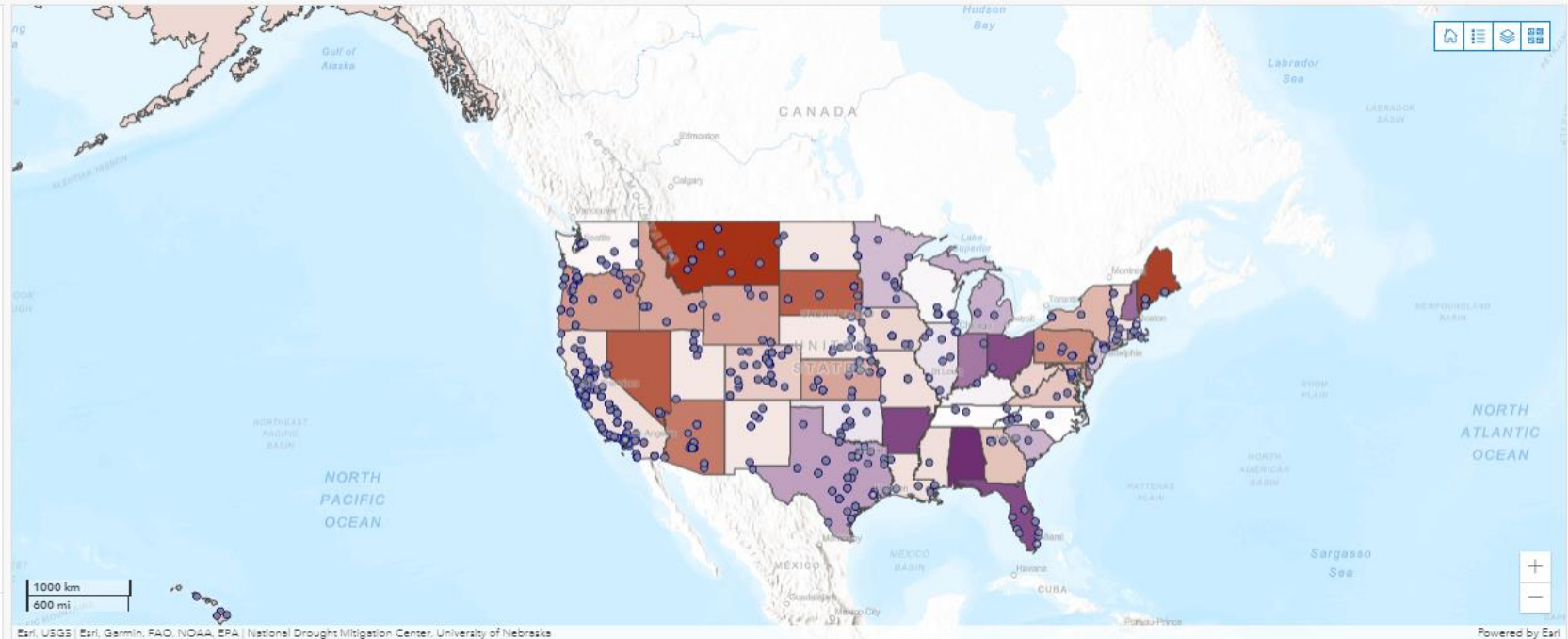
Smith, K. H., Tyre, A. J., Tang, Z., Hayes, M. J., & Akyuz, F. A. (2020). Calibrating Human Attention as Indicator Monitoring #drought in the Twittersphere, *Bulletin of the American Meteorological Society*, 101(10), E1801-E1819. Retrieved May 20, 2022, from <https://journals.ametsoc.org/view/journals/bams/101/10/bamsD190342.x>

Drought news and Media Drought Index -- go.unl.edu/droughtnews

About the Media Drought Index

The Media Drought Index (MDI) compares the number of stories for each state in a week with the weekly number of stories for that state and month since 2011, and expresses the result as a standard deviation. States on the red side of the spectrum have more drought news than they normally do for this time of year, which is what we'd expect for places that are in drought. States on the blue end of the spectrum have less than they normally do for this time of year, which is what we'd expect for places not in drought, or dealing with other events.

The MDI is based on a search of news cataloged by the Meltwater service, and filtered to mostly in-state news, omitting headlines that appear all over the country, restricting repeating headlines to the state that they are about. The drought news layer displays news stories as points, by the cities in which they are published. For more control over the time interval of news on the map, please visit go.unl.edu/newsmap



- Filter News Stories**
- Select a State
50 US States and D.C.
 - Select a City
Select a State First
 - Select a Source
Select a State First
 - Select a Date
Last Week

1 of 10

State with highest MDI
4.5
Montana

From week 5/9/2022 to 5/15/2022.

1 of 10

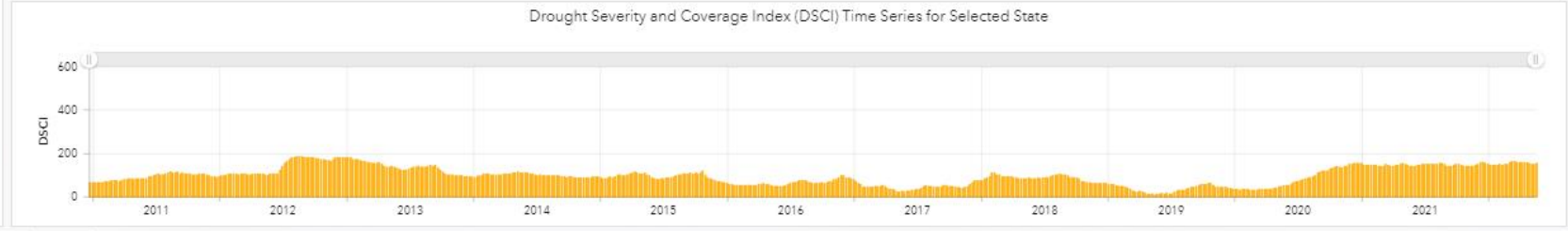
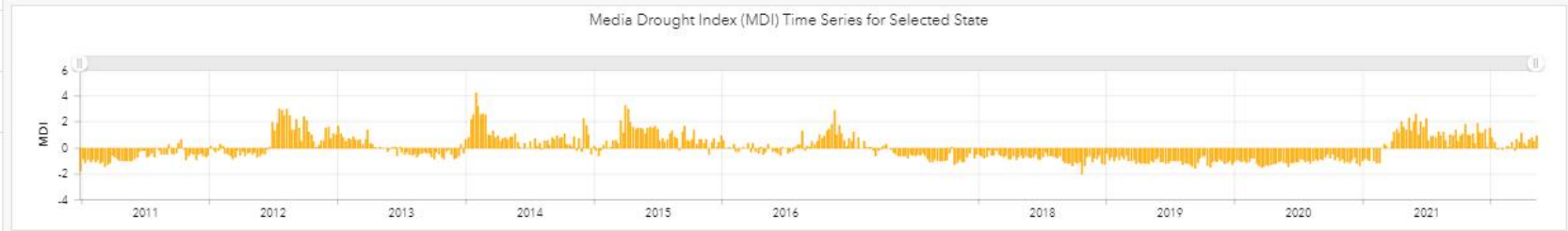
Most stories per million people
47
Montana

From week 5/9/2022 to 5/15/2022.

1 of 10

News stories added for the week
1.1k
50 US States and D.C.

From week 5/9/2022 to 5/15/2022.



MDI Details
50 US States and D.C.

State: 50 US States and D.C.
From week: 5/9/2022 to 5/15/2022

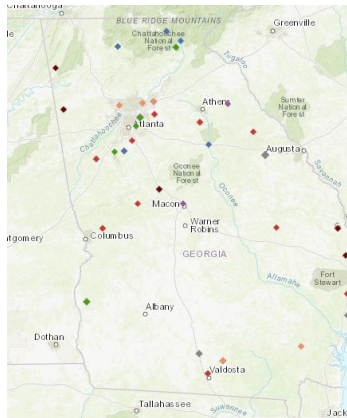
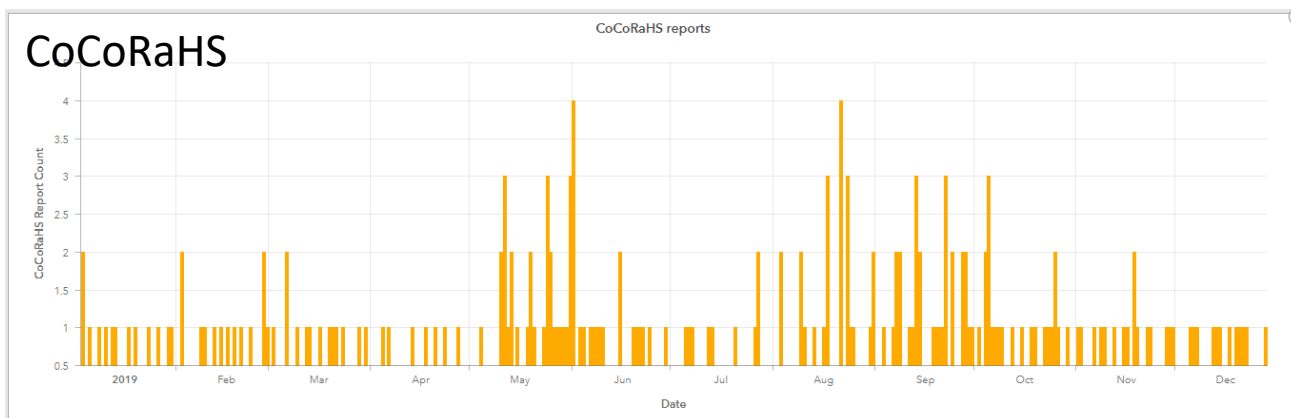
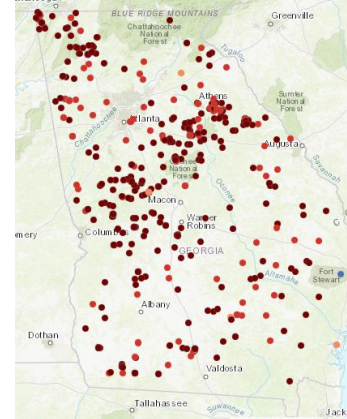
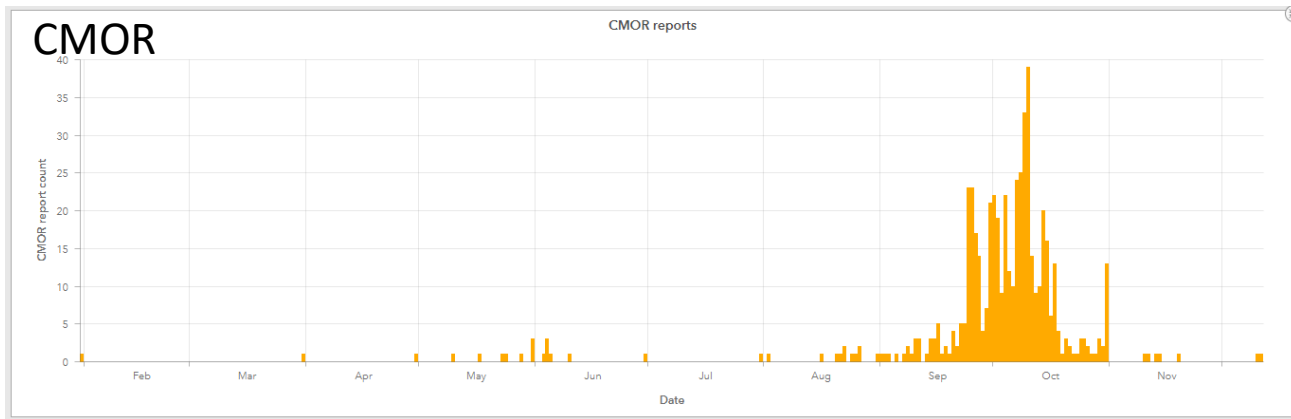
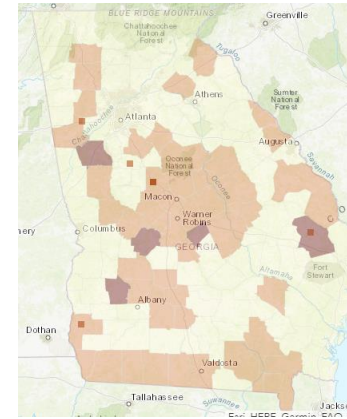
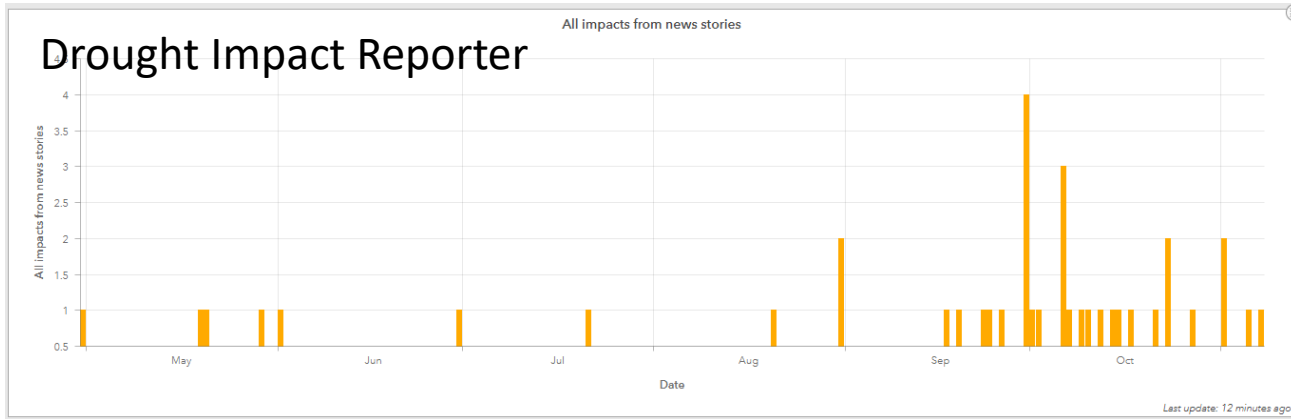
State MDI: 0.98

News stories per million people: 3.3

Number of news stories for week: 1,100

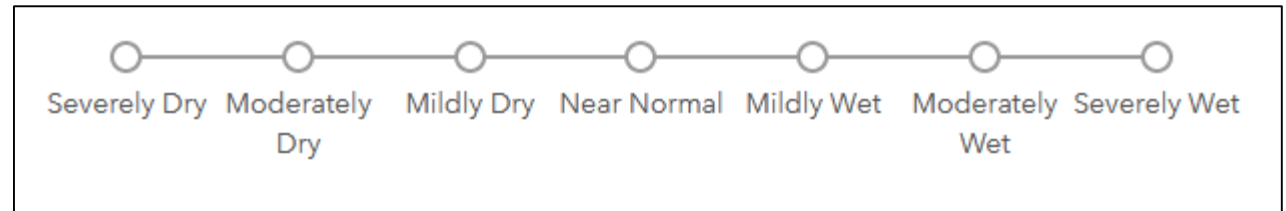
[MDI Details](#) [News Stories](#)

Comparison of CMOR, CoCoRaHS and Drought Impact Reporter for Georgia in 2019



CoCoRaHS Citizen Science cocorahs.org

CoCoRaHS, the Carolinas Integrated Sciences and Assessment (CISA) and NDMC collaborated to develop “condition monitoring” and the 7-point dry-to-wet scale.



CoCoRaHS Condition Monitoring reports, with CMOR

Go.unl.edu/multi-tool

CoCoRaHS.org

Drought Impacts Multi-Tool
National Drought Mitigation Center, University of Nebraska

Filter Options

- Select a Date Range
 - Predefined
 - Calendar
- Past 7 Days
- Past 30 Days
- Year to Date
- Reset

Select State
Select One or More

Select County
Select State(s) First

CMOR Reports with Photos
Show All

CMOR Reports 2018 - Yesterday

How Dry or Wet is it?

- Severely Dry
- Moderately Dry
- Mildly Dry
- Near Normal
- Mildly Wet
- Moderately Wet
- Severely Wet
- No Data

CoCoRaHS

Condition

- Severely Dry
- Moderately Dry
- Mildly Dry

Map legend About

1 of 45

CMOR 2018 - Present

State/Territory: NM
County: Lincoln

Date: 5/19/2022

How dry or wet is it? Moderately Dry

How much experience do you have with conditions there?
5_10_years

How many times in the past have you seen it like this?
twice_or_more

When was it most recently like this?
2019

How localized or widespread are the conditions you are reporting?
County wide

How are range conditions at this time?
fair

CMOR CoCoRaHS DIR City

Powered by Esri

Lackstrom, K., Farris, A., Eckhardt, D., Doesken, N., Reges, H., Turner, J., Smith, K. H., & Ward, R. (2017). CoCoRaHS Observers Contribute to “Condition Monitoring” in the Carolinas: A New Initiative Addresses Needs for Drought Impacts Information, *Bulletin of the American Meteorological Society*, 98(12), 2527-2531. Retrieved May 20, 2022, from <https://journals.ametsoc.org/view/journals/bams/98/12/bams-d-16-0306.1.xml>

Tools

Map-based tools track drought impacts: Condition Monitoring Observer Reports (CMOR), the Drought Impact Reporter, the Visual Drought Atlas, the Media Drought Index, Drought Tweets, and CoCoRaHS condition monitoring reports.

Questions, comments?
Kelly Helm Smith
ksmith2@unl.edu

Missouri 2018: U.S. Drought Monitor, news stories, CoCoRaHS, and CMOR

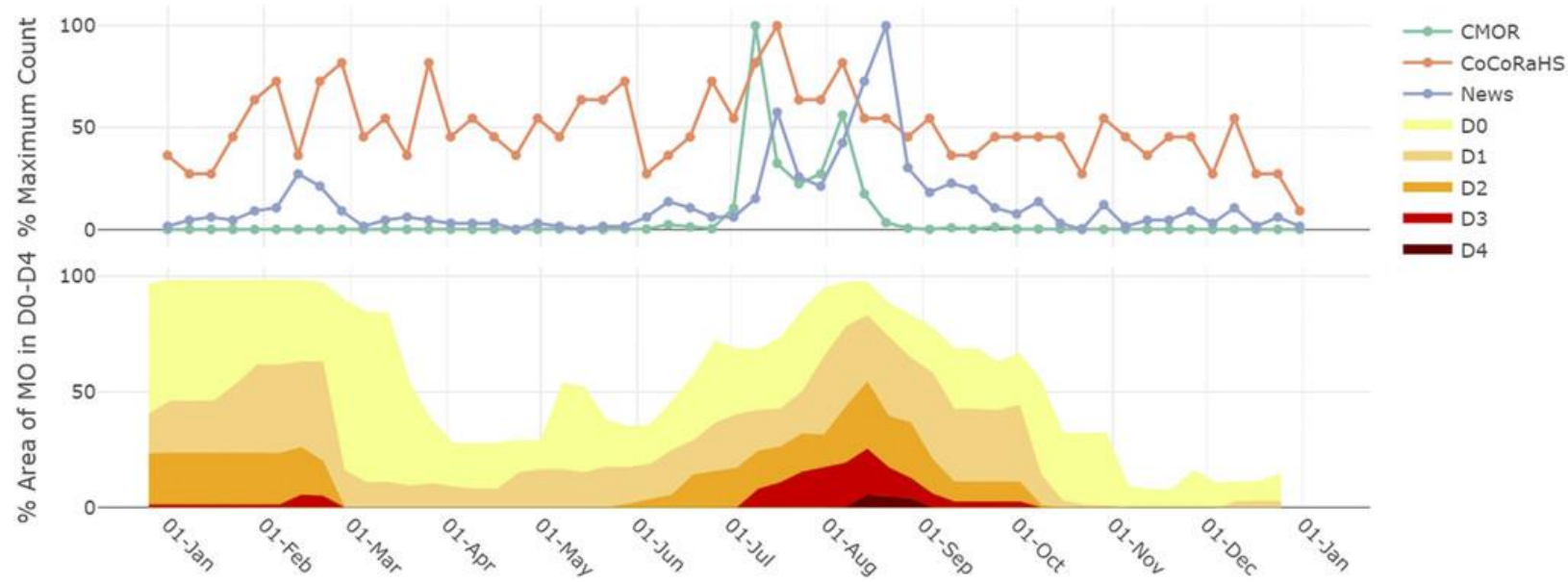


Image from Smith, K. H., Burbach, M. E., Hayes, M. J., Guinan, P. E., Tyre, A. J., Fuchs, B., Haigh, T., & Svoboda, M. D. (2021). Whose Ground Truth Is It? Harvesting Lessons from Missouri's 2018 Bumper Crop of Drought Observations, *Weather, Climate, and Society*, 13(2), 227-244. Retrieved May 20, 2022, from <https://journals.ametsoc.org/view/journals/wcas/13/2/WCAS-D-19-0140.1.xml>