

Montana Drought Status by County

Troy Blandford

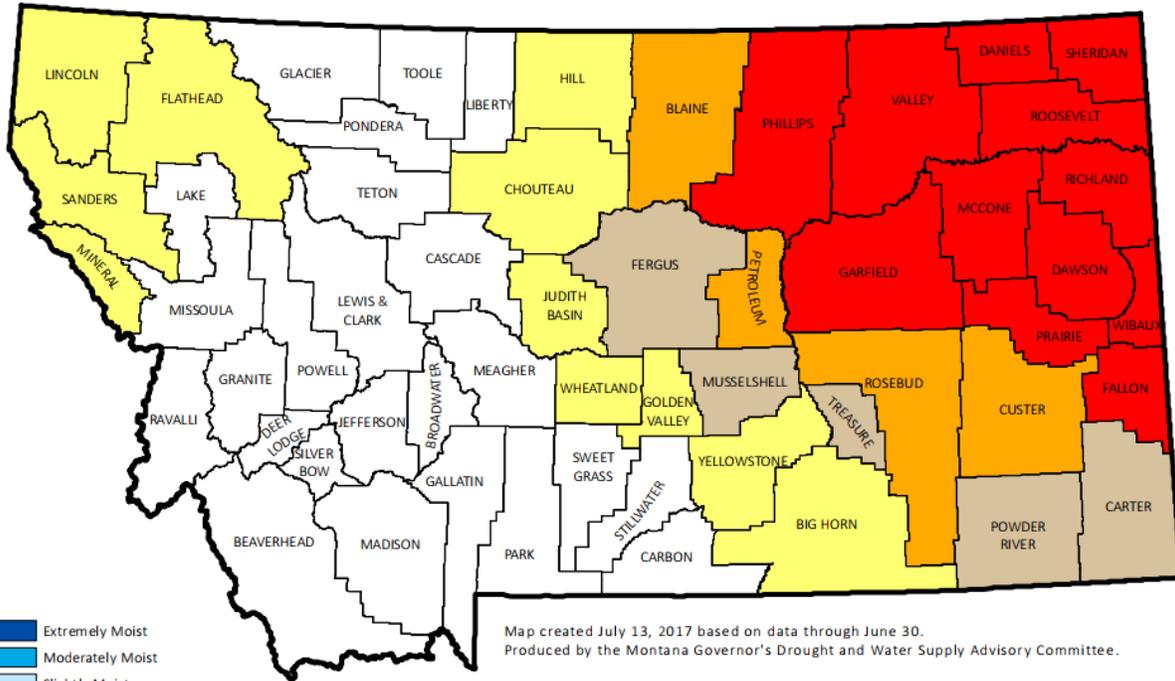
Montana State Library

Water Information System

Prepared for the Montana Governor's Drought and Water Supply Advisory Committee, Aug. 30, 2017

July 1

Montana Drought Status by County - July 1, 2017



- Extremely Moist
- Moderately Moist
- Slightly Moist
- Near Average
- Slightly Dry (D0)
- Moderately Dry (D1)
- Severely Dry (D2)
- Extremely Dry (D3)
- Exceptionally Dry (D4)

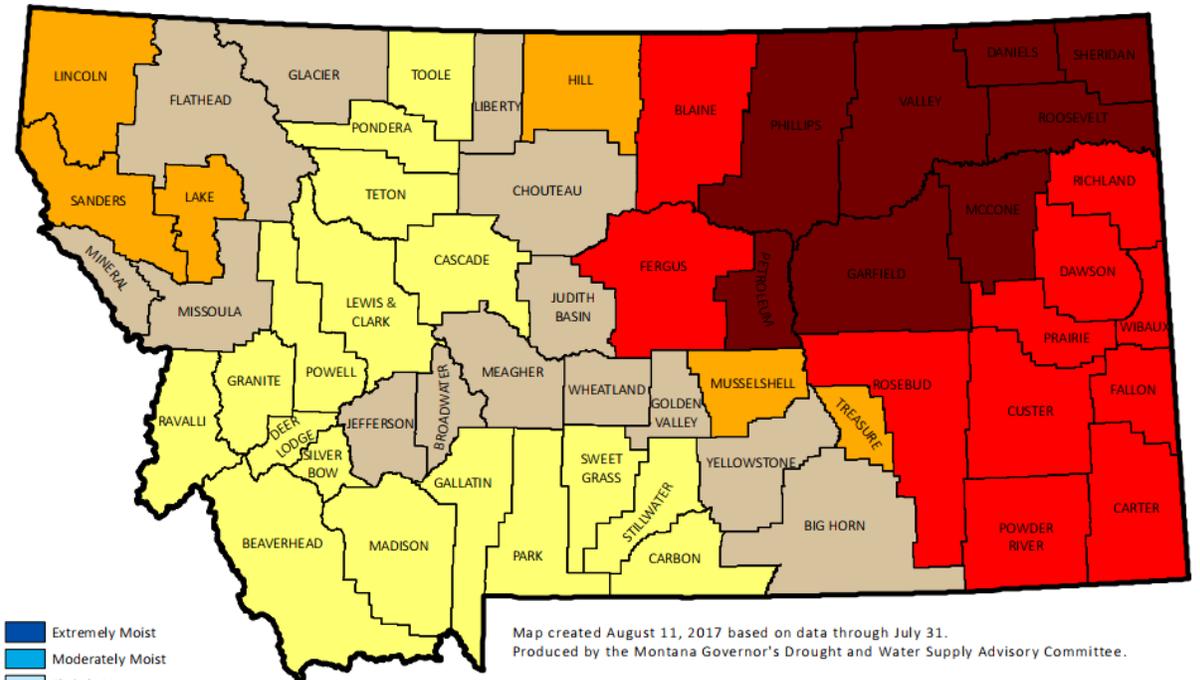


More information: <http://drought.mt.gov>

<http://nris.mt.gov/drought>

August 1

Montana Drought Status by County - August 1, 2017



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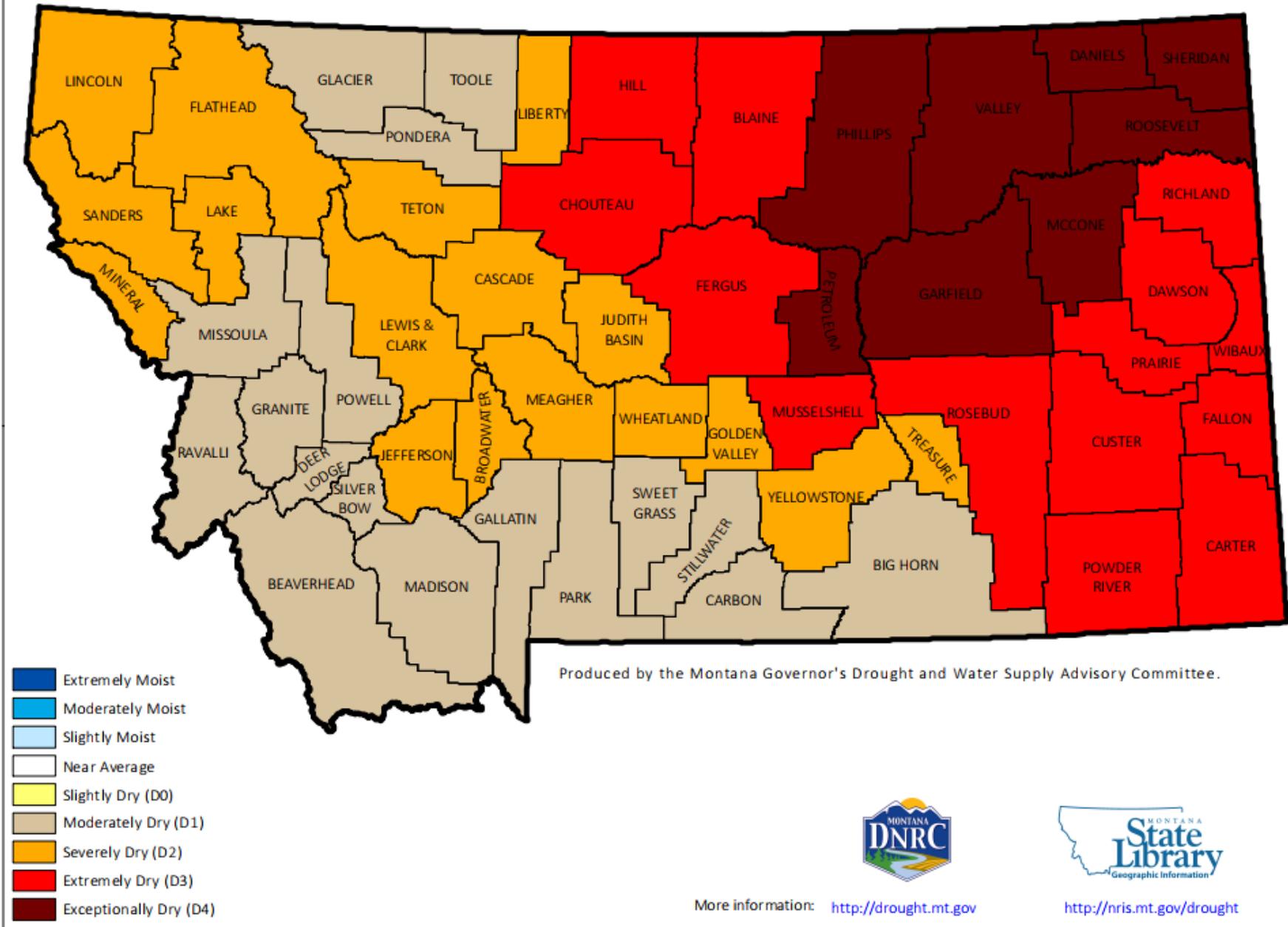


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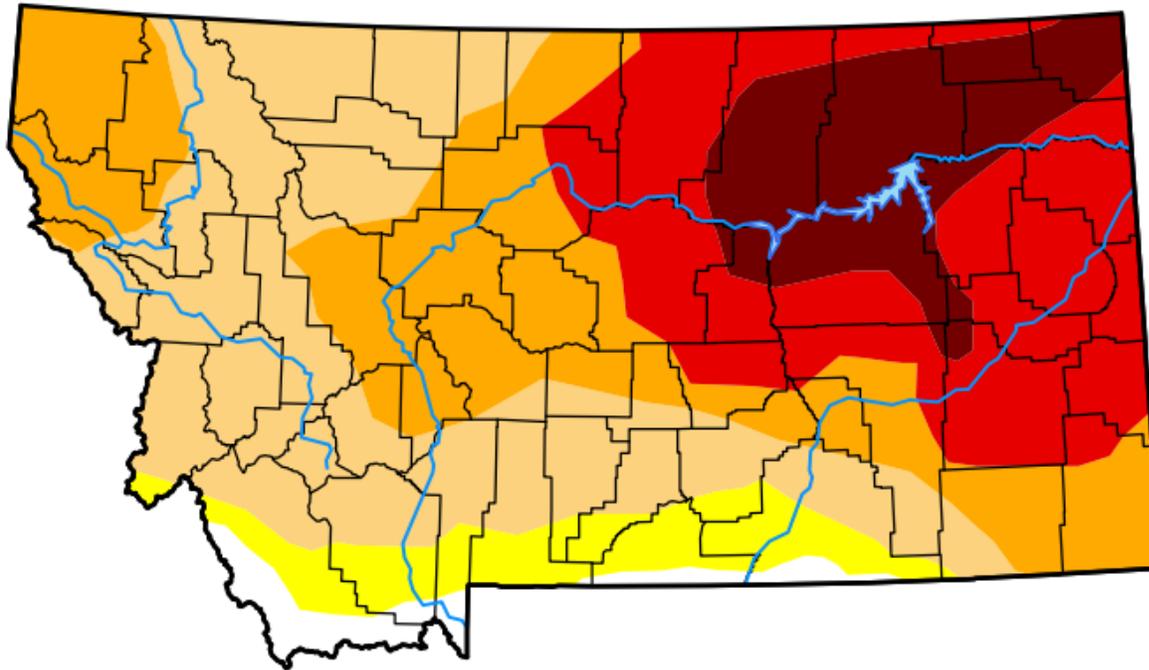
August 23

Montana Drought Status by County - August 23, 2017



U.S. Drought Monitor Montana

August 22, 2017
(Released Thursday, Aug. 24, 2017)
Valid 8 a.m. EDT



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.

Author:

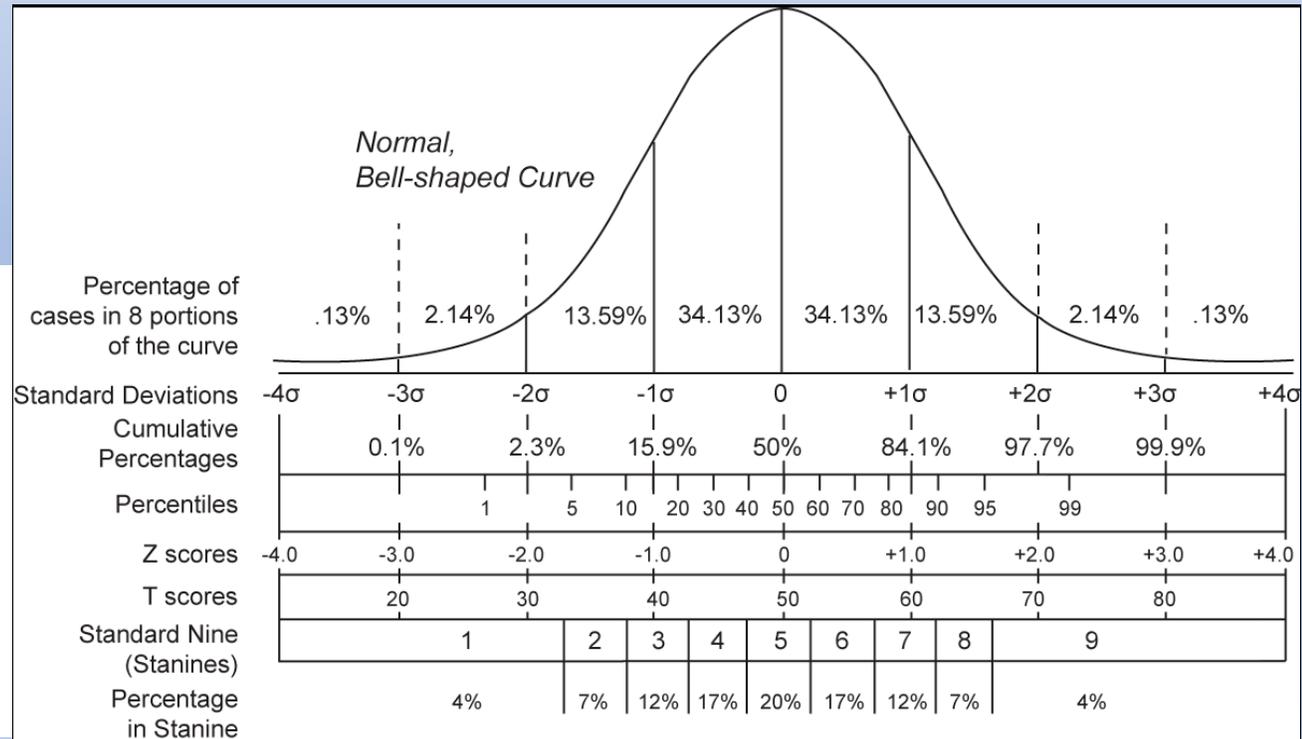
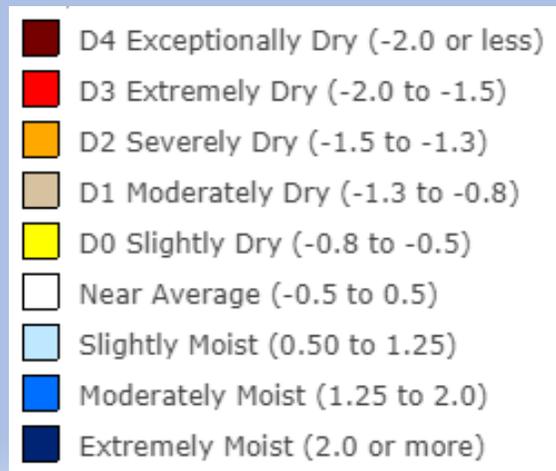
Chris Fenimore
NCEI/NESDIS/NOAA

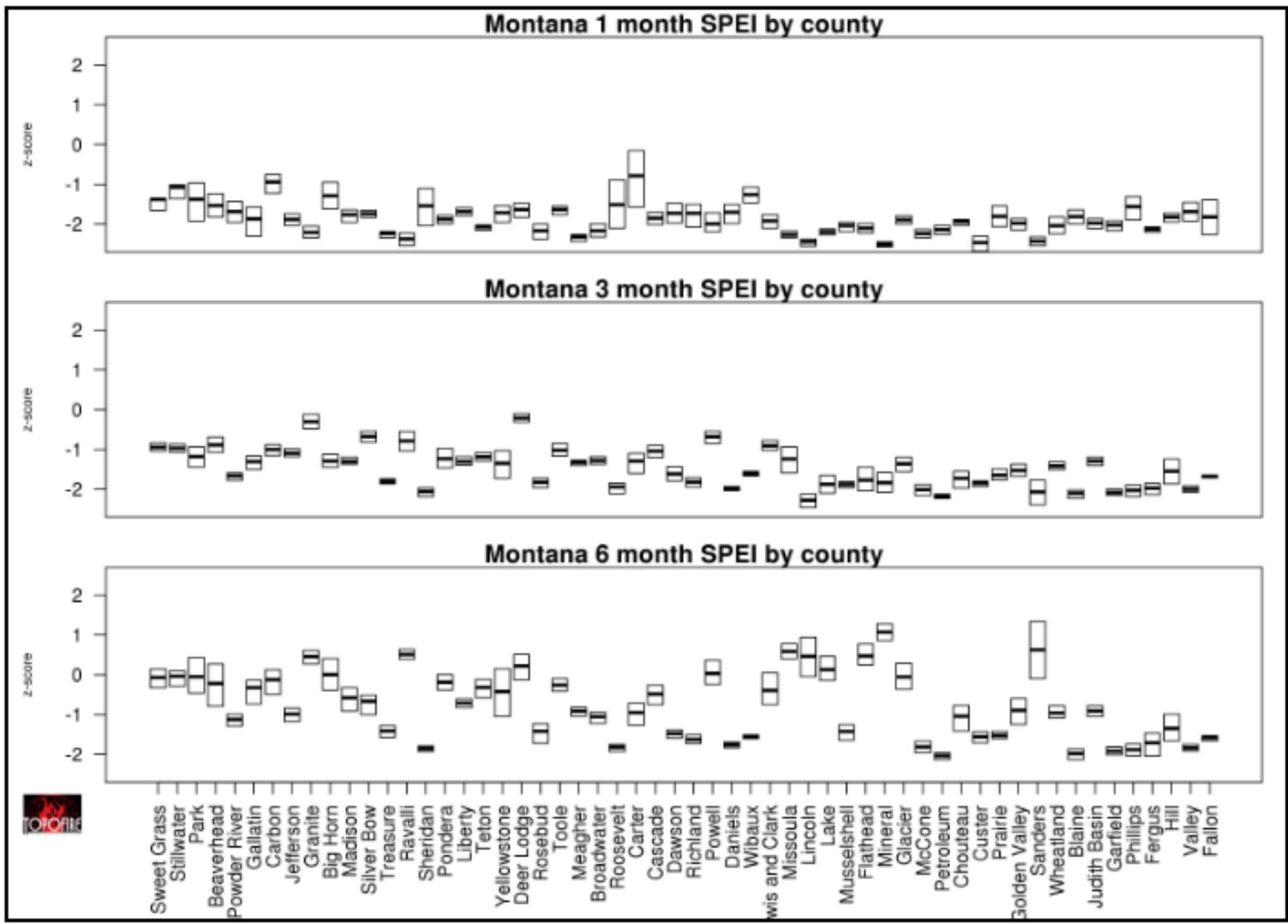


<http://droughtmonitor.unl.edu/>

Indicators used

- Precip anomaly (1 month, water year)
- Temperature anomaly (1 month, water year)
- SPEI (1 month, 4 month, water year, 30 month)
- Vegetation (NDVI, VegDri, QuickDri)
- Evapotranspiration, Deficit (potential ET – actual ET)
- Streamflow
- Soil moisture





MT Drought Impacts Reporter

- Released July 13
 - Live/ongoing
- ~100 responses
 - Retake it as conditions change or to report a different location

Name (optional)
John Smith

Organization (optional)

Email Address (optional)

Date *

County where observations were made *
(to submit an additional county please submit an additional survey)

Primary Drought Impact Type *
(to submit an additional impact type please submit an additional survey)

How many inches of rain in the last month?

< 0.5

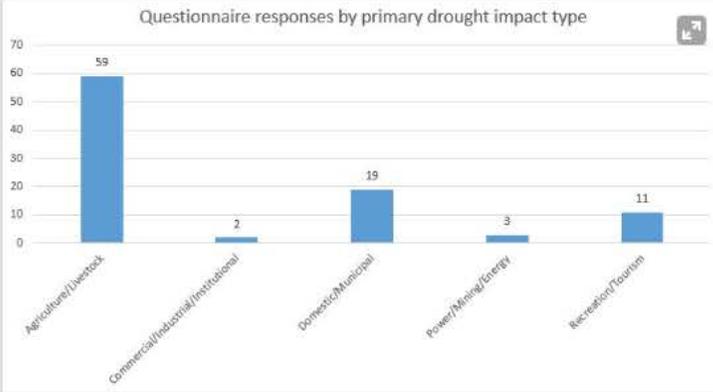
0.5-1

1-1.5

1.5-2

2017 Montana Drought Impacts

- Summary
- Primary Impact Type
- Agriculture/Livestock
- Crop & Range Conditions
- Domestic/Municipal
- Commercial/Industrial/Institutional
- Fisheries/Wildlife
- Power/Mining/Energy
- Recreation/Tourism
- Observation Photos
- Additional Functionality



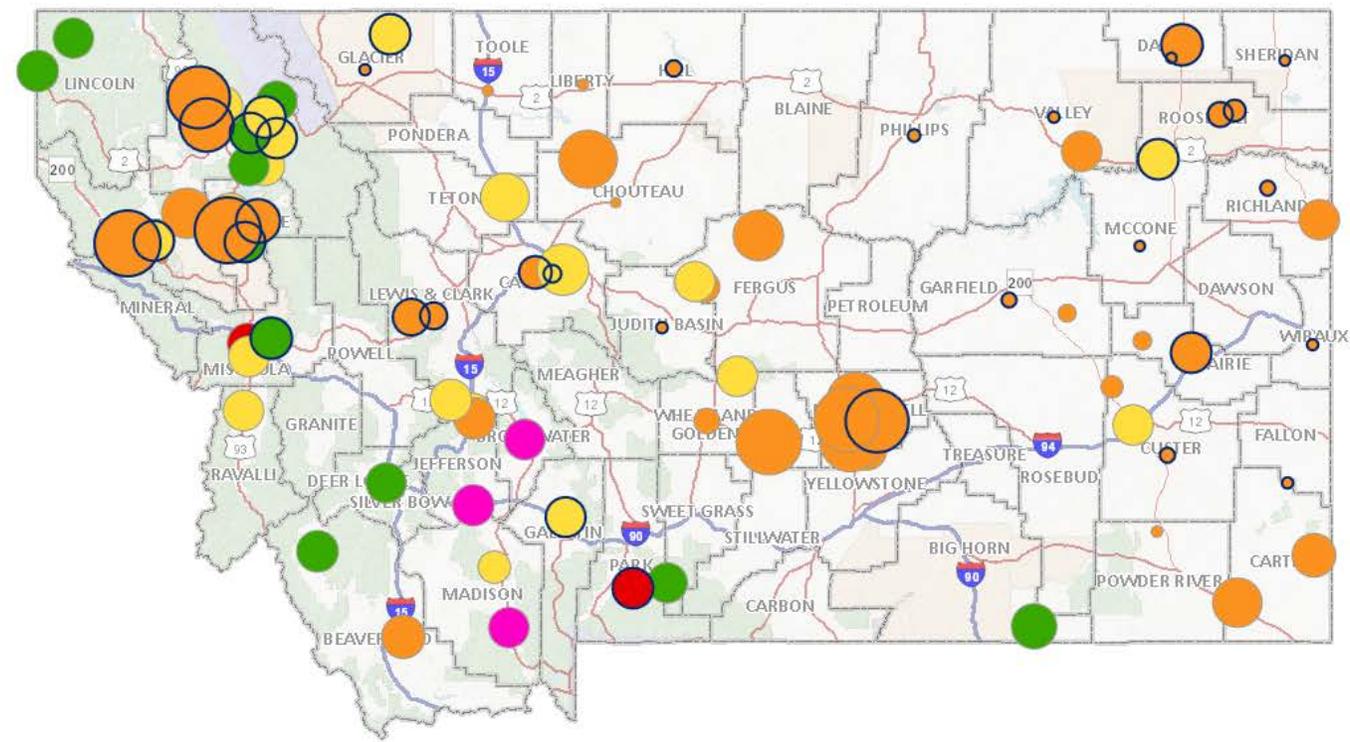
A dark blue outline indicates that the location was mapped manually rather than specified by the user

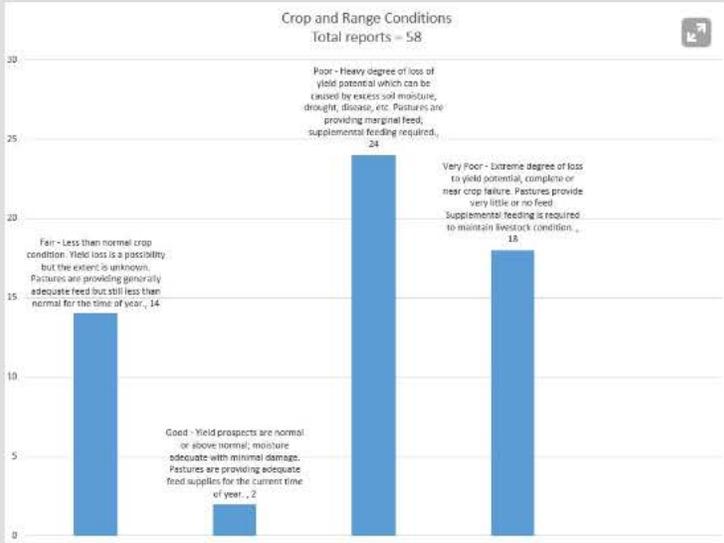
- Agriculture/Livestock
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Age, in days, from Date to 8/29/2017

- > 46.8
- 35
- 25
- 12
- < 0.9

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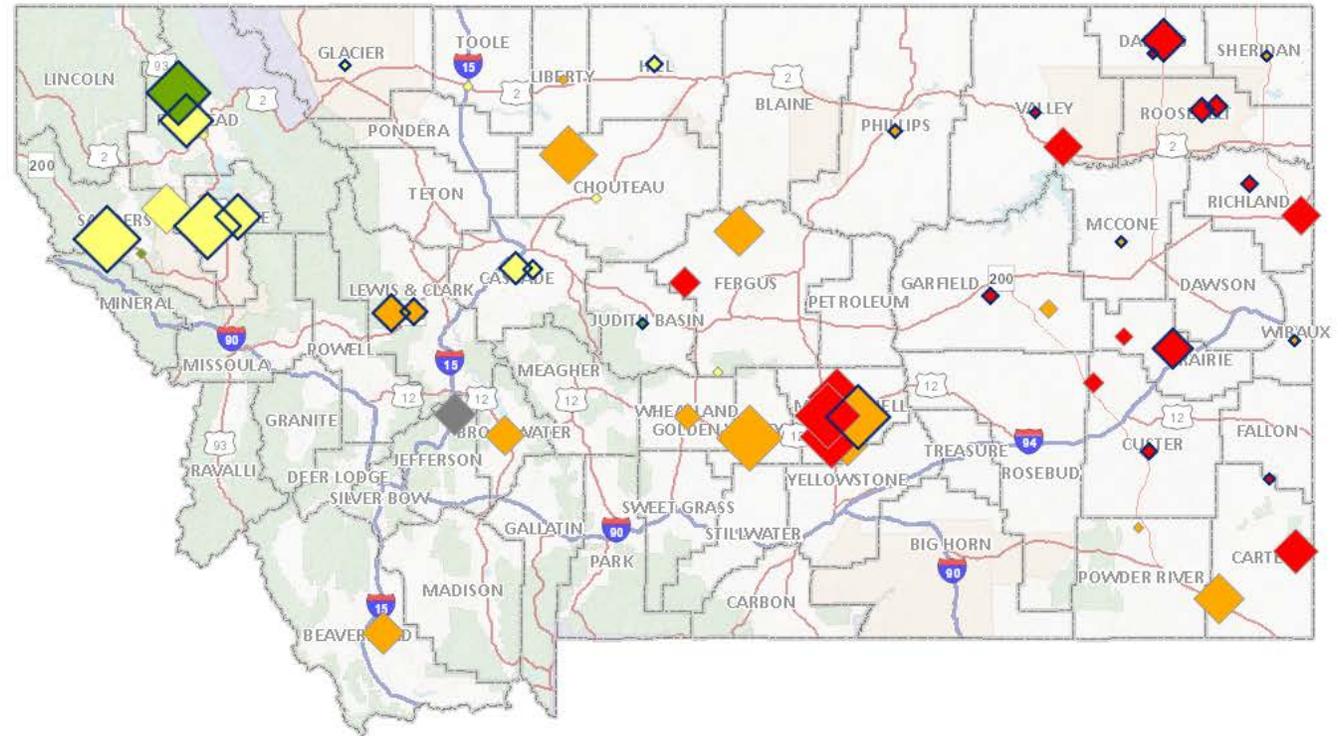
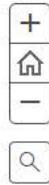


A dark blue outline indicates that the location was mapped manually rather than specified by the user

Crop and Range Conditions

How are crop and range conditions at this time?

- ◆ Very Poor - Extreme degree of loss to yield potential, complete or near crop failure. Pastures provide very little or no feed. Supplemental feeding is required to maintain livestock condition.
- ◆ Poor - Heavy degree of loss of yield potential which can be caused by excess soil moisture, drought, disease, etc. Pastures are providing marginal feed; supplemental feeding required.
- ◆ Fair - Less than normal crop condition. Yield loss is a possibility but the extent is unknown. Pastures are providing generally adequate feed but still less than normal for the time of year.
- ◆ Good - Yield prospects are normal or above normal; moisture adequate with minimal damage. Pastures are providing adequate feed supplies for the current time of year.
- ◆ Excellent - Yield prospects are above normal and crops are experiencing little or no stress. Pastures are supplying feed in excess of what is normally expected at the current time of year.
- ◆ Not Rated



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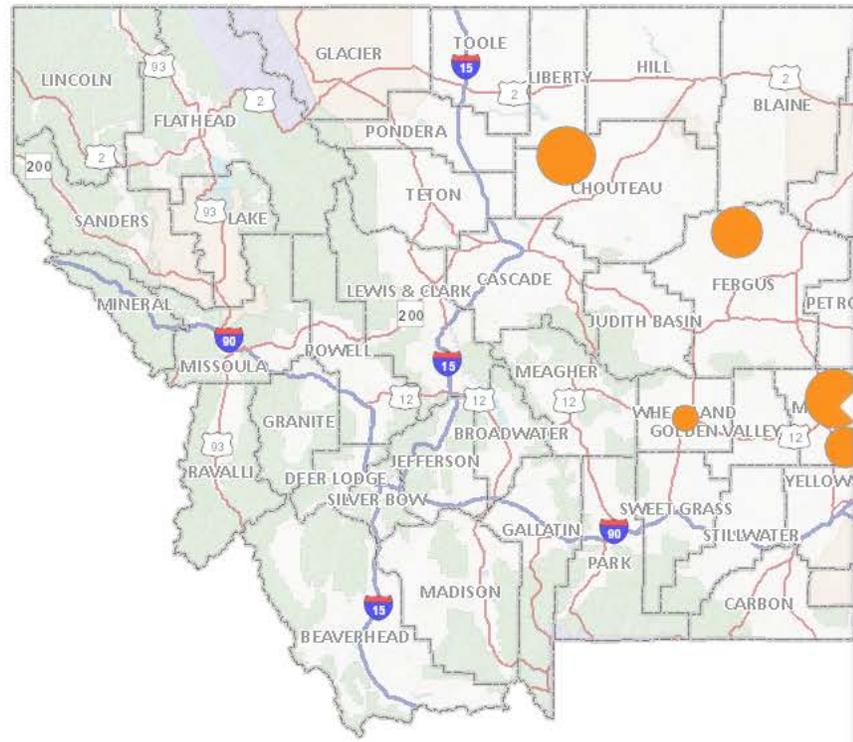
This map displays the observations where photos were submitted. To view a photo, click a point on the map, scroll to the bottom of the popup window, and click on the attachment link.



- Domestic/Municipal
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https://services.arcgis.com/services.arcgis.com

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Card from esri of Aug. 17th, 2017: Section 8, 7 crop and pasture, section 17N R1M, Section 5 background, Section 44 view on the yard. background north of shop.

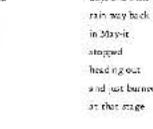











6 ft trench for our paper mill - not a drop of moisture

BLM seeding project areas still bring in a limited amount of rain since it was seeded - no moisture to even germinate the seeds.

our field was grazed yet completely burned and died

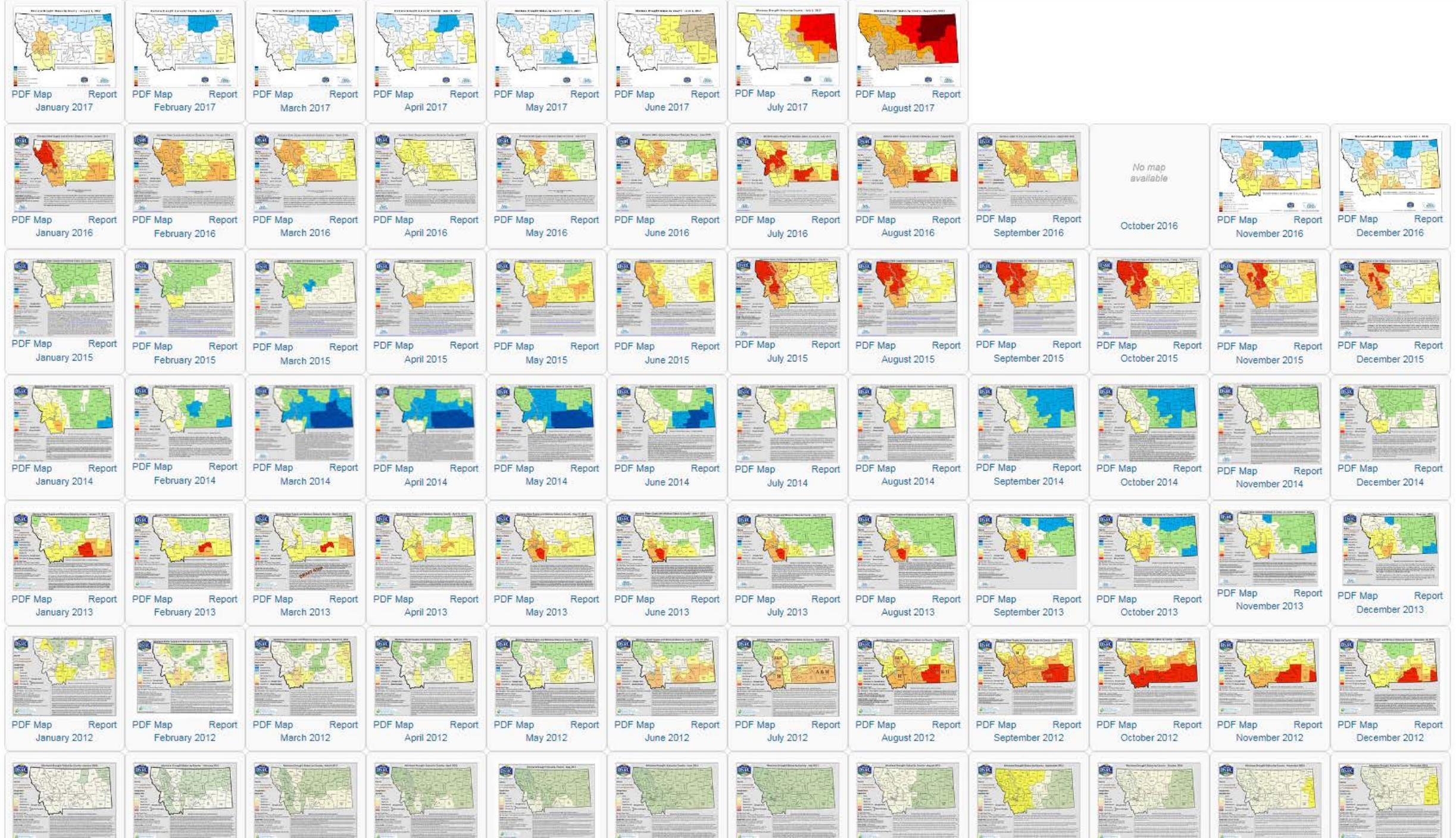
our hayfields that have averaged over 100 degree days and little rain may be back in 30y - it stopped heading out and just burned at that stage

16 year old trees began started wilting and fell off in June

Drought Status by County Map History

Long Partnership

- Mutual interest (good fit for NRIS, WIS)
 - 15 years (2002 to present)
- Neutral, non-regulatory agency (public trust)
 - Information



PDF Map Report
January 2017

PDF Map Report
February 2017

PDF Map Report
March 2017

PDF Map Report
April 2017

PDF Map Report
May 2017

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June 2017

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July 2017

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No map available
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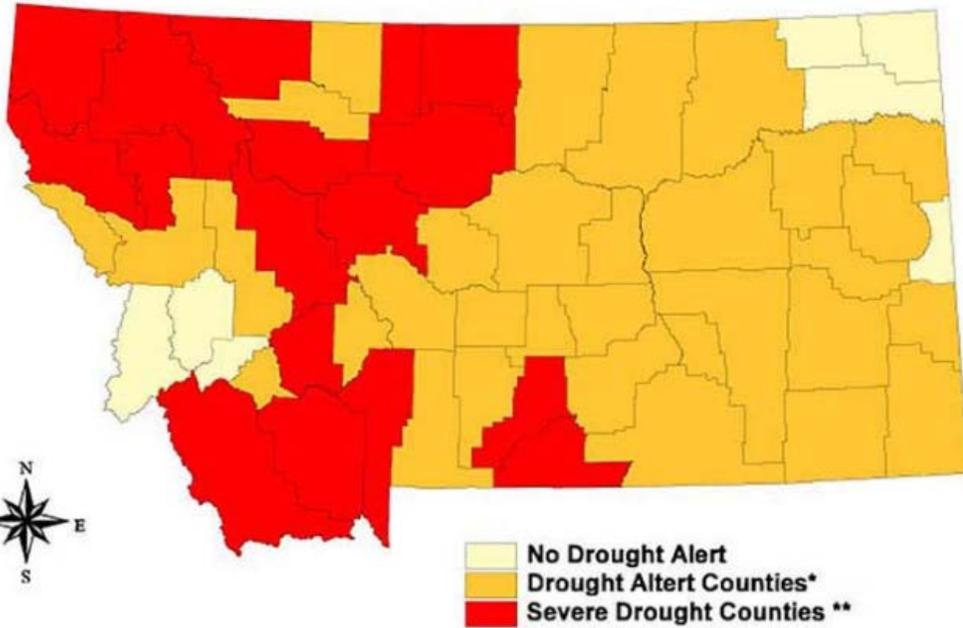
Map continues to evolve...

August 2003

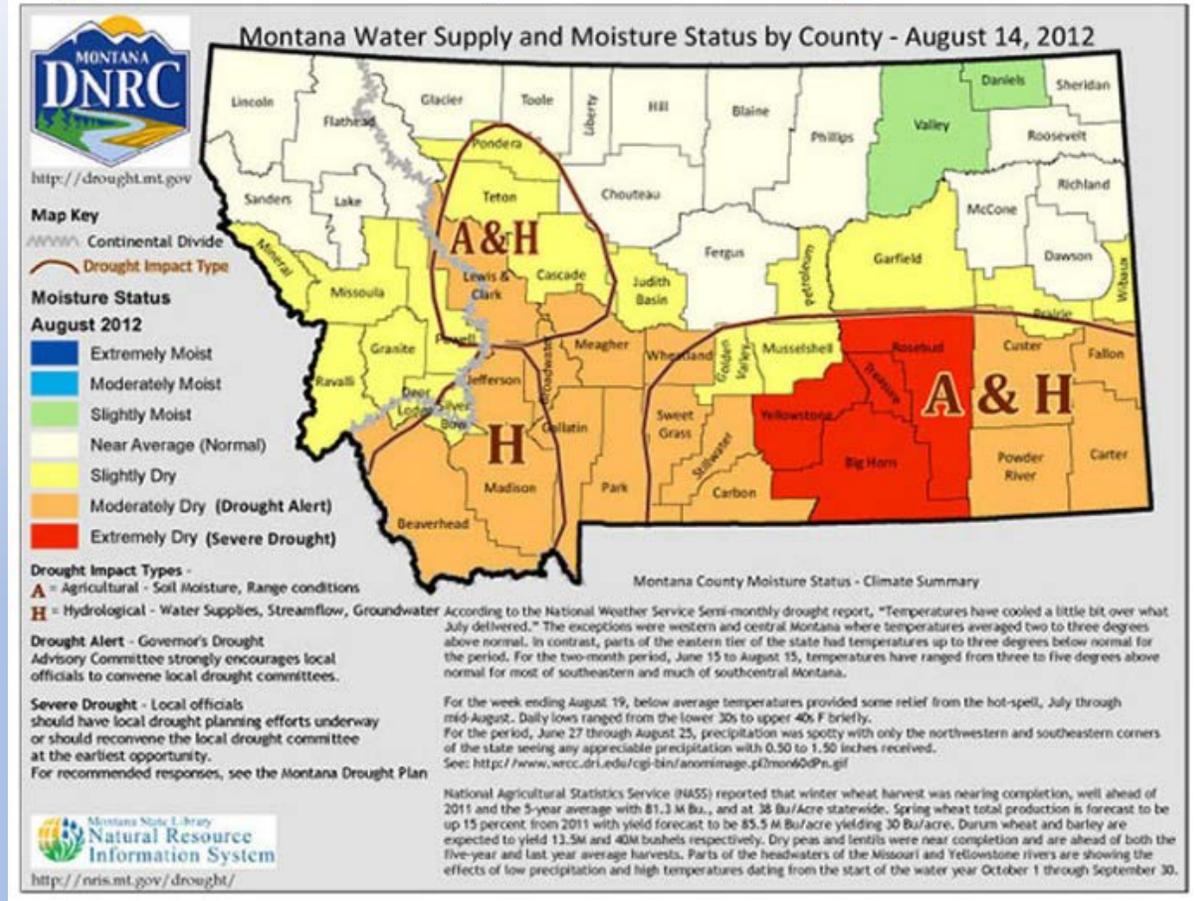
[Download Map](#)

Montana Drought Status

As of August 14, 2003



* A drought alert will be in effect when, by April 15, monitoring indicates that a county is entering initial levels of drought.
 ** A county or region will be assigned a severe drought status when drought indices indicate steadily worsening conditions and precipitation forecasts indicate no improvement in the near future.



Benefits of the county-based map

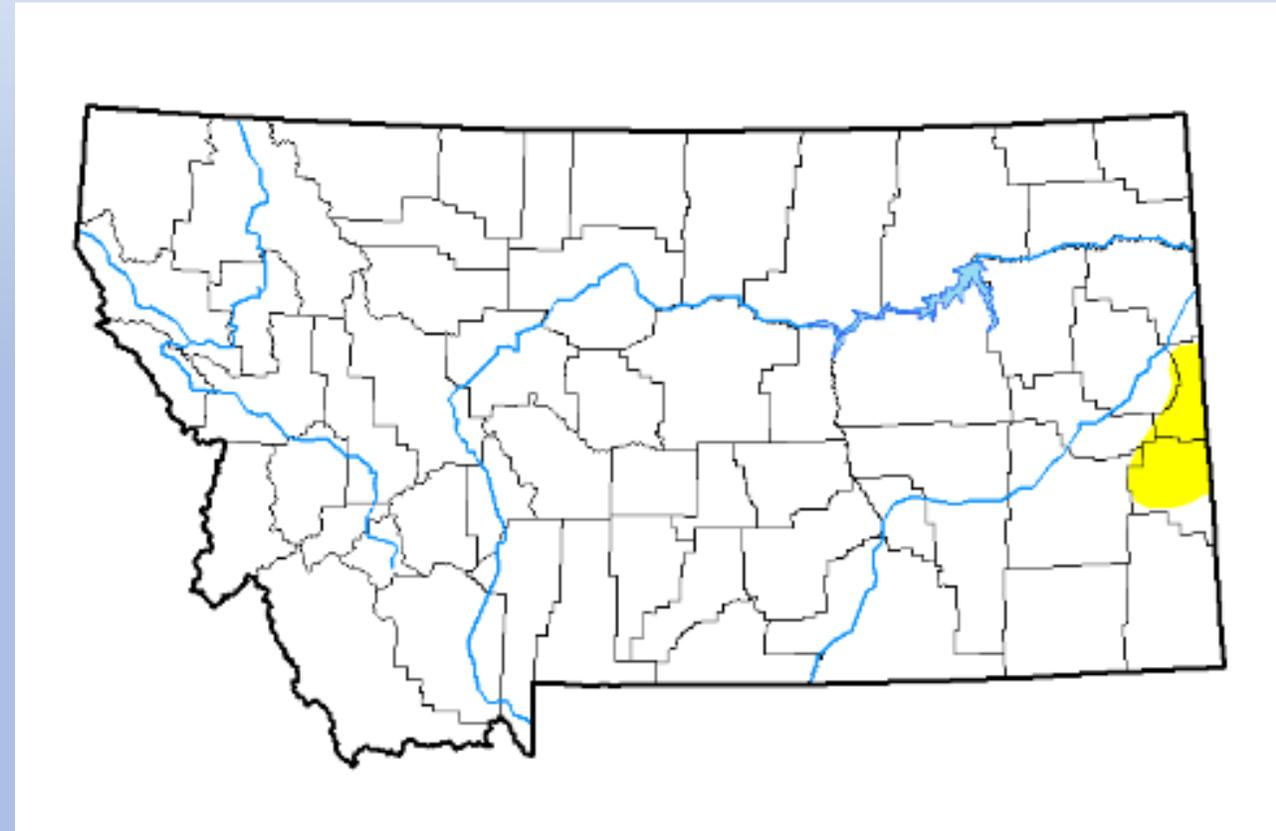
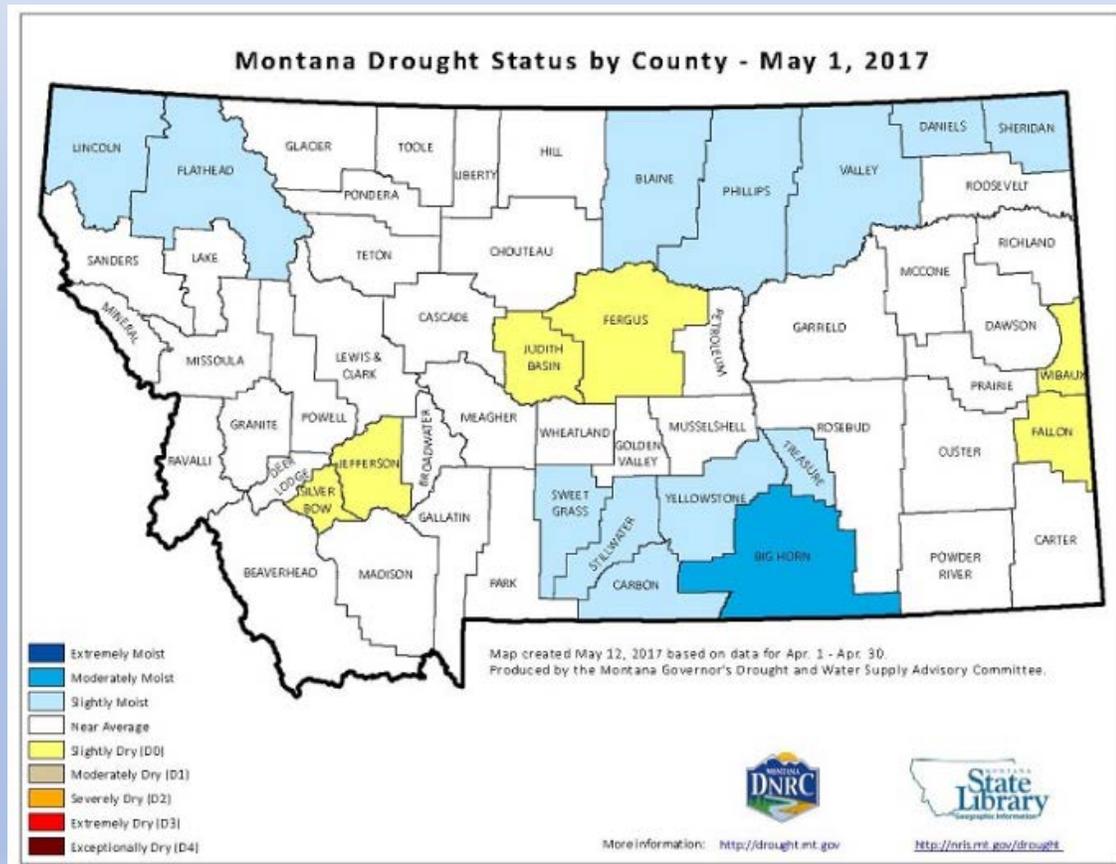
- Simple and easy for the public to understand
- Matches the level at which Executive Orders declaring drought emergency are made
- Montana-centric

Challenges of the county-based map

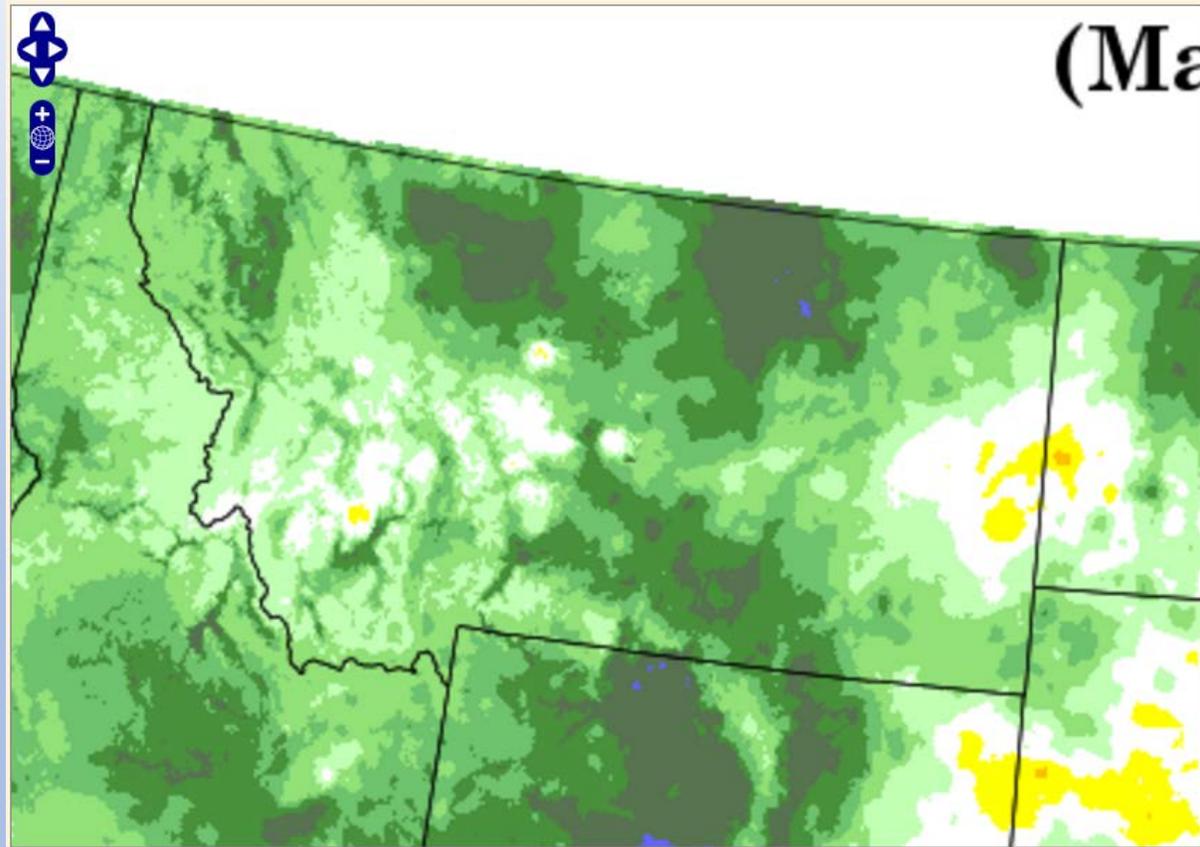
- Two products (County Map v. US Drought Monitor)
 - Until recently categories were different
 - Timing different
 - US DM triggers federal resources/relief
- Timescale- made the beginning of the month using data from the previous month

Drought onset (May-June)

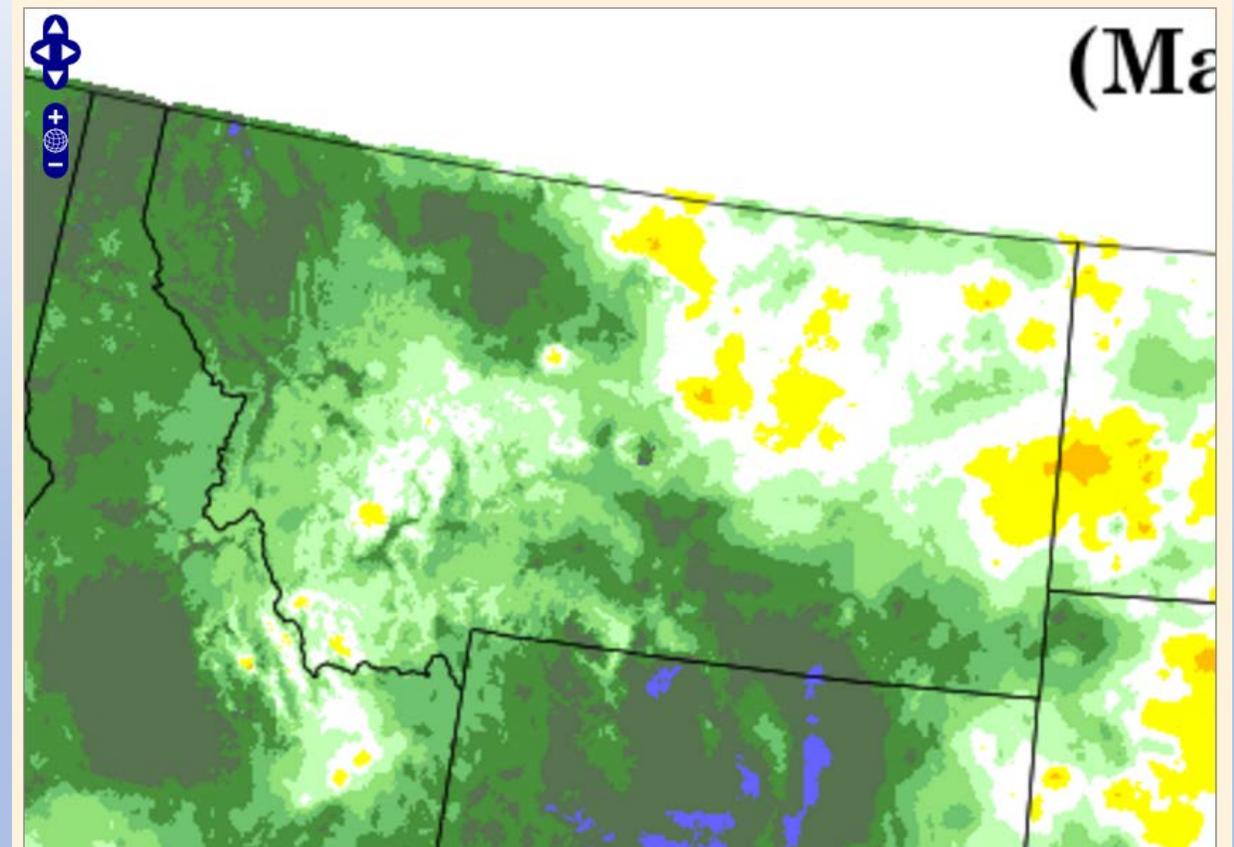
- Largely a timing issue
- For May 1, the county map had more dry (yellow) areas than US DM



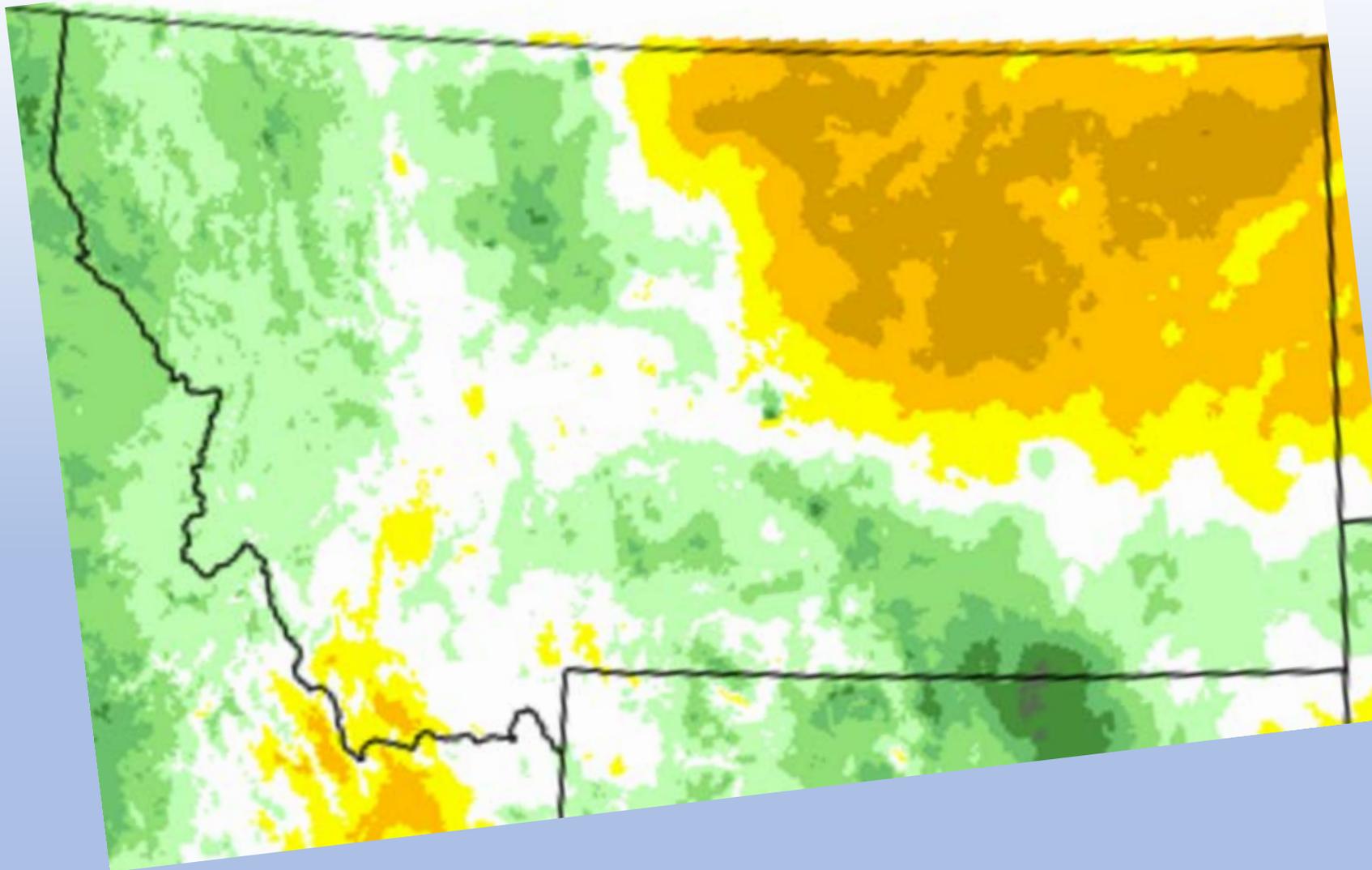
Precip Anomaly: Oct – April 2017



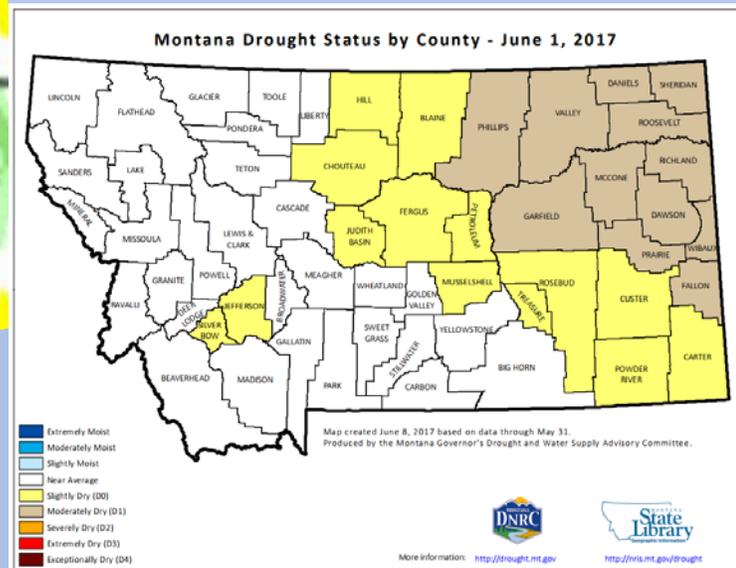
Precip Anomaly: Feb-April 2017



Precip Anomaly: Mar – May 2017



PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>



Going Forward

- Need improved/additional drought indicators and an objective way of interpreting and translating them into the county map
 - Research/science
- Continue to work towards aligning with US Drought Monitor
 - Resolution?

Discussion/Questions