



# Drought Management and Drought Programs *An Overview*

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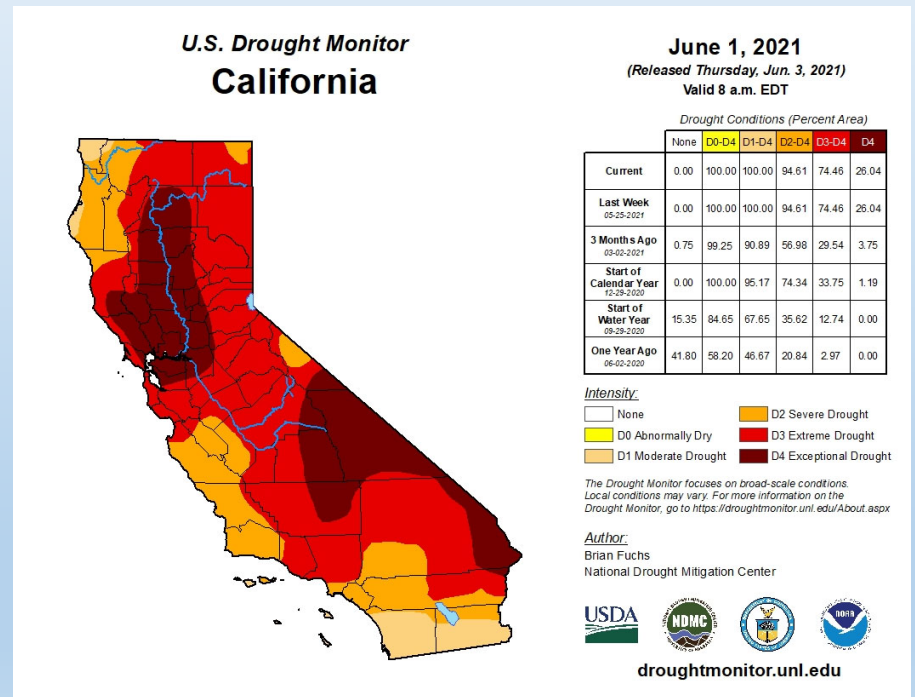
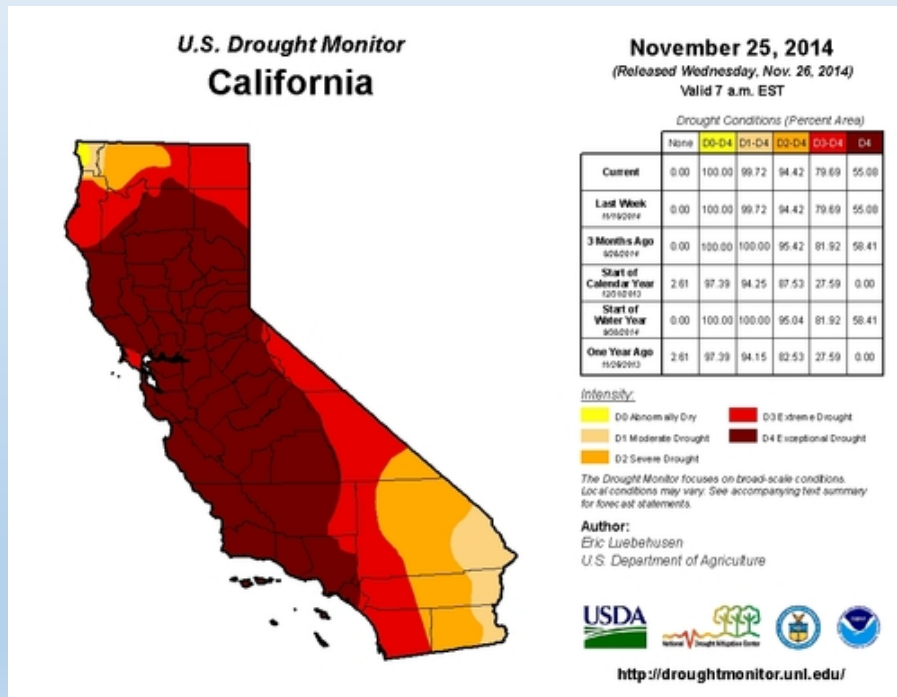
June 15-16, 2021

# Road Map

- Drought Conditions – how does 2021 compare?
- Drought Management Basics – a brief overview
- But what will it cost? A quick economic analysis of drought strategies
- Questions

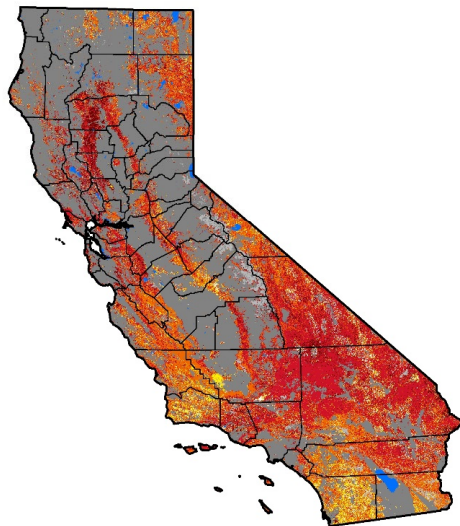


# A Tale of Two Droughts...



# But what about rangeland conditions?

**Vegetation Drought Response Index**  
Rangelands: California



May 9, 2021

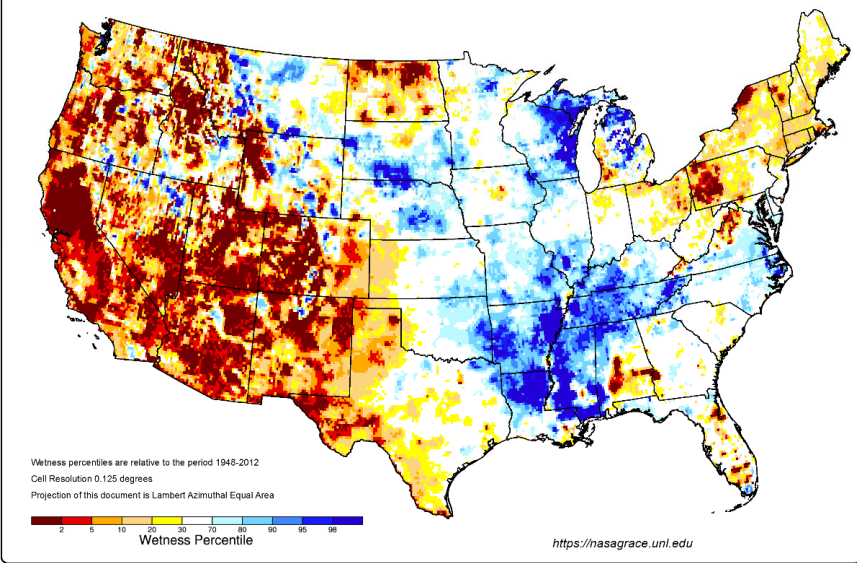
**Vegetation Condition**

- Extreme Drought
- Severe Drought
- Moderate Drought
- Pre-drought stress
- Near Normal
- Unusually Moist
- Very Moist
- Extreme Moist
- Out of Season
- Water
- Other Landcover



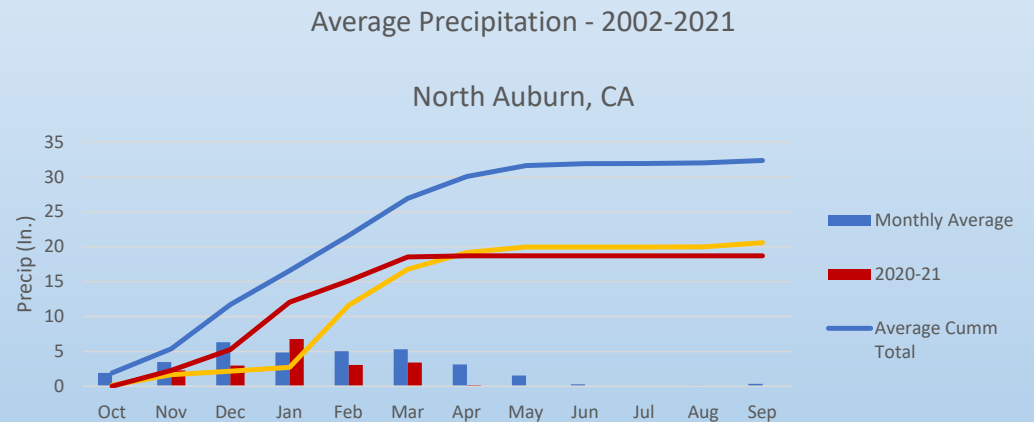
**GRACE-Based Shallow Groundwater Drought Indicator**

May 10, 2021



# How did we get here?

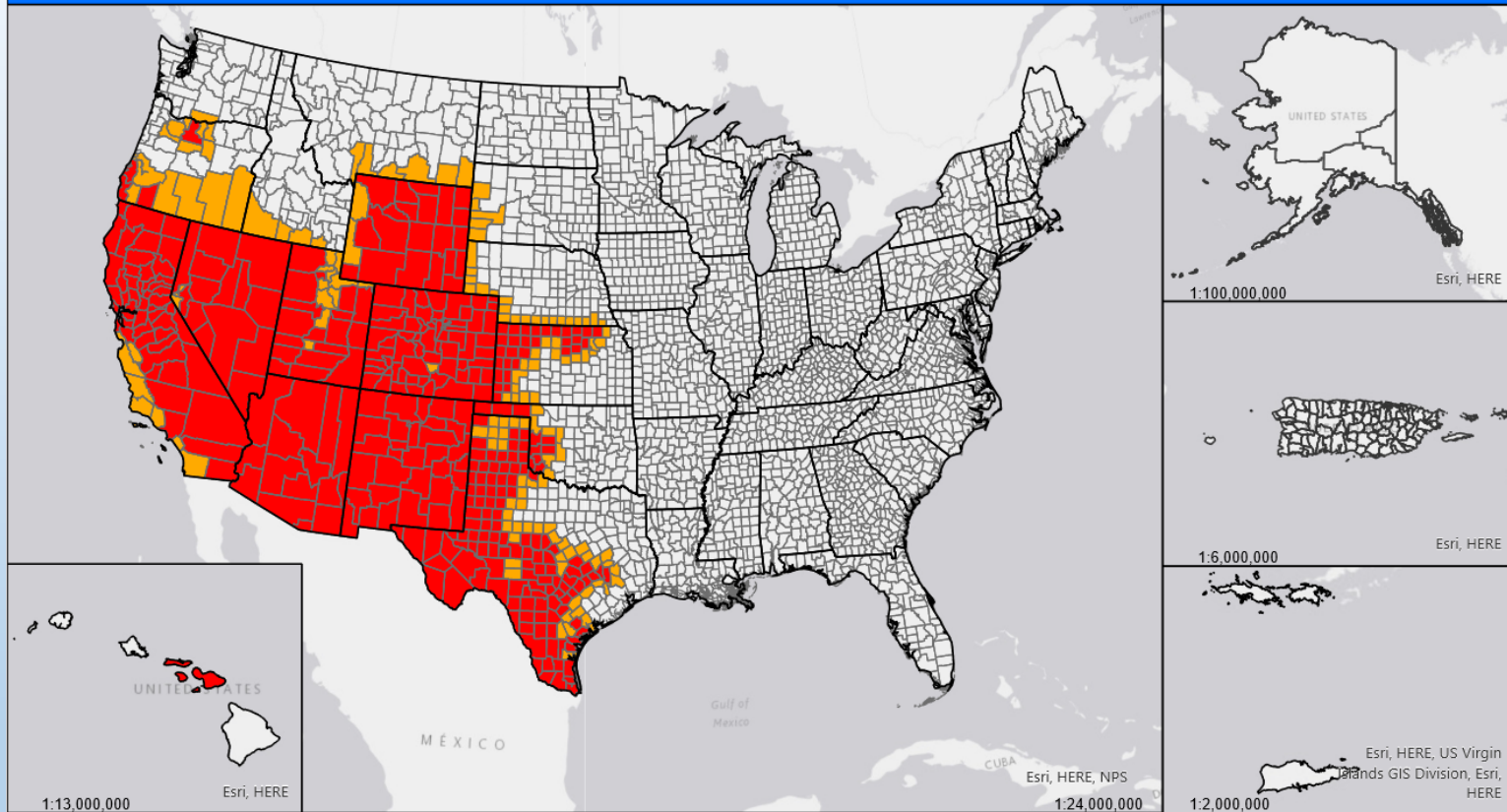
- Lower than average precip in 2019-20 water year
- Higher than “normal” summer/fall temperatures in 2020
- Late germination in foothills
- Lowest YTD precip since I’ve kept records.



# Spring 2021 Observed Impacts

- Little to no flow in seasonal creeks
  - Lack of soil moisture
  - Lack of stock water
- Minimal runoff from snow melt due to dry fall conditions
- Lack of surface water in storage = reduction in irrigation water
- Spotty forage production
  - Some regions seem to be close to long-term average
  - Other regions have significant reductions
  - Peak standing crop 30 days early
- Fuel moisture levels 45-60 days ahead of normal

# 2021 Secretarial Drought Designations - All Drought



United States Department of Agriculture  
Farm Service Agency  
Program Delivery/Safety Net Division  
March 24, 2021

## Secretarial Drought Designations for 2021

Disaster Incidences as of March 24, 2021

- Primary Counties: 379
- Contiguous Counties: 147

# Drought Strategies



	Forage Supply Flexibility	Forage Demand Flexibility
Proactive Tools		
Reactive Tools		





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Proactive Tools	<ul style="list-style-type: none"><li>• Conservative stocking rate</li><li>• Grass-banking</li><li>• Pasture rest</li><li>• Pasture/range insurance</li></ul>	<ul style="list-style-type: none"><li>• Identifying animals that could be sold</li><li>• Incorporate additional classes of livestock</li><li>• Multi-species grazing</li></ul>
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# What's your Drought Plan?!

- **How does your forage supply look for the next 12 months (by month)?**
- **If forage is inadequate, why?**
  - Quality
  - Quantity
  - Stock water
- What are your options for balancing forage supply with forage demand?
  - Review reactive strategies
- What is your critical date – when do you need to make a decision?



# Economic Considerations

- Partial budgeting can help us evaluate options
  - Increases in revenue or decreases in expenses (+)
  - Decreases in revenue or increases in expenses (-)
- What are the tax implications?
- Where are the markets?
  - Cull animals
  - Replacement animals
  - Feeders
  - Pairs
  - Grain markets
  - Hay markets

# Ecological and Livestock Considerations

- Range vegetation is already stressed from lack of moisture – this isn't the time for heavy grazing.
  - Potential to create future invasive weed problems.
- Toxic plants can be an issue in short feed years
- Nitrate accumulation can also be a problem
  - Fertilized pastures without sufficient irrigation can concentrate nitrates.

# An example...

- Assumptions
  - 100 breeding-age females (cows and heifers)
  - Pasture hay is \$240/ton delivered (big bales)
  - Labor to feed hay is \$15/hour
- 2 Alternatives
  1. We are out of forage – will need to put cattle on full feed for 60 days.
  2. We are considering weaning our calves early

# An example (continued...)

**Alternative 1: Out of Feed: feeding hay for 60 days**

Total Hay Cost	\$25,644
Total Additional Labor Cost	\$900
<i>Total Additional Cost</i>	<b>\$26,544</b>
Cost per Day	<b>\$442</b>
Cost per Head	<b>\$255</b>



# An example (continued...)

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**Alternative 2: Weaning Early: steers weigh 405; heifers weigh 395 (normal average: 600/575)**

Reduction in Calf Income	\$17,810
Estimated Savings (Hay)	\$21,252
<i>Net Change in Income</i>	<b>\$3,442</b>

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## Other Considerations

- Is this truly a full-feed situation, or can you stretch dry forage by feeding supplemental protein?
- Do you have any sunk costs (e.g., are the cows bred AI to an expensive bull)?
- Will you even be able to find hay? Are there alternative feeds to consider (e.g., almond hulls, corn stover, rice bran, etc.)?

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## Other Considerations

- Will you have additional expenses (shipping, etc.)?
- What is the market for light calves? What other markets may influence this (e.g., grain markets, etc.)?
- Will there be future costs (e.g., will buyers experience more health issues, etc.)?

# A Few Final Thoughts...

- Sometimes, a combination of these tools might make the most sense (e.g., selling older cows and weaning early).
- Selling breeding animals could have tax implications – talk to your accountant!
- Are there multi-year impacts from this year's drought strategies:
  - For example: If you let body condition decline, will this impact future conception rates?
- ***WHAT ARE YOUR CRITICAL DATES?***
- What are your plans for recovery once the drought is over?





# For more information

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<https://ucanr.edu/sites/Livestock/>

<https://ucanr.edu/blogs/RanchingintheFoothills/index.cfm>

<http://rangelands.ucdavis.edu/drought/>