RANGE BULLETIN

Livestock & Natural Resources Newsletter

In this issue:

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Find us on Facebook! Search for **@UCCEFresnoMaderaLivestock** or visit the page directly at **https://www.facebook.com/UCCEFresnoMaderaLivestock/** for weekly updates on upcoming events, recent news, and research information.

Madera UCCE Office Relocating

We are pleased to announce that as of January 19, 2021, the Madera County UCCE office and Ag Commissioner are relocating to the newly remodeled space in the old sheriff's building. Our new address will be:

145 Tozer Street Suite 103 Madera, CA 93638
(currently 14143 Rd 28, Madera)

COVID-19 Precautions Continue in 2021

To keep our employees safe and do our part to reduce the spread of COVID-19, all UCCE offices have been instructed to remain closed. We may continue working remotely through June 2021. We look forward to continue working with you by phone, email, video conferencing, and farm and ranch visits.

Please contact us with any questions!

Do you own forest or wooded land? This 9-week series will help you to update or create a new forest management plan.

California Forest Stewardship Workshop

Online from February 2 - April 13, 2021 and in-person on Saturday, November 21st, Fresno County

Join us to understand and protect your forests with a Forest Management Plan. Topics include:

- Forest management objectives and planning
- Forest health, insects and disease
- Forest and fire ecology, wildlife, watersheds
- Fuels reduction and forest resource marketing
- Mapping, inventory and silviculture
- Project development & permitting
- Getting professional help and cost-share opportunities

Participants will utilize online resources on their own time to complete learning modules and short activities. Zoom meetings with all participants and presenters will take place once a week on Mondays, 6-7:30pm. The in-person field day will cover silviculture, forest inventory and mapping activities. **Participants who complete the workshop will be eligible for a free site visit with a California Registered Professional Forester.**

Workshop registration is $60. **Sign up now at ucanr.edu/forestryworkshops/**

Questions? Contact Kim Ingram, kcingram@ucanr.edu.

Hosted by University of California Cooperative Extension in collaboration with:
American Forest Foundation • CAL FIRE • California Association of Resource Conservation Districts • California Fire Safe Council • Forest Landowners of California • USFS Region 5

The Forest Stewardship Education Initiative is a CAL FIRE funded contract (8CA04547), awarded July 1, 2019 through June 30, 2021, to Susie Kocher, RPF#2874, University of California Cooperative Extension, to help landowners develop forest management plans.

Other Virtual Events

UC Davis Goat Day - January 23

Goat Day will be going virtual for 2021!

Please join us on Saturday, January 23rd, for a virtual event with the theme of **Maintaining Herd Progress in Uncertain Times**.

The event will go from 9am to 1pm. More information about the event, including a detailed schedule, is available here: **animalscience.ucdavis.edu/events/goat-day**

California Rangeland Conservation Coalition Summit

Hi and Lo Tech on Rangelands Supporting Ecosystem Services

JAN 26-29, 2021
1:00pm-3:30pm daily

The four-day program includes these topics and more:

January 26: Earth to sky
- Drones for monitoring
- Endangered species on range
- Barb-wire and virtual fencing
- Match.Graze
- Compost, cattle, and rangelands

January 27: Data
- Pasture Map
- Mapping invasive plants for landscape-level prioritization
- COMET Planner

January 28: Low tech restoration
- Doty Ravine restoration
- Picture stories of a Modoc riparian restoration
- Native American burning for cultural resources

January 29: Animal technology
- Livestock guardian dog demonstration
- Low-cost tech for tracking livestock guardian dog behavior
- Camera traps to learn about wildlife and livestock on the range
- Living with lions

Each day also includes breakout sessions. Registration and a complete schedule is available online: https://carangeland.org/2021-summit/

Forage predictions: using historical data

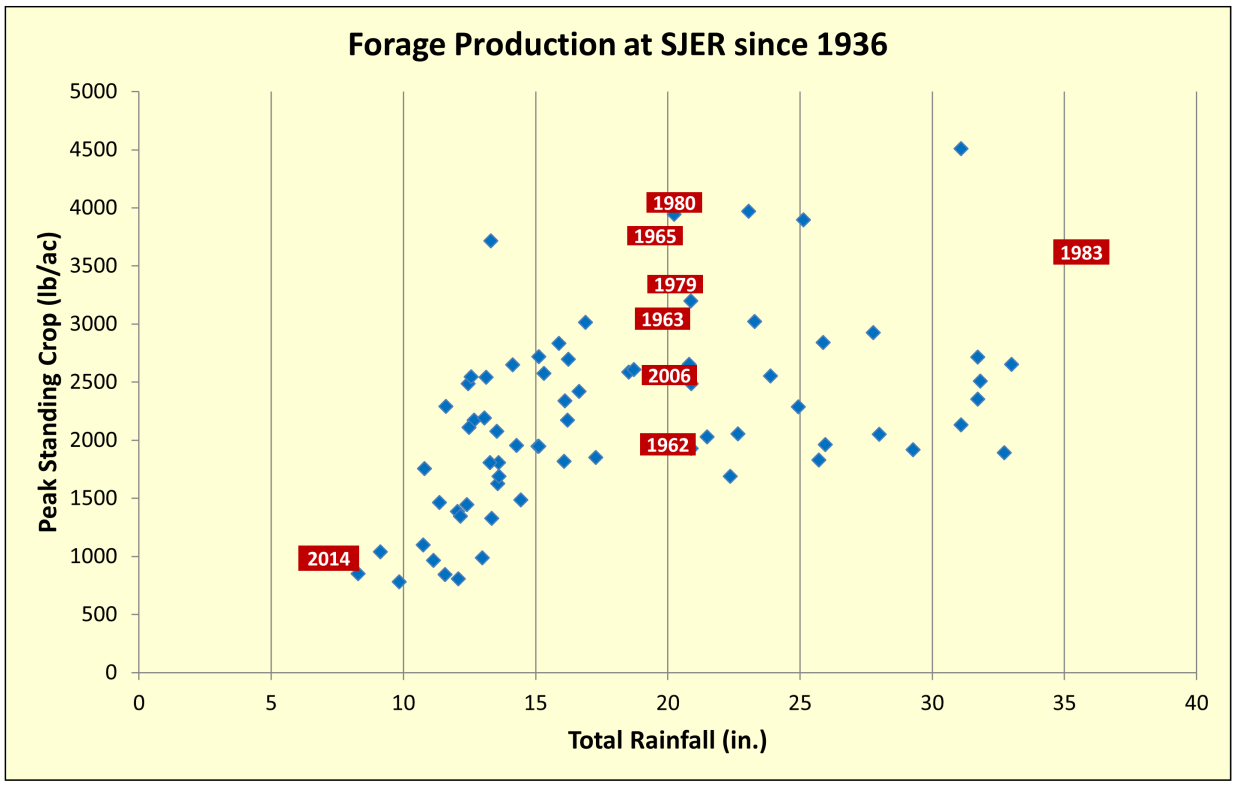
Historical records can help us predict the year's possible forage production. I use data from 80 years of monitoring at the San Joaquin Experimental Range.

So far, the 2020-2021 wet season hasn't been very wet. In 2018, I decided to use historical data to predict the end result of the season, and I repeat that prediction exercise here.

Although total rainfall alone can't completely predict forage production, it usually correlates well to forage production in annual rangelands. Other major factors to consider are the timing of precipitation and temperatures of the growing season. We don't currently have ongoing temperature data collection at our monitoring sites, but total we do have historical observations help us to categorize potential rainfall patterns that partially account for the timing and temperature. Typically, wet winters have slow forage growth, while wet springs have rapid growth. Colder temperatures tend to slow plant growth even if there is sufficient rainfall. I rely on the patterns described in UC Publication 8018 (download here: http://anrcatalog.ucanr.edu/pdf/8018.pdf), to consider timing and temperatures in a general sense.

I'll share this graphic (Fig. 1) from my 2018 article, because it is a convenient visual of the general relationship between forage and rain at the San Joaquin Experimental Range (SJER). *This article continues* ►

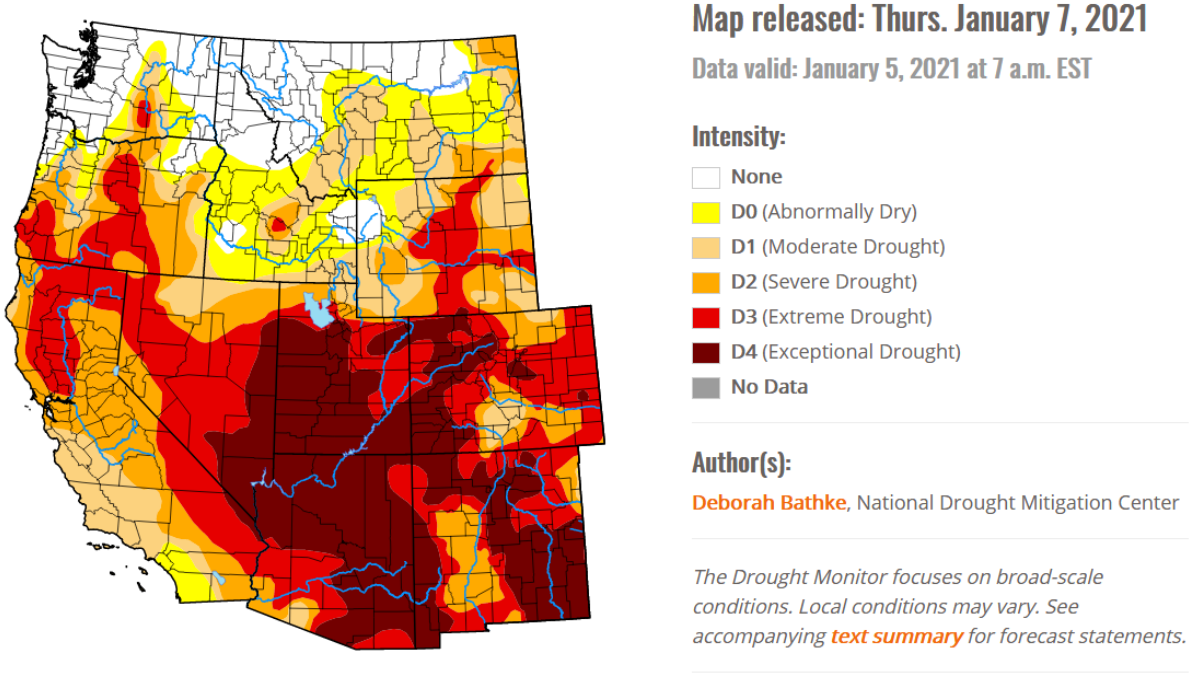
Figure 1. Forage Production at the San Joaquin Experimental Range (SJER) from 1936-2014. Rainfall in 2014 was the lowest recorded in this time frame, but 2014 did not have the lowest forage production. Similarly, the highest rainfall year (1983) did not have the highest forage production. Selected years have been labeled to show how total rainfall is only one factor of forage production each year. For example, with 20 in. of rain, forage production was as low as 2000 lb/ac (in 1962) and as high as 4000 lb/ac (in 1980).



Predictions cont'd

Fall 2020 was fairly dry, although snowpack is close to average for the time of year. As of early January, the Drought Monitor still shows Madera County and eastern Fresno County in severe drought (D2; Fig. 2).

Figure 2. Drought Monitor Map for the Western US as of January 7, 2021. The Drought Monitor website is maintained by University of Nebraska-Lincoln and maps are updated weekly. View the current map here.



This year so far looks a lot like it did in 2018; as of early January 2021, SJER has had about 3 inches of rain. In the 2017-2018 water year, total precipitation was about 12 inches, or 67% of average at that site. If we don't see at least an average spring like we got in 2018, which ultimately grew 92% of average forage production, we are likely to have low forage production this year.

Using the same predictive model that I developed in 2018, including the last 3 years of rain and forage data, I predicted forage production based on three total rainfall scenarios - a dry spring, an average spring, and a wet spring. Keep in mind that this prediction model is most relevant for the Sierra Nevada foothills in Madera and Fresno Counties, around 1000-1500ft of elevation.

This article continues ►

Predicted standing crop is shown in the table below, plus or minus one standard error.

Weather Pattern	Potential Total Growing-Season Rainfall (in.)	Predicted Peak Standing Crop (lb/ac)
Dry winter, dry spring	7	**1094** ± 197
Dry winter, average spring	13	**1885** ± 92
Dry winter, wet spring	19	**2370** ± 78

Predictions cont'd

If we continue to have dry weather, then total forage production could be well below average - only 50% of the 80 -year SJER average of 2225 lb/ac. However, if we have an average spring, then production could reach 85% of average. If we get a good spring with well-timed rain and temperatures, our annual rangelands could turn out average or better: the best case scenario predicts about 106% of average production. Of course, even with the best case scenario, you may need to be prepared for several dry winter weeks.

Drought Resources

The strategies you might use to respond to drought will vary with the severity of drought on your property, how much RDM is available for winter grazing, and your plans for your market animals, among other things.

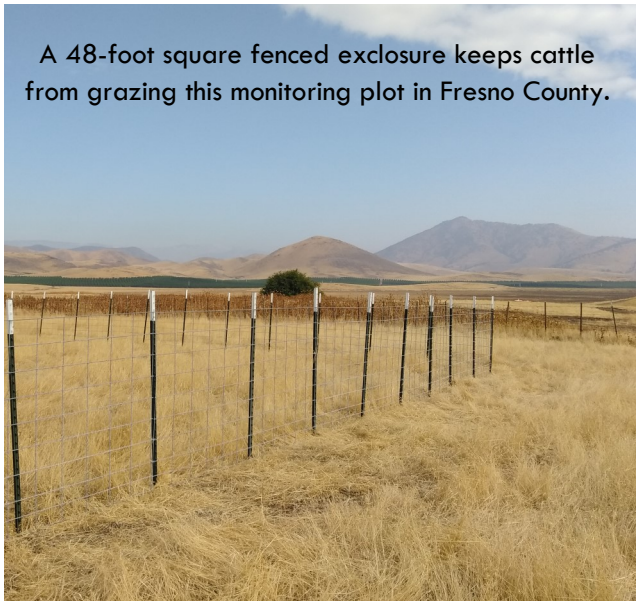
UC Publication 8034 (download free: http://anrcatalog.ucdavis.edu/pdf/8034.pdf) advises drought livestock management practices, including moving livestock to the most productive pastures you have and making sure there is abundant fresh water available for livestock.

Stephanie Larson, UCCE Livestock & Range Management Advisor for Sonoma and Marin Counties, compiled several strategies for managing livestock during drought. You can read her drought strategies here.

Additional drought strategies compiled by UC rangelands experts have recently been shared online, as well - see this recent post from the UC Rangelands team.

The Future of Forage Monitoring?

A new project led by UC Davis researchers investigates the use of satellite imagery to measure forage and residual dry matter.


A 48-foot square fenced exclosure keeps cattle from grazing this monitoring plot in Fresno County.

A UC Davis research team has partnered with UC Cooperative Extension advisors throughout the state to test the potential for real-time forage monitoring through remote sensing imagery. The team successfully pilot tested the use of satellite and drone imagery in San Luis Obispo County, and in fall 2020, we helped set up nearly 50 grazing exclosures throughout California grasslands and oak woodlands to test the technology across the state. Local UCCE advisors will monitor forage growth on the ground during the 2020-2021 growing season. Then, our data will be compared to satellite imagery to see if the technology calculates forage production and residual dry matter accurately. We hope to obtain better forage data and better predict forage production across the state, and get actionable data from locations that are hard to access in person.

If you have any questions abut the project, feel free to contact Dr. Yufang Jin at yujin@ucdavis.edu or Rebecca Ozeran at rkozeran@ucanr.edu.

NEW 2020 Publications

Publication Corner

A Guide to Livestock Leases for Annual Rangelands, Feb 2020

Excerpt: There are three major considerations in developing a grazing lease:
1) The unit to base the lease rate on [animal unit months (AUM), acres grazed, or a flat rate for a parcel or tract];
2) The amount to charge per unit and how this may be set or adjusted;
3) The length or term of the lease.

Download here

Preparing for Disaster: Establishing an AgPass Program in Your Community, Dec 2020

Excerpt: When disasters threaten communities, agriculture is typically underserved because orchards, livestock, and crops are not high-priority items for firefight-ers. Their focus is on lives and structures (largely, residential structures). This leaves a gap in protection for important agricultural resources.

Download here

Ecology and Management of Annual Rangelands (9-part series), Dec 2020

Summary: Decades of research-based knowledge about the history, physical characteristics and vegetation in California annual grassland, oak-woodland and chaparral ecosystems has been consolidated in a new nine-part PDF document. The series includes past and current practices for managing vegetation, grazing and livestock compiled by researchers at the University of California, U.S. Department of Agriculture and other agencies and universities.

View or download Part 1 here, or

View the entire list by searching for "rangeland" in the ANR Catalog (click to search)

As seen in the December 2020 issue of California Cattleman-

Meet Cosmo: The bull calf designed to produce 75% male offspring

Summary: UC Cooperative Extension Specialist Alison Van Eenennaam's lab successfully used CRISPR technology to insert the SRY gene, which contributes to the sex of the developing animal, into an embryo that developed into a viable bull calf, Cosmo. **Read the full article here**.

Rendering and euthanasia:

The California Department of Food and Ag recently released a reminder of the requirement to mark animals euthanized with barbiturates with a large orange B on the forehead. For more information, visit the Rendering website here.

cdfa

Euthanasia & Rendering

The Orange "B": Use for Euthanized Animals Only
Effective July 30, 2020 animals (not including domestic dogs, cats, and pet birds) euthanized with Barbiturates must be marked with an Orange B on the forehead, at least 4 inches in height, at the time of euthanasia. Producers wanting to avoid confusion with rendering pickup should avoid using a "B" in orange paint anywhere on the animal to indicate "beef cow", "bucket cow" or Banamine.

The marking of animals is critical so that animals euthanized with Barbiturate do not get rendered into animal feed or pet food. Rendering of dead animals is an important method of carcass management, preventing animal carcasses from being sent to a landfill. For additional information please contact the Meat, Poultry and Egg Safety Branch.

Avoid marking the animal with the letter B for any other reason, in any other location.

3 CCR Section 1180.43.1- Euthanized Animals

Meat, Poultry and Egg Safety Branch
(916) 900-5004
rendering@cdfa.ca.gov
https://www.cdfa.ca.gov/ahfss/mpes/Rendering/index.html