

[Subscribe](#)

[Past Issues](#)

[Translate](#) ▼

[Subscribe](#) | [Previous Bulletin](#)

[View this bulletin in your browser](#)



USDA Southwest Climate Hub Bulletin

Resilient working landscapes

News, research and events for the Southwest Climate Hub region
September 2017

What's happening at the Hub

Just released!

[The Effects of Climate Change on Agricultural Systems](#) - A 5-Hour Curriculum
Unit for 6-12 Grade Students

[Subscribe](#)[Past Issues](#)[Translate ▼](#)

As the climate changes, increased temperatures and extreme events are predicted in the southwestern United States, which could impact crop productivity and food security. We partnered with the [Asombro Institute for Science Education](#) to design an engaging, fun, and scientifically rigorous education unit aligned with Common Core State Standards and Next Generation Science Standards. This [unit is freely available](#) and intended for use by anyone, especially educators of 6-12 grade students. The unit consists of five activities and was designed to be conducted over five days (or five hours). Each activity can also stand alone however, and the unit need not be completed in its entirety.



California Drought and Tree Mortality Workshop

The California Climate Hub recently co-hosted a Drought and Tree Mortality Symposium in Sacramento with the US Forest Service Region 4 as well as several federal, state and NGO partners: including the California Landscape Conservation Cooperative, Cal Fire, National Forest Foundation, and the Sierra Nevada Conservancy. There were nearly 170

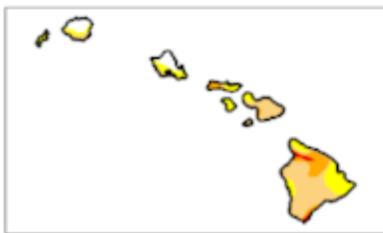
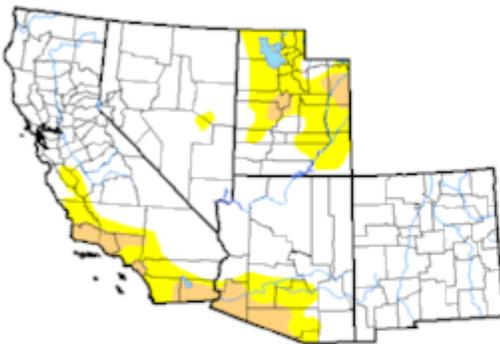
most impacted by the extremely high levels of mortality rates. Factors that have been attributed to this unprecedented mortality event include historical management practices, warmer temperatures, drought, and insect outbreaks. One of the primary drivers for developing this science and management symposium was to better understand current research and management options to build a framework for later development and implementation of future forest management strategies. The symposium agenda and presentations can be found [here](#). For more information please contact Steven Ostoja at steven.ostoja@ars.usda.gov.

(Photo credit: Jim McDougald, CalFIRE)

Current Drought Conditions

U.S. Drought Monitor
USDA Southwest Climate Hub

September 19, 2017
(Released Thursday, Sep. 21, 2017)
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	78.96	21.04	6.03	0.17	0.03	0.00
Last Week 08-13-2017	78.96	21.04	6.02	0.17	0.02	0.00
3 Months Ago 06-20-2017	72.83	27.17	9.16	0.33	0.00	0.00
Start of Calendar Year 01-01-2017	40.37	59.63	31.72	16.38	10.17	4.86
Start of Water Year 09-27-2016	22.74	77.26	40.38	21.71	11.41	5.59
One Year Ago 09-20-2016	17.67	82.33	40.84	21.91	11.41	5.59

Intensity:
■ D0 Abnormally Dry ■ D3 Extreme Drought
■ D1 Moderate Drought ■ D4 Exceptional Drought
■ D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Brad Rippey
U.S. Department of Agriculture



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

A weekly map of drought conditions is available at the U.S.Drought Monitor [website](#).

Excerpt from the National Drought Summary for September 19, 2017

"Hawaii continued to experience warmer- and drier-than-normal weather. Lihue, Kauai, posted daily-record highs of 89°F on September 12, 15, 17, and 18. Although Hawaii's drought depiction was largely unchanged, there was some further deterioration (mainly, expansion of D3, or extreme drought) on the lower leeward slopes of the Kohala Mountains on the Big Island due to declining pasture conditions."

News

Western States Fire Activity

Extreme heat and dry conditions are causing [dozens of wildfires in the Northwestern States](#). Even though these fires are way up in the northwest, we see a little of their effects in the southwest with sunsets even more spectacular than usual. Take a look at [these images](#) from NASA. Smoke is being carried by the jet stream across the entire country. The imagery shows smoke carried aloft several kilometers above Earth's surface. For the most of the Southwest, air quality at the surface has hovered between "Good" and "Moderate" – you can check the Air Quality Index for your zip code at the Environment Protection Agency's "[AirNow](#)" website.



Small Farmers and Water Challenges

Creativity, University-affiliated crop advisors and Cooperative Extension helped Hmong farmers weather California's unprecedented drought. The team held workshops and offered one-on-one assistance to find the best utility rate for irrigation pumping practices. They also helped farmers take advantage of the California Department of Food and Agriculture's new [State Water Efficiency and Enhancement Program](#) (SWEEP). Read the whole story in [The Confluence: Blog of the California Institute for Water](#).



Reviving the soil

A thriving soil microbiome is key for a [healthy topsoil](#). Soil management practices such as cover cropping and no-till farming can increase organic matter in soil.

[Subscribe](#)[Past Issues](#)[Translate ▼](#)

the [Menominee Tribe is planting tree species](#) that are projected to be more resilient in a warmer climate.



ENSO Alert System Status: La Niña Watch

CLIMATE PREDICTION CENTER/NCEP/NWS and the International Research Institute for Climate and Society stated there's an [increasing chance of a La Niña](#) during the Northern Hemisphere fall and winter 2017-18.

Research

Three articles were published by Southwest Climate Hub team members last month.

[Can MODIS snow cover products sufficiently supply small-basin snowmelt runoff simulation models?](#)

See this article to learn more about MODIS snow products for runoff simulation in the Upper Rio Grande.

(International Journal of Applied Earth Observation and Geoinformation)

[How will California specialty crops fare in a warmer future?](#)

Read about the impacts of climate change in specialty crops in California.

(Climatic Change)

[How much will average annual and seasonal temperature and precipitation change in your county by midcentury? And, should you rely on the estimate?](#)

This article provides information on a county-level national database of mid-century temperature and precipitation changes.

(Climatic Change)

[Land degradation and climate change](#)

How does land degradation fit into assessment of climate change impacts on agroecological systems? In this paper, Nick Webb and his colleagues present some “novel strategies” on incorporating land degradation processes into adaptation planning, prioritizing adaptation responses, using communication to develop producers’ adaptive capacity, and win-win management and policy options.

[Subscribe](#)[Past Issues](#)[Translate ▼](#)

[How does climate change affect cattle production in western U.S. rangelands?](#)

This recent research suggests adaptation measures and industry change for producers in the American Southwest, while increasing flexibility to take advantage of favorable periods in the Northern Plains.

(Rangeland Ecology & Management)

[What can tree rings tell us about climate sensitivity across the western U.S.?](#)

The climate sensitivity of ponderosa pine is examined in this article.

(Forest Ecology and Management)

Assistantship Opportunity

The USFS and the Wildlife Society are seeking applicants for Native American Research Assistantships

The U.S. Forest Service (USFS), Premier Partner of The Wildlife Society, is sponsoring a research assistantship program for Native American students. Short-term assistantships are available for Native American students interested in wildlife and forest resources and excited to learn and work with an interdisciplinary team of researchers.

The **deadline application is October 18, 2017**. Follow this [link](#) for more information.

EVENTS

- Webinar: [California-Nevada Drought & Climate Outlook](#), September 25, 2017
- [Food Sovereignty Summit](#), October 2-5, 2017
- Webinar: [Relations among cheatgrass-driven fire, climate and sensitive-status birds across the Great Basin](#), October 11, 2017
- [Behavior, Energy and Climate Change Conference](#), October 15-18, 2017
- [The Riparian Summit: Confluence to Influence](#), October 17-19, 2017
- Webinar: [Using climate and water models to examine future water availability and biodiversity in California and the Great Basin](#), October 19, 2017
- [Preparing for Extreme Water Conditions](#), October 19-20, 2017
- [Tribal Environmental Health Forum](#), October 19-20, 2017

Subscribe

Past Issues

Translate ▼

- [Cultures Under water: Climate Impacts on Tribal Cultural Heritage](#), December 6-8, 2017



Copyright © 2017 USDA Southwest Climate Hub, All rights reserved.

Want to change how you receive these emails?
You can [update your preferences](#) or [unsubscribe from this list](#).

