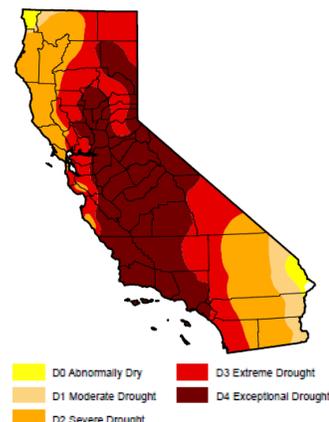




TOPIC: ELEVATED TREE MORTALITY RESULTING FROM ONGOING CALIFORNIA DROUGHT

Purpose: Provide an update on tree mortality being observed and expected during 2015 in California forests

BACKGROUND: Winter storms brought some much needed precipitation to parts of the state, although not enough to end the current drought. Statewide precipitation as of March 18, 2015 has been about 80% of average; snow pack water content is a dismal 15%. Most of the state continues to experience severe drought or worse. Over 2 million trees died from bark beetles across 820,000 acres in 2014, which is over twice as many acres with mortality than in 2013. We expect to map significantly more dead trees this year, particularly in the areas of exceptional drought.



U.S. Drought Monitor March 18, 2015

KEY POINTS

- Four consecutive years of drought have predisposed an increasing number of trees to bark beetle attack.
- Conifer mortality caused by bark beetles is highly correlated with annual precipitation and can preferentially occur on conifers heavily infected with root pathogens and/or dwarf mistletoe; extreme or protracted drought periods result in increased levels of tree mortality (Figure 1).
- Dramatic rises in bark beetle-caused tree mortality are anticipated this year.
- Elevated levels of tree mortality during 2015 are most likely to be observed in dense forest stands, in stands impacted by root diseases or other stress agents, or in areas where higher levels of bark beetle activity was observed in 2014 (Figures 2 and 3).
- Significantly noticeable increases in tree mortality due to bark beetles and drought have occurred over the past few months in Southern California forests and the southern Sierra Nevada range. Mortality due to bark beetles, root disease and drought is also increasing in Northern California.

RECOMMENDATIONS FOR LINE OFFICERS AND MANAGERS

1. Forest managers should continue to remain vigilant in hazard tree management; tree mortality is likely to occur at public use and administrative sites and along motorized travel routes.
2. Land managers are encouraged to limit the build-up of green slash or smaller diameter green trees in harvesting areas to lower the likelihood of pine engraver beetles killing residual standing trees.
3. Extreme caution should be taken during prescribed fire treatments to limit fire-injury on desired residual trees.
4. High-value trees including those in campgrounds, known rust-resistant sugar pine trees, etc. should be monitored closely for bark beetle activity and may require preventive treatments.
5. Forest Health Protection will provide updates when aerial detection surveys are initiated.
6. Contact a Forest Health Protection specialist for technical assistance and public affairs needs:

Northern CA	Northeastern CA	Southern Sierra	Southern CA	Regional Office
Pete Angwin 530-226-2436	Danny Cluck 530-252-6431	Beverly Bulaon 209-532-3671 x323	Tom Coleman 909-382-2871	David Bakke 707-562-8916 Phil Cannon 707-562-8913
Cynthia Snyder 530-226-2437	Bill Woodruff 530-252-6680	Martin MacKenzie 209-532-3671 x242	Melody Lardner 909-382-2725	Jeff Moore 530-759-1753 Sheri Smith 530-252-6667

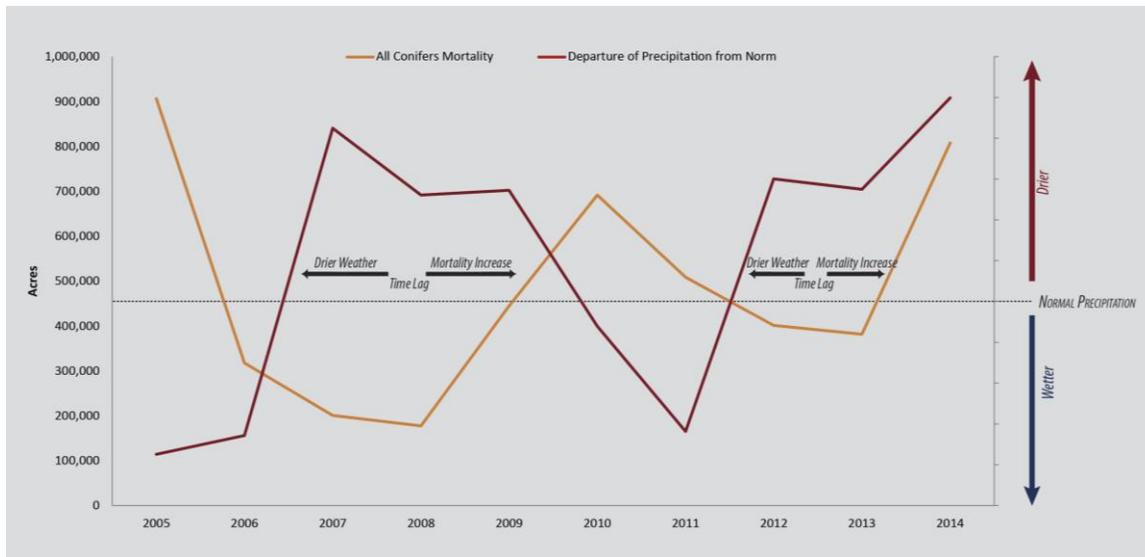


Figure 1. Acres of tree mortality compared to departure from normal precipitation (by year, 2005-2014).

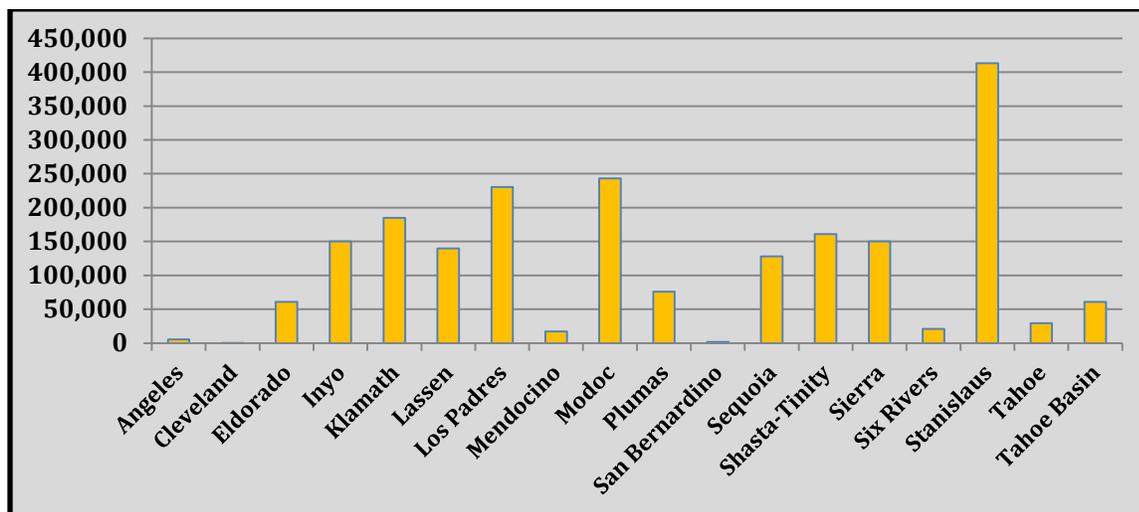


Figure 2. Number of dead trees attributed to bark beetles by National Forest in 2014 (aerial survey data; numbers are rounded).

Additional information about bark beetles, tree mortality, and precipitation levels can be viewed at:

Aerial survey information – <http://www.fs.usda.gov/main/r5/forest-grasslandhealth>

CA water conditions – <http://cdec.water.ca.gov/snow/bulletin120/>

US Drought Monitor – <http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?CA>

Bark beetle information for home owners –

http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5384837.pdf

Forest Health Advisory by land ownership – <http://foresthealth.fs.usda.gov/fhas>

R5 Drought Toolbox – <http://www.fs.usda.gov/detail/r5/landmanagement/?cid=stelprd3818284>