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Upcoming Events - Save the Date!

March - June 2023 - [Sudden Oak Death BLITZ Surveys](#)

April 12, 2023 - [Insects, Diseases & Climate Change - Implications for Management](#), virtual conference.

May 4, 2023 - [Shaded Fuel Break: Lessons Learned Post Wildfire in the San Vicente Redwoods](#), virtual conference.

May 8-11, 2023 - [Western Chapter ISA Conference & Trade Show](#), Olympic Valley, CA

June 5-9, 2023 - [68th Western International Forest Disease Work Conference](#), Rohnert Park, CA

From One Extreme to Another: Is All This Precipitation a Good Thing for California Forests?

Californians are collectively sighing in relief at the disappearance of drought conditions throughout much of the state. This has come at the cost of extreme flooding and snowfall causing heavy infrastructure damage, extended power outages, and thousands of downed trees as well as home destruction, injury, and death. This swing from one climatic extreme to another naturally provokes the question whether going suddenly from extreme dryness to extreme wetness is a good thing overall for forest and soil health.

The answer, depends on where you are. In areas with certain pre-existing forest health problems - particularly where soil types facilitate waterlogging or forests are dominated by trees that require well-drained soils - this season's flooding may create new problems. One example involves the root-infecting pathogens in the genus *Phytophthora*. Many of these pathogens are non-native and have been transported to susceptible stands of trees through a variety of human activities, since they readily survive in mud and can also be transported in flowing surface or subsurface waters. Where water tables are high or impermeable layers are present in the subsoil, the extended soil saturation of this winter is likely to promote increased tree root damage by *Phytophthora* species. This may be why, when examining bishop pine growth over past decades in the areas of coastal Sonoma and Mendocino Counties where these soil types and pathogens are present, a correlation can be seen between depressed growth and large swings in climatic variables: extreme wetness promotes root infection and consumption by *Phytophthora* species, and when this is succeeded by extreme dryness, the tree is unable to take up enough water for normal growth.

Likewise, a variety of forest pathogens produce increased numbers of infectious spores during extended wet conditions, particularly when those wet conditions persist into the late spring when ambient air temperatures are increasing. Examples of this kind of pathogen are *Diplodia sapinea* and *Diplodia scrobiculata*, which cause shoot blight of various pine species, and *Phytophthora ramorum*, which causes sudden oak death of true oaks and tanoaks.

Increased flooding as snow melts could also promote increased erosion in areas where slope stability has been compromised, such as recently burned areas. Stands with accumulations of storm-downed trees may be vulnerable to increased populations of insects such as pine engravers (*Ips* species) and Douglas-fir beetles (*Dendroctonus pseudotsugae*).

Conversely, the advent of extended wet conditions will clearly be good news for some vegetation types where extended water deficits have led to bark-beetle caused mortality over entire landscapes, such as the true fir-dominated stands of the northern Sierra Nevada. Hopefully, this period of soil water recharge will enable some of the conifers in these stands to renew their chemical defenses against insect attack. Likewise, some non-native insect attackers that rely on mild winters to cause damage, such as green spruce aphid in the Sitka spruce stands along the far north coast, will hopefully be knocked down to some extent by this winter's harsh conditions. However, it must be remembered that trees stressed by the many years of drought will need a few good years of water to repair and recharge.



Figure 1: Ponderosa pine dieback caused by *Diplodia sapinea*. Photo by Chris Lee, Cal Fire



Figure 2: Tanoak decline associated with *Phytophthora cinnamomi*. Photo by Chris Lee, Cal Fire

Newsletter feedback and ideas are welcome. Please submit comments to caforestpestcouncil@gmail.com.

When buying firewood for camping or home heating this fall, remember to buy wood sourced local to where you will be using it, helping to minimize the spread of pests and diseases - **Buy It Where You Burn It**. For a list of local firewood dealers, go to firewoodscout.org.

Sincerely,

The California Forest Pest Council



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